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**The Effects of
Short-Term Repeated Work-Related Separations
on Pilots, Cabin Crew, and Their Partners**

A thesis presented in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy in Psychology
at Massey University

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Abstract

Separations from a spouse or intimate partner due to work are becoming increasingly common in industrialised societies. Previous research has focused on military and long-term work-related separations, mainly examining the reactions of the partners at home. The partners at home have been almost exclusively female and have been in heterosexual relationships. In addition to the gender bias and the focus on the partners at home, there are other limitations to the findings of previous studies. These limitations include the absence of stated hypotheses or theories and the lack of a control group. Results from previous studies on both long-term and short-term work-related separations indicate that the separations have negative effects on both the individuals' health and on their marriages or intimate relationships. The present research examined in the aviation industry the relationship between short-term work-related separations and aspects of physical and mental health. The primary aims of the present study included studying female and male travelling partners (international crew) and partners at home (partners of international crew) who were in heterosexual and same-gender relationships. In addition, both qualitative and quantitative research methods were utilised, together with a control group of national flight crew and their partners who were not considered to be separated due to their work. The present research consisted of three studies; interviews of international crew which were qualitatively examined (Part 1); and two studies (the crew study and the partner study) using a survey which collected both quantitative and qualitative data (Part 2). In the first part of the research, most international crew reported that work-related separations had some adverse effects on themselves individually and on their relationships. In particular, all crew reported that loneliness was a key factor which they attributed to the separations. From this finding of the widespread reporting of loneliness, a model of the moderating process of loneliness on the relationship between separation and physical and mental health was proposed. This theory was tested in the second part of the research using hierarchical multiple regressions. However, results from the second part of the research failed to support the proposed moderating role of loneliness for either crew or their partners. Although no interaction effect was discovered, loneliness was a significant predictor of all six physical and mental health outcome variables for crew, and three of the outcome variables for partners. In addition, loneliness was claimed to be the most difficult

problem of the work-related separations for both international crew and their partners in the qualitative section of the surveys. By comparing results from international crew and international partners with the control groups of national crew and national partners, the present study concluded that claims of the effects of repeated short-term work-related separations have been exaggerated. There were few differences between those who were separated and those who were not, in terms of aspects of physical and mental health. Those crew who were separated reported higher levels of psychological distress and higher levels of physical health symptoms than crew who were not separated. Partners who were separated were more likely to report lower levels of job satisfaction than partners who were not separated. When crew and partners were compared, international crew reported higher levels of psychological distress, physical health symptoms, and lower levels of job satisfaction than international partners. In addition, international crew reported higher levels of self-rated health. However, these differences could have been a result of the unique working conditions of flight crew, as the analyses comparing national crew with their partners also found similar differences. The findings of the present study were discussed in terms of the implications for further research, including the need to use a control group. Although few differences were found between those who were separated and those who were not, it was acknowledged that some individuals may be more adversely affected by the separations than others. For these individuals, the effects of work-related separations should not be underestimated because of potential health and safety risks. Implications for organisations and individuals for whom work-related separations are part of their employment were discussed including the need to address the issue of loneliness.

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Thesis Overview

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1.1 Chapter Overview

The first chapter introduces the present study on the effects of work-related separation on Air New Zealand pilots and cabin crew. The chapter begins with an overview of work-related separation and its effects on individuals and families (work-related separation effects are covered in detail in Chapter 3). The overview is followed by a section on the contribution the present study makes in the field of work-related separation. In addition, the reasons are given for specifically choosing the aviation industry. Finally, there is a section detailing the organisation of the thesis.

1.2 Work-Related Separation

Work-related separations are separations due to work from the home and family. Work-related separations are not a recent phenomenon. Historically, men particularly have left their families to go to battle or, in hunting societies, to hunt animals for food (Adler, 1983). In contemporary industrialised societies, work-related separations have been part of a few occupations only, for example, the military and travelling sales staff.

However, today separations are becoming more common for women and men in many different occupations such as aviation and professional sports. Couples are living apart in different cities, commuting during weekends and having to travel more often in relation to their work (Riggs, 1990). This is partly due to the ease of travel, and the emergence of multi-national companies with offices all over the world (Riggs, 1990).

Work-related separation can be grouped into two broad categories; long-term (measured in months or years) and short-term (measured in days or weeks). These two categories are described in more detail in section 2.2.2. Most of the previous studies on work-related separations have examined long-term separations with the military including army (e.g., McCubbin, Hunter, & Dahl, 1975), navy (e.g., Snyder, 1978), and air force personnel (e.g., MacIntosh, 1968). Other studies have investigated the effects of other long-term work-related separations in oil riggers (e.g., Adler, 1983), as well as short-term work-related separations in travelling business executives (e.g., Renshaw, 1976), lorry drivers (Hollowell, 1968), and flight attendants (Jupp & Mayne, 1992). Previous studies show that work-related separations, both long- and short-term, can have an effect on both partners' health, their relationship, and their children. These effects include various physical (e.g., Snyder, 1978) and mental (e.g., Beckman, Marsella, & Finney,

1979) health problems, as well as changes in the marriage or intimate relationship (e.g., Rosenfeld, Rosenstein, & Raab, 1973), and behavioural changes such as increased bedwetting in children (e.g., Hiew, 1992; Rosenfeld et al., 1973). The effects of long-term work-related separation are well documented and are discussed in more detail in Chapter 3. However, less is known about the effects of short-term work-related separations on the individual and on their relationship.

Work-related separation, as a field of study, is closely associated with two other research fields. They are separation in general, and the work-family interface. Work-related separation research borrows from the parent-child and marital separation literature including the use of theories, such as attachment theory (see section 2.3.2). For example, Jupp and Mayne (1992), in a study of short-term work-related separation tested hypotheses derived from attachment theory. The work-family interface is a part of the work-related separation field because, given the nature of work-related separation, work affects the family (see section 2.2.1 for a more detailed discussion). The family ("family" includes couples with no children) cannot help but be affected by the continual exits and reentries of one partner (Boss, 1980a). For example, the travelling partner is often unable to attend family functions such as birthdays when they are away (Renshaw, 1976). Therefore, the literature on the work-family interface is also an integral part of the work-related separation field, and is included in the thesis.

This section has provided a brief introduction to work-related separation, including its effects and the associated fields of study. The next section outlines areas in the work-related separation literature which need addressing.

1.3 The Present Study

There are a number of areas in the work-related separation literature which have not been considered or have been rarely examined. For example, most of the studies of work-related separations have examined the effects on the partners at home (e.g., Morrice, Taylor, Clark, & McCann, 1985; Pearlman, 1970). These partners at home have almost always been female (e.g., Hiew, 1992). Vormbrock (1993), in a review on work-related separation, strongly urges more studies to be undertaken on the travelling partner, as well as more studies which correct the gender bias. One area which has not

been studied at all is the study of work-related separations and their effect on same-gender relationships. To the researcher's knowledge, no study exists which examines these couples in relation to work-related separation.

Two methodological issues also need addressing in the field of work-related separation: the absence of control groups, and the choice of methodology. Very few studies have used a control group. One notable exception is the recent Australian study of 36 female flight attendants (Jupp & Mayne, 1992). In this study, Jupp and Mayne found that the increased separation distress experienced by the flight attendants was not due entirely to the separation from a spouse or intimate partner. They suggest there could be other factors besides the separation which promote increased distress. The other methodological consideration concerns the choice of research methods. Most work-related separation studies have used either qualitative (e.g., Pearlman, 1970) or quantitative (e.g., Boss, McCubbin, & Lester, 1979) methods exclusively. However, those studies which have combined methods (e.g., Jupp & Mayne, 1992) have been able to explore issues more deeply, and help to explain some contradictory findings. For example, the qualitative interview data enabled Jupp and Mayne to explain why the flight attendants studied did not score very highly on anticipatory distress (the distress experienced before leaving). The flight attendants spoke of their busyness before leaving which they claimed affected the hurried way in which they had completed the survey.

The present study aimed to contribute to the field of work-related separation by addressing these five issues. In summary, the five research issues are: the study of both the travelling partner and the partner at home; the study of both genders as the travelling partner and as the partner at home; the study of same-gender relationships; the study of work-related separation using a control group; and the study of work-related separation using both qualitative and quantitative methods.

The aviation industry was specifically chosen as it was best able to allow these research aims to be investigated. Within the aviation industry, crew include both female and male members, therefore their partners consist of females and males. There are a number of crew in same-gender relationships in the aviation industry, which met another

research aim. One additional advantage of the aviation industry is that it can also provide a control group as crew flying with the international section of the airline regularly experience work-related separations and the national crew do not. National crew provide an ideal control group as they are still subject to many of the unique working conditions associated with the aviation work environment, for example, exposure to a dry atmosphere. Without a control group, it would be difficult to separate the health effects of work-related separation from the health factors inherent in the aviation industry (see Chapter 4).

In this section the contributions the present study makes to the field of work-related separation have been outlined, together with the reasons for choosing the aviation industry as the context in which to study work-related separation. The next section provides an outline of the organisation of the thesis.

1.4 Outline of Thesis

In this section an outline of the organisation of the thesis is presented, together with an outline of each chapter. Following this introductory chapter there are three chapters which review the literature in the field of work-related separation. First, Chapter 2 discusses work-related separation, focusing in particular on the two main categories; long-term and short-term separations. It also includes an examination of the work-family interface inherent in the study of work-related separation. In addition, theories of both parent-child and marital separation as well as work-related separation are considered. The effects work-related separations have on both the travelling partner and the partner at home, particularly on both physical and mental health, are presented in Chapter 3. These effects are then examined in terms of the differences between groups, including; those who experience long-term and those who experience short-term work-related separation, the travelling partner and the partner at home, and those who experience repeated, and those who experience infrequent, separations. The final chapter which reviews the literature focuses on the aviation industry (Chapter 4). In this chapter the unique working conditions of the aviation industry are highlighted because of the effect they may have on the physical health of flight crew. These physical health factors need to be considered in the study on work-related separation and health effects. Chapter 5 follows, providing an overview of the methods used in both parts of the

research. These include the use of both qualitative and quantitative methods. The next four chapters are separated into two parts. Part 1 consists of Chapter 6 which outlines the first study. This first study is the fieldwork from which the hypotheses were derived for the second part of the research. Both the method and the qualitative findings of the first study are presented in Chapter 6, together with a discussion of the findings and a list of hypotheses derived from both the literature review and the findings. Part 2 contains three chapters, and begins with a chapter on the methods used for both the crew study and the partner study. These two latter studies form the second part of the research, each involving a quantitative and qualitative survey. Chapters 8 and 9 conclude Part 2, with each chapter presenting the results and a brief discussion of the results of the crew study and the partner study respectively. Finally, Chapter 10 provides a global discussion linking all the findings and results, together with some conclusions. Methodological strengths and limitations of the study, and possible research implications suggested by the results, are also discussed.

1.5 Chapter Summary

In this chapter work-related separation has been introduced and the contributions the present study makes in the field have been described. In addition, an overview of the organisation of the thesis has been presented. The following chapter describes work-related separation focusing on the two main categories; long-term and short-term separations, and discusses the theories used in the study of separation.

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Work-Related Separation

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2.1 Chapter Overview

This is the first of three chapters which review the literature on work-related separation. The second chapter (Chapter 3) examines the particular effects work-related separations have on individuals and their relationships, and the third chapter (Chapter 4) focuses on work-related separation and the aviation industry. This chapter takes a more global view by broadly discussing work-related separation and the work-family interface. It also reviews the theories used in the study of the family and separation as well as work-related separation.

2.2 Work-Related Separation

Not all partners in a marriage or an intimate relationship experience physical separation because of a problem within their relationship. More and more couples are spending time apart due to the demands of their work. This type of separation has been termed work-related separation to differentiate it from separations caused by interpersonal relationship difficulties. Historically, work-related separations are not new (Adler, 1983). Men particularly have left their partners and children to hunt animals for food or to go into battle. In addition, men are often the first in the family to migrate to another country in search of employment, while women and children follow later. Throughout the world, work-related separations are becoming increasingly common (Riggs, 1990). This is due in part to the ease of travel, the changing nature of world trade, and the emergence of multi-national companies with offices located in many places throughout the world (Riggs, 1990). Work-related separations affect a number of people in a variety of industries including the military, deep-sea fishing, oil exploration, sales, and aviation.

When work involves periods of separation, work is affecting the family by the physical absence of a partner or parent. For this reason, the interdependencies between work and the family must be recognised when studying work-related separation. In the next subsection, this work-family interface is discussed.

2.2.1 The Work-Family Interface

The interaction between work (that is work which is remunerated) and nonwork domains (including the family) is well documented and supported (Near, Smith, Rice, &

Hunt, 1984), and can no longer be ignored by researchers (Rothausen, 1994). The most common way in which the relationships between work and nonwork domains have been studied is in the examination of the correlations between work and nonwork satisfaction levels using three main models or hypotheses. These hypotheses are; the spillover hypothesis, the compensation hypothesis, and the segmentation hypothesis. The spillover hypothesis expects a positive correlation between job and life satisfaction, indicating that satisfaction or dissatisfaction in one domain of a person's life spills over into other areas. The compensation hypothesis predicts a negative correlation between job and life satisfaction, indicating that workers who are dissatisfied with their jobs seek out more pleasurable experiences in their nonwork lives, and vice versa. The segmentation hypothesis is characterised by the absence of a correlation between job and life satisfaction, suggesting there is no relationship between the two.

In a review of the job satisfaction-life satisfaction (JSLS) literature, Rain, Lane, and Steiner (1991) found that the spillover model, first suggested by Wilensky (1960), was overwhelmingly supported. In a meta-analysis of 34 studies examining job and life satisfaction, Tait, Padgett, and Baldwin (1989) estimated the average corrected correlation between the constructs to be .44. This positive correlation between job and life satisfaction is the same for both women and men (Glenn & Weaver, 1981). Rain et al. (1991) concluded that there was no further use in "wheel spinning" by continuing to examine the compensation or segmentation hypotheses. However, one later study (Judge & Watanabe, 1994) found that each model is possible for different individuals, and that none of the models is correct or incorrect although the spillover model appropriately characterises most individuals.

Implicit in the spillover model of job and life satisfaction is the notion of causality (Schmitt & Mellon, 1980). While some studies have concluded that life satisfaction causes job satisfaction (e.g., Schmitt & Mellon, 1980), most studies assume that the causal influence is that job satisfaction affects life satisfaction (Rain et al., 1991). However, recent studies argue that the relationship between work and nonwork, including general life satisfaction as well as family or dyadic satisfaction, is reciprocal (Crouter, 1984; Judge, Boudreau, & Bretz, 1994; Judge & Watanabe, 1993).

Life satisfaction can be divided into components including family, dyadic, leisure, and financial satisfaction, to name a few. In a review of the literature of job and family satisfaction, Rice, Near, and Hunt (1980) found a significant positive relationship between the two constructs, once again supporting the spillover hypothesis. However, the relationship family satisfaction has with job satisfaction is modest in size and may be mediated by other factors such as depression (Barling & MacEwen, 1992). The notion of causality is again debated with some researchers arguing that family life can impact on work (Kanter, 1977), and others arguing that family life has little effect on work experiences except in extreme circumstances (Evans & Bartolomé, 1986). Still other researchers suggest that the positive correlation between job and family satisfaction may be caused by an underlying personality disposition (Frone, Russell, & Cooper, 1994).

When correlations are compared among job, life, and family satisfaction, life satisfaction and family satisfaction are the most highly correlated (Glenn & Weaver, 1981; Haavio-Mannila, 1971). This strong relationship exists for both women and men (Glenn & Weaver, 1981).

In the study of work-related separation, the impact work has on the family is clear. Work-related separations make it difficult for a partner or parent to fulfil certain family roles such as attendance at family or school functions, and undertaking household duties (Renshaw, 1976). Because time is finite, the number of hours spent at work reduces the number of hours couples and families can spend together (Kingston & Nock, 1987). In addition, when the travelling partner returns home, a number of household chores need to be caught up on, and this reduces still further the number of recreational hours the family can spend together. However, a reduced number of hours spent together does not necessarily entail a reduction in the quality of time.

Another way work-related separations may affect the family is in the potential relationship changes within the family. When one member is physically absent the relationships between other members in the family can alter as interpersonal boundaries between both the adult partners, and between the adults and children can change. For example, the partner at home and the children may form a coalition which unites against

the travelling partner and this could create tension and behavioural problems (Boss, 1980b).

Thus, when work-related separations are frequent, the constant exiting and reentry of a partner or parent may create disruptions in the family system (Riggs, 1990) as roles and relationships require continual reorganisation (Boss, 1980b; Boss et al., 1979).

In this subsection work-related separation has been discussed in terms of the work-family interface. In the next subsection, work-related separation is described according to the length of the separations.

2.2.2 Types of Work-Related Separation

Work-related separations vary in terms of duration and frequency, as well as predictability and controllability. They can be divided into two main categories. They are long-term separations (measured in months or years) and short-term separations (measured in days or weeks).

Long-Term Separation

Industries in which long-term work-related separations are common include the military, oil exploration, and deep-sea fishing. In the military, the separations can be war-related including situations where soldiers are prisoners of war or missing in action, or take place in times of peace such as peace time deployments. Long-term work-related separations can be one-off for example, in times of war, or they can be repeated as in the case of oil riggers.

Most of the studies on work-related separation have examined long-term separations and more is known about military absences than any other. However, one feature of military separations which may prevent the generalisation of findings to other work-related separations is the added stressor of exposure to physical danger. In this situation the emotional reactions of the partners at home could be different from other kinds of long-term separation because of the complicating factor of physical danger to the absent partners. Other studies from groups such as oil riggers and people in the fishing industry, have also found similar emotional reactions (e.g., Adler, 1983).

Short-Term Separation

Job and work situations in which short-term work-related separations are common include commuter couples (where both partners spend at least two nights a week in separate residences yet are still married and intend to remain so, Gerstel, 1977, cited in Vormbrock, 1993), shiftworkers (those people who work irregular hours either permanently or frequently, Knauth & Rutenfranz, 1987), business executives (Renshaw, 1976), professional sportspeople (Graham, 1995), and people in the transport industry such as long-distance drivers (Hollowell, 1968), and international flight crew (Jupp & Mayne, 1992). It has been debated whether shiftworkers should be included in the short-term work-related separation field (Staines & Pleck, 1983). This is due in part to the added stressor of circadian dysrhythmia (see section 4.3.1) which may confound the study of work-related separation and its effects in shiftworkers. However, because the present study is set within the context of the aviation industry, which also involves the shifting of circadian phases in its workers (Czeisler & Allan, 1987), the literature of shiftwork has been included in the thesis.

As comparatively few studies have examined short-term work-related separations the response of adults to a shorter term, or a series of shorter term separations is unclear (Jupp & Mayne, 1992). In addition, there is disagreement over whether repeated short-term separations may be more disruptive to the relationship than one longer period of separation (Riggs, 1990), or may contribute to promoting long-term marital satisfaction (Douvan & Pleck, 1978). Many people at some time in their working lives probably experience some form of short-term work-related separation. It is those separations which occur frequently that are of interest in the field of short-term work-related separation.

In this subsection, work-related separation has been described in terms of the two main categories; long-term and short-term separations. In the next section theories which relate to the work-related separation field are described and evaluated.

2.3 Theories

In this section theories used in both the study of families and separation are discussed. First, theories relating to the family are outlined, followed by a subsection on theories relating to parent-child and marital separation. Finally, there is a subsection describing the theories which have been developed specifically from studies of work-related separation. This subsection also includes an examination of the family, and parent-child and marital separation theories in terms of their application to the study of work-related separation.

2.3.1 Theories of the Family

Nye (1988), in a review of 50 years of family research from 1937 to 1987, found that much of family research is undertaken without testing hypotheses and is purely descriptive. He found that less than twenty-five percent of the research reported in 1987 included a theoretical statement. The reason, he claims, may be due in part to the lack of useful theory available.

Two theories more commonly used in the family literature are the Double ABC-X Model of Family Adjustment and Adaptation (McCubbin & Patterson, 1982), and the spillover hypothesis which relates to the work-family interface. The spillover hypothesis, which assumes that work and family are interdependent, has been described in section 2.2.1. The Double ABC-X Model is used in the study of family stress generally (Walker, 1985). This theory was adapted from the original ABC-X model developed by Hill (1949) in his study of war separation and reunion. The Double ABC-X model has four factors which are determinants of the component "X", the severity of the crisis. They are; the hardships of the situation or the event itself (the first "A"), a "pile-up" of stressors (the second "A", a component which takes into account that families responding to a stressor encounter additional stressors both from their own development and from their efforts to cope), the resources of the family ("B"), and the family's definition of the event as threatening ("C"). The main criticism of this model is that it is "fundamentally positivistic" as it reduces family stress and reactions to individual behavioural units (Burr & Klein, 1994). Burr and Klein state that the model is incompatible with the nonpositivistic systemic ideas of the family (the family operating as a system rather than as a number of smaller individual components) which

have developed in the last few decades. For this reason, they suggest researchers discontinue using the model and try to develop theories more suited to the complex nature of families.

2.3.2 Theories Relating to Separation

One of the most popular general separation theories is Bowlby's (1969, 1973, 1980) attachment theory. Attachment theory was originally developed as a framework to explain children's emotional responses to separation from their mothers. Robertson and Bowlby (1952, cited in Vormbrock, 1993) first identified a three-stage sequence of emotional reactions in young children when they were separated from their mothers due to hospitalisation or placement in a residential nursery. Bowlby (1960) described this reaction pattern as protest, despair, and detachment. In the stage of protest, the child cries, refusing to be comforted by others, and searching behaviour occurs. During the second stage of despair, the child is withdrawn, decreases movement, and alternates between clinging and turning away from the visiting mother. The final stage is detachment, when the child is preoccupied with objects such as sweets and toys, preferring them to the visiting mother. For up to three months after permanent reunion with their mothers, Bowlby (1960) observed that the children continued to be remote, and seemed to alternate between anxious clinging behaviours and outbursts of anger. This separation reaction was seen by Bowlby (1969) as important biologically programmed behaviour, which had survival value as it limited the child's exploratory behaviour. Ainsworth, Blehar, Waters, and Wall (1978) found individual differences in children's separation reaction patterns depending on their attachment "style". The three attachment styles they identified were "avoidant", "secure", and "anxious-ambivalent" behaviour. Ainsworth et al. found that avoidant children did not want to be close to their mother when reunited and did not appear to experience much distress during the separation. Some secure children were distressed during separation, and all sought some physical closeness or interaction with their mothers on reunion. Anxious-ambivalent children were very distressed during separations and showed signs of anxiety before the mother had left. They were both angry and sought proximity on reunion.

More recently, researchers have been investigating the use of attachment theory in a variety of human relationships, including the study of adult dyadic relationships

(Ainsworth, 1991; Bartholomew, 1990; Hazan & Shaver, 1987; Parkes, 1991; Shaver & Hazan, 1987; Weiss, 1982; Weiss, 1991). Weiss (1982) has suggested that the emotional bond between spouses resembles childhood attachment as one partner wants to be with their spouse, especially in times of stress. The spouse is associated with comfort and security, and anxiety is experienced when stress or separation occurs. Hazan and Shaver (1987) argued that an adult's experience of losing an attachment relationship is similar to a child's feeling of abandonment by a caregiver. Bowlby (1980) outlined four phases of mourning the loss of a relationship which are related to the three-stage separation reaction patterns of children. They are; numbing, yearning or searching, disorganisation and despair, and finally, reorganisation. Signs of the depth of broken attachments are loneliness and grieving (Hazan & Shaver, 1987). Hazan and Shaver argued that anxious-ambivalent adults report more loneliness because the attachment needs of insecure respondents are unlikely to be fully met.

There are a number of limitations in generalising attachment theory developed from infant behaviours to adult separation (Perlman, 1987; Vormbrock, 1993). First, marital or dyadic relationships are different from parent-child relationships in terms of the partners' interpersonal equality as well as the sexual component. Another limitation is that attachment theory is associated with a psychodynamic tradition which places a heavy emphasis on the childhood antecedents of adult behaviour (Perlman, 1987). Attachment theory assumes that a sense of security gained from having a reliable and responsive caregiver is a prerequisite for normal interaction with others, that is, positive parent-child bonds promote positive peer bonds. However, it has been argued that success in one domain is independent of success in the other (Hartup, 1979), and that individuals dramatically change their social patterns over their lives (Skolnick, 1986). Applying attachment theory to marital separation, especially separation which is only temporary, suggests individuals are subject to inborn reaction tendencies. In addition, Perlman (1987) believes that using attachment theory with adult behaviour to explain loss and loneliness may divert attention from the concurrent situational factors leading to loneliness. Perlman (1987) states that "current circumstances can be powerful determinant of loneliness, at times overshadowing the portion of variance accounted for by childhood or personality factors" (p. 23).

2.3.3 Theories Relating to Work-Related Separation

There are few theories which have been developed specifically from the study of work-related separation. The theories or models which have been developed are mostly concerned with the identification of responses based on stages or cycles. These cycles include the Emotional Cycle of Deployment (ECOD; Logan, 1987) and a variety of grief cycles (Bermudes, 1973; Bey & Lange, 1974; Hill, 1949; Hunter, 1982). All the cycle or stage models apply primarily to long-term work-related separation.

In the ECOD, Logan (1987) outlines seven stages partners of deployed service personnel typically go through throughout the deployment period. Before the service personnel leaves, the partner may go through the two stages she labels "Anticipation of Loss" and "Detachment and Withdrawal". During the separations the partner may go through three stages labelled "Emotional Disorganisation", "Recovery and Stabilisation", and "Anticipation of Homecoming". Upon reunion the partner may go through a stage called "Renegotiation of the Marriage Contract". Six weeks approximately after the homecoming new routines are established and the couple feels relaxed and comfortable with each other. This final stage Logan called "Reintegration and Stabilisation". The ECOD model has been used as a framework in constructing deployment training packages (Logan, 1987) and for studies of the military family (Neil, 1991).

A number of grief cycles have been identified in the study of long-term work-related separation. They are all similar, varying only in the number and order of the stages. One five-stage grief cycle was developed in the study of 158 submariners' wives (Bermudes, 1973, 1977). The five stages in this model are; "Shock and Denial" (where for approximately two weeks before departure the wives immersed themselves in housework, withheld themselves sexually from their husbands, and refused to speak about the separation), "Release" (where wives cleared the air just before departure), "Depression and/or Loneliness" (where the wives isolated themselves from friends soon after departure), "Anger and/or Aggression" (which was marked by crying, anger outbursts, insomnia, and accident proneness), and, for some wives, "Despair" (where some wives experienced severe psychosomatic symptoms).

Apart from using cycles or stages to describe separation responses, the other most common theory in the study of work-related separation is the Double ABC-X Model (see section 2.3.1). This model was originally developed in a study on war separation (Hill, 1949) and is currently used in the study of long-term military work-related separation. Its primary focus is on the coping and adjustment of the family to the separation.

Vormbrock (1993), in the most recent review of work-related separation studies from a number of disciplines including psychology, psychiatry, sociology, and theology, noted that theory was rarely used and that the studies were not systematic. In addition to reviewing the work-related separation literature, Vormbrock applied the findings to attachment theory (see section 2.3.2). She predicted that work-related separation would evoke feelings of anxiety and depression in both partners, thus supporting attachment theory. This was found for partners at home during long-term separations (e.g., Nice, 1983), but not for short-term separations, where the reactions were milder (e.g., Gerstel & Gross, 1984). The travelling partner in both long-term and short-term work-related separations did not report feelings of anxiety or depression, but rather, feelings of guilt (e.g., Clark, McCann, Morrice, & Taylor, 1985; Renshaw, 1976). Consistent with attachment theory, Vormbrock (1993) also predicted that both partners would show a similar protest-despair-detachment pattern in response to separation as children. In her review, she found very few studies examining emotional reaction patterns in any systematic fashion and those which did were all in the area of long-term separation. Reviewing studies which had used a systematic approach, Vormbrock found that the reaction pattern of adults differed from the three-phase reaction pattern in children. The stages had different orders and some stages were combined. She also found differences in reaction responses between the travelling partner and the partner at home. For example, the partner at home displayed more anger and detachment at reunion. These differences suggested to Vormbrock an absence or reduced attachment-related feelings in the travelling partner. Vormbrock concluded that the difference was as a result of complementary behaviours being exhibited, where only one partner seeks protection from the other partner at any one time. She suggested that the partner at home is more like the child when separated from the caregiver as they are the ones who are left behind and are therefore more likely to feel abandoned, thereby activating the

attachment system. In her conclusion, Vormbrock recommended that researchers use attachment theory when they study work-related separation for both long- and short-terms.

However, there are limitations in applying attachment theory to work-related separations. One limitation is that both partners who are separated due to their work know that the situation is temporary. The temporary nature of the separation is not always known by infants separated from their parents or by partners when the separation occurs through interpersonal relationship difficulties. In addition, the separations are usually by mutual agreement and no emotional bond is broken. Again, unlike parent-child separation, the partner at home remains in a familiar environment and maintains all other support systems. Wolman (1988) suggests for the children who are separated, that it is the changing of the place of living and the resultant breaking up of personal friendships that is the most traumatic. In the parent-child separation studies, the child is separated from both parents, including the mother. However, for many work-related separations, it is the father only who leaves while the child remains in the home with their mother. For short-term work-related separations, the limitations are even greater. Unlike the one-off separations in the parent-child separation studies, the separations associated with short-term work-related separations are frequently repeated. One study which has examined repeated separations of infants and children from their parents (Field, 1991) found only the first separation was stressful. The infants and children seemed to adapt to the repeated separations.

2.3.4 Summary of Theories

Previous work-related separation studies have seldom used theories. Those theories or models which have been used are either concerned with the identification of responses based on cycles or stages, or with coping and adaptation. One theory which has recently been evaluated in the study of work-related separation is attachment theory. However, some factors associated with work-related separation, such as the choice, and the return of the partner, suggest that this theory is not altogether appropriate. The borrowing of theories and the tendency to fall back on the overgeneralisation of specific findings, such as mother-child separations, may be due to an absence of comparative studies of parent-absent families (Rosenfeld & Rosenstein, 1973). Burr (1973), in his

book *Theory Construction and the Sociology of the Family*, states that theories should not be borrowed from other research fields, but be formulated from existing findings and propositions in the relevant field. It would appear, from reviewing the theories used in the work-related separation field, that development of theories which apply to long-term and short-term work-related separations specifically is needed. Nye (1988) suggests researchers should, "if no existing theory appears to be appropriate, consider constructing their own mini-theory from which to deduce their hypotheses. Such operation will almost surely prove stimulating and productive" (p. 314).

2.4 Chapter Summary

In this chapter work-related separation has been described including the work-family interface inherent in the field of work-related separation. Two main types of work-related separation, long- and short-term separations, have been outlined. Theories for both the study of the family and the study of separation generally have been presented and discussed in terms of how they relate to work-related separation. In summary, there are few theories currently used in the study of work-related separation. One which has been recently suggested (attachment theory) is borrowed from the parent-child separation field and is not necessarily appropriate to the field of work-related separation. It would appear that new theories are needed.

While this chapter has discussed work-related separation from a global perspective, the next chapter focuses on some of the specific effects of both long-term and short-term work-related separation.

Chapter 3

The Effects of Work-Related Separation

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3.1 Chapter Overview

In this chapter the effects of work-related separations on individuals and their relationships are described. First, there is a general section which is followed by a breakdown of the effects into main constructs such as physical health. These constructs are defined, and then discussed in relation to both long- and short-term work-related separation. Next, there is a section on the effects of work-related separation on children, and a section on the effects of work-related separation according to critical time phases of the separation, in particular, the reunion. Finally, there are concluding summaries of the variations in effects according to differences in both individuals (such as age), and situations (such as the length of the separation).

3.2 The Effects of Work-Related Separation

There is widespread support for the view that both work- and nonwork-related separations, produce some effects on many people, particularly the absent partner, the partner at home, and their children (e.g., Bermudes, 1973; King & Kleemeier, 1983; Snyder, 1978). King and Kleemeier (1983) found that the physical separation of marital partners caused by relationship difficulties can cause periods of intense emotional distress for the parents and for the children. When the separation is work-related, effects in both the partners and the children have also been found. These effects include increased number of illnesses, loneliness, sexual frustration, and anger in the partner at home (e.g., Bey & Lange, 1974; McCubbin & Dahl, 1976), and behavioural difficulties in children (e.g., Dahl, McCubbin, & Lester, 1976). Not all the effects of work-related separation are negative as effects such as the increased time spent alone are viewed by some individuals as positive (e.g., Gerstel & Gross, 1984; Levy, Faulkner, & Dixon, 1984). These positive effects are discussed in more detail in section 3.4.1. Although it is widely agreed that work-related separations have some effect, what is less clear is their nature and the effects different types of separation (such as long-term or short-term separation) have on various individuals (such as the travelling partner or the partner at home) (Vormbrock, 1993).

In the following two sections, reported effects of work-related separations are divided and discussed under individual constructs, beginning with health.

3.3 Health

In studies of work-related separation, the focus has often been on the effects the separations have on physical and mental health. In particular, emotional reactions and psychological distress symptoms have been examined. The following subsections will review the findings of separation and its effects on health.

3.3.1 Physical Health

In comparison to mental health, there have been few studies examining the effect of work-related separation on physical health. The studies which have examined the relationship between physical health and work-related separation have linked physical illness to the separation (e.g., Bermudes, 1973; Hill, 1949; Snyder, 1978). This link can be in terms of an outcome of work-related separation, and as a factor in the adjustment to work-related separation. In terms of the latter, Hill (1949) found that physical illness of the partner at home during the separation resulted in poorer adjustment to long-term war separation.

In studies of long-term work-related separation, navy and submariner wives experience minor changes in weight and an increased number of headaches during their husbands' absence (Bermudes, 1973; Snyder, 1978). Bermudes concludes that these physical health complaints are normal adverse reactions to temporary separation.

Studies of shiftwork (a variety of short-term work-related separation) also suggest physical health problems are associated with work-related separations. However, these results have been inconsistent. Agreement exists over the effect shiftwork has on sleep, appetite, and bowel elimination, but there is a debate over the impact of shiftwork on general health symptoms (Mott, Mann, McLoughlin, & Warwick, 1965; Simon, 1990). This disagreement could be because the health problems which shiftworkers experience are confounded by certain aspects of the job. These aspects include circadian dysrhythmia (see section 4.3.1) and that sleeping and eating regimes are often disrupted (Simon, 1990). After reviewing the shiftwork literature, Scott and LaDou (1990) conclude that circadian rhythm desynchronisation, sleep deprivation, and the disruption of social and family life may interact to produce certain harmful effects on health. These effects on health include an increased risk of ischaemic heart disease (Knutsson,

Akerstedt, Jonsson, & Orth-Gomer, 1986). Another possible explanation for the inconsistent results in the studies examining shiftwork and physical health, could be in the lack of distinction between studies measuring objective health and studies measuring subjective health. Diener (1984) proposes that there should be distinctions between objective health (the number of physical symptoms or health problems an individual is experiencing) and subjective health (how individuals subjectively assess their health). This is because they are not measuring the same construct (Diener, 1984). When people rate their health subjectively, they use comparisons based on their past and with other individuals. Objective health, on the other hand, is not relative. Diener suggests that it is important to assess each separately as they may actually reflect different dimensions of health.

The relationship of work-related separation and physical health could be confounded by other factors, such as age, education, and employment. Research has found that males and Caucasians are more likely to have higher self-ratings of health (Near, Rice, & Hunt, 1978), as are those who are married, parents, and employed (Muller, 1986). Physical health and age, and physical health and length of employment are negatively correlated, and physical health and education are positively correlated (Near et al., 1978). These individual differences need to be considered in the study of work-related separation and physical health.

The next subsection reviews the literature on work-related separation and mental health.

3.3.2 Mental Health

There are many contradictory definitions and views about the components and processes of mental health (Warr, 1994). Warr suggests that in "Western societies" there are five components of mental health which he labels; affective well-being, competence, aspiration, autonomy, and integrated functioning. Affective well-being is usually measured on scales ranging from "feeling bad" to "feeling good". It can be studied generally (such as life satisfaction, anxiety, or depression), or in a specific context (such as job satisfaction and dyadic satisfaction). The second component Warr describes is competence which includes coping and self-efficacy. Aspiration, the third of Warr's components, involves goal seeking and attainment. The fourth component, autonomy,

includes independence and self-regulation, while the fifth component, integrated functioning, concerns the person as a whole and the relationships between other components. Warr states that these five separate components of mental health are not always positively correlated. However positive associations have been reported between various measures of mental health and physical health (Brenner, 1979).

Most of the studies on the relationship between mental health and work-related separation have concentrated on two of Warr's (1994) components, affective well-being and competence. Affective well-being has been studied using measures of anxiety and depression, as well as using measures of satisfaction levels. These satisfaction measures have included both general satisfaction (i.e., life satisfaction) and context-specific satisfaction (in particular, job satisfaction and family or dyadic satisfaction) measures. Competence has been measured as coping, and has usually been examined in the context of long-term work-related separation.

The following subsections examine mental health and work-related separation in terms of affective well-being. Affective well-being has been divided into general psychological distress and satisfaction because they are the two most common components of affective well-being which have been reported in the work-related separation literature. Coping, a component of competence, is discussed later in section 3.4.4.

Psychological Distress

Studies on long-term work-related separation strongly suggest that separation adversely affects the mental health of the partner at home. McCubbin et al. (1975) found that seventy-three percent of the 215 randomly selected wives of prisoners of war and soldiers missing in action reported experiencing depression and sleeping difficulties. This type of separation is extreme, and involves additional issues such as fear and uncertainty. However, other studies of long-term work-related separation with wives of submariners, Navy personnel, non-military sailors, and offshore oil riggers have found similar results. Isay (1968) first used the term "submariners' wives syndrome" to describe the psychological distress symptoms associated with work-related separation. Depressive symptoms such as uncontrolled weeping, sleep and appetite disturbances

were reported by 262 of the 432 submariners' wives who were psychiatric outpatients. In another study of 158 submariners' wives, Bermudes (1973) also recorded sleep and appetite disturbances, and extended periods of crying. Navy wives, whose husbands were on sea duty, scored higher on depression when their husbands were away than when their husbands were at home (Beckman et al., 1979; Nice, 1983). Feelings of resentment and anger were also common among both Navy wives (Decker, 1978) and sailors' wives (Rosenfeld et al., 1973). Depression and anxiety have also been found in the wives of men working in the deep-sea fishing and offshore oil industries (e.g., Morrice & Taylor, 1978). Taylor, Morrice, Clark, and McCann (1985) found that the 200 wives of offshore oil riggers studied had higher anxiety scores when their husbands were absent than the control group of 103 wives of onshore oil riggers. Taylor et al. (1985) found that the majority of offshore oil wives (60%) complained of appetite and sleep disturbances when their husbands were absent.

These separations all involve fairly long periods away and range from one month to two years. However, research suggests that psychological distress is increased even when the work-related separations are short. For example, wives of both travelling executives (Cohen, 1977) and long distance lorry drivers (Hollowell, 1968) show signs of depression and male business executives who travel away from their homes regularly (the travelling partners) have also reported increased psychological distress (Culbert & Renshaw, 1972; Renshaw, 1976).

The next subsection focuses on one particular aspect of psychological distress, loneliness. It has been separated because of the frequency with which it is reported in the work-related separation literature.

Loneliness and Social Isolation

Loneliness is "an inner feeling of distress related to the person's social life" (Solomon, Waysman, & Mikulincer, 1990, p. 460), and is distinct from depression, anxiety, guilt, nostalgia, and longing (Dasberg, 1982). Loneliness can be either a normal feeling brought on by a variety of incidents including social isolation, or in some cases, pathological states requiring medical intervention (Shaver & Brennan, 1991).

Loneliness is not synonymous with social isolation, solitude, or aloneness (Peplau &

Perlman, 1979). An individual can be alone but not lonely, and they can be lonely among many people (Suedfeld, 1987).

In terms of loneliness associated with work-related separation, loneliness is an often cited problem for both long- and short-term separated partners. Duvall (1945) found, in her study of 77 wives and fiancées of military servicemen, that the most frequently reported problem was loneliness. Other problems cited included isolation and depressive symptoms such as crying, severe headaches, sleep disturbances, and weight loss. Some of the women in Duvall's study said they tried to keep busy to cope with the loneliness. Many kept contact with their partners through letters to alleviate the loneliness.

Extreme loneliness was also reported to be a major problem by 215 wives of prisoners of war and soldiers missing in action (McCubbin et al., 1975). Other problems for these wives included lack of companionship, making decisions alone, and social isolation. Other studies of long-term work-related separation in offshore seamen have also found that the majority of partners at home report loneliness (e.g., Decker, 1978; Rosenfeld et al., 1973). The partners at home in some studies of war-related separations considered social involvement, particularly with others in a similar situation, to be an important coping strategy for loneliness because it distracted them (Hunter, 1980; McCubbin & Dahl, 1976).

However, being around others during work-related separations is not always helpful and can intensify psychological distress (Bey & Lange, 1974; Rosenfeld et al., 1973). In a study of 56 Israeli women whose partners were away serving in the Defence forces (Hobfoll & London, 1986), social support was related to greater psychological distress, including loneliness. Hobfoll and London suggested this could be because those with greater social support were more exposed to the sorrows of others and to the passing of war rumours. Rosenfeld et al. (1973) found that seamen's wives complained that being with other wives in a similar situation only reminded them of their way of life and actually aggravated their feelings of loneliness. They also found socialising with couples difficult when their husbands were away as this too reminded them of their situation of being temporarily single.

Even when the absences are short, partners of travelling executives (Cohen, 1977), commuters (Farris, 1978), shiftworkers (Simon, 1990), sportspeople (Graham, 1995), and long distance lorry drivers (Hollowell, 1968) report extreme loneliness. Male travelling business executives also report feelings of loneliness, but in addition, they also report more frequently, feelings of guilt (Culbert & Renshaw, 1972; Renshaw, 1976). Loneliness for commuter couples includes missing the daily trivial conversations (Gerstel & Gross, 1984) and for most couples, phone calls helped to relieve the loneliness. Relationships with friends are perceived to be helpful in alleviating loneliness by wives of corporate business executives (Cohen, 1977) and commuter couples (Drachman, Schwartz, & Schweber, 1976; Farris, 1978). However, some partners report that they are in an ambiguous social situation because they are viewed as being neither single nor married (Kohen, 1984) and this creates limited social occasions, which in turn, contributes to greater loneliness (Gerstel & Gross, 1984).

The relationship of work-related separation and loneliness could be confounded by other factors, such as the relationships between loneliness and other mental health and physical health variables. In a review of measures of loneliness, Shaver and Brennan (1991) found high positive correlations (ranging between .30 and .80) between loneliness and depression as well as positive correlations between loneliness and anxiety, life dissatisfaction, and psychological distress. Loneliness has also been shown to be negatively correlated to physical health and self-rated health (Lynch, 1976). In addition to the relationships loneliness has with other mental health constructs, loneliness can also act as a moderator. In a study of combat stress reactions, Solomon et al. (1990) found that loneliness influenced the mental status of the 284 Israeli soldiers directly and moderated the relationships between perceived social support and mental health status. These individual differences and relationships between other constructs need to be considered in the study of work-related separation and loneliness.

In the next and final subsection on work-related separation and mental health, the effects separation has on levels of general and context-specific satisfaction are examined.

Satisfaction

Satisfaction, one aspect of affective well-being, is the degree to which individuals judge the concept being assessed favourably (Judge et al., 1994). Satisfaction can be divided into general satisfaction (i.e., life satisfaction) and context specific satisfaction (e.g., job and dyadic satisfaction).

Examining satisfaction levels in the study of work-related separation would allow for a greater understanding of the work-family interface (see section 2.2.1). However, previous work-related separation studies have rarely examined satisfaction levels, except occasionally dyadic satisfaction.

The relationship between work-related separation and satisfaction could be confounded by other factors. These factors include the interrelationships between various satisfaction levels (including job satisfaction, life satisfaction, dyadic satisfaction), the relationships between satisfaction and other aspects of mental and physical health, and individual differences such as age, education, and length of employment. Those who are older and have been in their jobs longer are more likely to have higher levels of job satisfaction (Near et al., 1978). While age and length of employment are highly correlated they lead to different outcomes in job satisfaction and should therefore both be included in studies of job satisfaction (Bedeian, Ferris, & Kacmar, 1992). Those with fewer educational qualifications (Blegen, 1993) are also more likely to report higher levels of job satisfaction. Findings on gender and job satisfaction are inconsistent (Schneider, Gunnarson, & Wheeler, 1992), but when job satisfaction is divided into components (such as satisfaction with supervisors or satisfaction with colleagues), females and males differ on very few aspects (Sauter & York, 1978; Weaver, 1978). Family characteristics have little impact on job satisfaction (Hanson & Sloane, 1992). Life satisfaction has generally been found to be unrelated to age, gender, and education (Arrindell, Meeuwesen, & Huyse, 1991; Diener, 1984). Men tend to be more satisfied with their relationships than women (Rhyne, 1981) as do those with no children living at home (George & Gold, 1991). Satisfaction is related to other aspects of physical and mental health. Job satisfaction is positively correlated with physical health (Cranny, Smith, & Stone, 1992) as is life satisfaction (Arrindell et al., 1991; Near et al., 1978) and dyadic satisfaction (Marcenes & Sheiham, 1992). All three satisfaction

constructs are negatively correlated with loneliness (Shaver & Brennan, 1991). The relationships between the various types of satisfaction constructs have been discussed in section 2.2.1.

In the preceding section, work-related separation and its effect on physical and mental health has been discussed. Other effects of work-related separation are detailed in the next section.

3.4 Other Effects of Work-Related Separation

Health is not the only factor affected by work-related separation. In this section both positive and negative effects of work-related separation on individuals and their relationships are discussed.

3.4.1 Positive Effects

For some individuals, short-term work-related separations have some positive effects. Almost one-quarter (24.5%) of the 81 married flight attendants studied by Levy et al. (1984) argued that the temporary work-related separations were beneficial to their relationships. Many commuter couples also find their work-related separations to benefit their relationships and contribute towards personal development (Drachman et al., 1976; Gerstel, 1977, cited in Vormbrock, 1993; Gerstel & Gross, 1984). Some of the benefits commuters claimed include increased autonomy, enjoyment of private space, and a sense of self-confidence from learning skills that were traditionally in the domain of their spouse (Gerstel, 1977, cited in Vormbrock, 1993). Commuters also claimed that the increased time to themselves enabled them to do things they had always wanted to do, that the sexual relationship was better, and that there were fewer trivial arguments (Gerstel & Gross, 1984).

However, these reports of the advantages of work-related separation are the exception. Listed below are some other effects individuals claim work-related separations have on themselves and their families.

3.4.2 Independence

Independence can be a coping strategy (Boss et al., 1979) as well as an effect of work-related separation. For example, because of the physical separation in both long- and short-term work-related separations, the partner at home is often required to take over many of the household and parenting tasks when the travelling partner is absent (Hunter, 1982). In doing so, the partner at home becomes increasingly independent (McCubbin & Dahl, 1976; White & Keith, 1990). This independence can be not only practical but also emotional (Hollowell, 1968). Hollowell reported that over time, wives of lorry drivers became emotionally self-sufficient. Their self-sufficiency contributed to pushing their husbands to the periphery of the family. This emotional independence discouraged the lorry drivers from returning home, which in turn encouraged their wives to have extra-marital affairs to meet their needs for companionship. Gullotta and Donohue (1981) reported a similar process of marital estrangement in corporate business couples.

Independence can be seen as both a negative and a positive effect of work-related separation. Gerstel and Gross (1984) found that, while some commuters claimed independence was an advantage of the separations, many of the 121 commuters studied feared their partners' increasing independence and believed it would eventually erode their marriage. White and Keith (1990) concluded that the increased likelihood of divorce for shiftworkers was probably due to the independent lifestyles which shiftwork encourages.

3.4.3 Sexual Relationships

With Their Partner

Gerstel and Gross (1984) reported differences in individual experiences of work-related separation with regard to sex with their partners. For some, there was pressure to have sex more often to make up for the time away, while for others, the time together was like a honeymoon. Those "honeymoon couples" claimed that their sexual relationship was better than before they had started commuting.

With Someone Other Than Their Partner

The separation from an intimate partner can promote suspicion and distrust regarding the absent partner's fidelity (e.g., Jupp & Mayne, 1992; White & Keith, 1990), as well

as provide increased opportunity for other relationships (e.g., Gerstel & Gross, 1984). In a study of long-term work-related separation, Rosenfeld et al. (1973) found that both seamen and seamen's wives reported doubt about their partners' fidelity when they were separated. The wives claimed that they did not seek sexual satisfaction from other men, which was in contrast to the affairs reported by the seamen. Distrust is also apparent in studies of short-term work-related separation. Jupp and Mayne (1992) found that half of the 12 female flight attendants who were separated from their partners felt distrustful and suspicious of their partners' fidelity. One study of commuter couples (Farris, 1978) also found that most of the 10 commuter couples interviewed had doubts about their partners' fidelity. However, Gerstel and Gross (1984) conclude that commuter couples are no more likely to be unfaithful in their commuting lifestyle than they had been in their previous relationships. Those individuals who did have affairs would have had them anyway; affairs were not associated with the separations. Those partners who had affairs, from both long- and short-term work-related separation studies, described them as purely physical and claimed that they did not interfere with their marriages or intimate relationships (Gerstel & Gross, 1984; Rosenfeld et al., 1973).

3.4.4 Coping

Many different coping strategies have been identified for both long- and short-term work-related separation. New coping strategies may be developed because of the separation (e.g., independence, discussed in section 3.4.2), and these strategies may have an impact on the effect of work-related separation in others. For example, mothers' reactions and coping strategies can have an impact on children's reactions to work-related separations (see section 3.5).

In a study of wartime separation, Hill (1949) concluded that good adjustment was a balance between "closed-ranks" adjustment" (where the roles of the absent partner are redistributed permanently), and "open-ranks adjustment" (where a family is unable to make decisions without contacting the absent partner). This open-ranks adjustment has been named "psychological father presence" by Boss (1977, 1980b). Boss (1980b) and Hill (1949) found that those wives who were able to reassign the husbands' roles, coped well with the separation and this decreased separation distress. Ironically however, the husband's reintegration into the family was consequently difficult, and reunions tense.

Other coping strategies identified for long-term separations in military partners and families include; social involvement (Hunter, 1980; McCubbin & Dahl, 1976), maintaining close contact with relatives (Duvall, 1945), seeking resolution and expressing feelings, maintaining family integrity, establishing autonomy and maintaining family ties, reducing anxiety, establishing independence through self development, and dependence on religion (McCubbin, Dahl, Lester, Benson, & Robertson, 1976). Coping strategies identified in a group of navy aviators (the travelling partners) are; developing self-reliance and self-esteem, and being optimistic and accepting the military lifestyle (Patterson & McCubbin, 1984).

At present, little is known about which coping mechanisms are most adaptive in nonmilitary families (Riggs, 1990). Pearlman (1970) concluded, in his study of 485 submariners' wives, that successful adaptation to the separations requires the capacity to be alone. Culbert and Renshaw (1972) suggest that in nonmilitary families, successful coping involves maintaining an active meaningful life during the absence rather than passively waiting for the spouse to return.

For short-term work-related separation, three successful coping strategies have been identified by a factor analysis of responses obtained from 66 wives of travelling business executives (Boss et al., 1979). The strategies are; fitting in with the corporate life-style, developing self and interpersonal relationships, and establishing independence, which all reflect a certain amount of emotional detachment. Other short-term work-related separation studies have found that some partners compartmentalise their work and family lives as a way of coping and define the separations as temporary (Gerstel & Gross, 1984). Communication was not found to be a helpful coping strategy for most of the 121 commuters in Gerstel and Gross's (1984) study although many reported telephoning each other on most days. They claimed the phone calls only intensified their sense of separateness as the practical nature of the phone calls did not allow for an in-depth sharing of experiences. Not all coping strategies for short-term work-related separations have positive outcomes. Increasing independence (discussed in section 3.4.2) is both a coping strategy and a contributor to the termination of the relationship (Holloway, 1968). Negative coping strategies identified in studies of short-term work-related separation include the abuse of alcohol and tranquilisers (Cohen, 1977).

One factor affecting coping for both long- and short-term separations is a concurrent stressful event such as illness or a family celebration (Bell & Quigley, 1991; Gerstel & Gross, 1984).

In the preceding two sections, the effects of work-related separations have been examined in relation to the adult couple and their relationship. However, other people, including children, are also affected by work-related separation. In the next section the effects of work-related separations on children are described.

3.5 The Effects of Work-Related Separation on Children

There is some evidence to suggest that father absence due to divorce, death and imprisonment can have a negative effect on children (King & Kleemeier, 1983, Lowenstein, 1986). However, it is difficult to generalise findings from marital separation to work-related separation for several reasons. One reason is that the relationship between the couple has usually deteriorated before a marital separation, and another, that the separation is much longer in length and is often permanent.

Little is known about the impact of work-related separation on children (Piotrkowski & Gornick, 1987). Some studies have demonstrated that children are adversely affected by the absence of their father through war separation (Dahl et al., 1976) and long-term work-related separation (Crumley & Blumenthal, 1973). Crumley and Blumenthal (1973) found work-related separation reactions (including depression and object relations) in a group of 100 army children resembled reactions to other types of emotional loss such as divorce. Another study reported that seamen's wives found their children difficult to handle when the father was home (Rosenfeld et al., 1973).

It has been suggested that it may not be the work-related separation itself but the reactions of the mother to the separation which arouses anxiety in children (Hunter, 1986). When maternal reactions have been controlled, no separation distress, including anxiety and depression, has been found in children (Jensen, Grogan, Xenakis, & Bain, 1989; Marsella, Dubanoski, & Mohs, 1974).

When children's reactions to the absence of a parent (including work-related separations) are studied, the absences are usually long-term and infrequent. There have been few studies on repeated short-term separations and their effects on children. One exception was a study by Field (1991), who found that the 80 infants and children (one to five years old) studied adapted to repeated absences when they were left in day care places. After three periods of separation (for an average of four days) the only behaviour change during the absence was reduced peer interactions. This returned to baseline following reunion. Field concluded that the separation experience was nonexistent because the children had a constant environment with no changes in the people around them (except for the absent parent). This study highlights the adaptive coping abilities and resilience in infants and children. Piotrkowski and Gornick (1987), after reviewing the literature on maternal employment and the associated separation from children, conclude that ordinary patterns of work-related separation do not necessarily have adverse consequences for children. However, if the work patterns are nonstandard or constantly changing it becomes more difficult for children to anticipate departure and return and the potential for adverse consequences is increased. Work-related separations need not be problematic unless work absence is unpredictable or inflexible.

In this section, the effects work-related separations have on children have been described. In the following section effects are discussed across the time span of the separation.

3.6 The Effects of Work-Related Separation Over Time

When work-related separation is studied chronologically, it is usually broken into three phases, the time before the separation, the time of the separation, and the reunion (e.g., Jupp & Mayne, 1992).

The reunion period is usually cited as the most stressful time for both long-term and short-term work-related separation (e.g., Clark et al., 1985; Gerstel & Gross, 1984; McCubbin & Dahl, 1976). Ironically, as discussed in section 3.4.4, it is those who cope well with the separation who find the reunion to be particularly difficult (Bowen & Orthner, 1989; Hill, 1949; Wood & Gravion, 1988). One of the reasons the reunion is

so difficult is that both partners are competing for role functions and need to renegotiate to reestablish the marriage and family structure (McCubbin & Dahl, 1976). Trivial arguments often occur at reunion as partners renegotiate their positions (Clark et al., 1985; Drachman et al., 1976). Bey and Lange (1974) found that the Vietnam soldiers' wives felt their returning husbands disrupted their routines, and were irritated by the removal of their authority. Problems can also arise during the reunion period when both the partner at home and the children compete for the attention of the returning member (Marsella et al., 1974; Rosenfeld et al., 1973). The returning Vietnam soldiers longed for closeness but felt unneeded and unimportant in the family (Hunter, 1986). Another reason the reunion period is so difficult is because the fantasised return is very different from the reality (Bey & Lange, 1974). Gerstel and Gross (1984) reported that commuters were often puzzled why the reunions were less enjoyable than they had anticipated and found they felt "unnatural" near to each other. Gerstel and Gross described this as the "stranger effect", while Drachman et al. (1976) have called this experience the "shock of recognition". Differences between the travelling partner and the partner at home are noticeable in the reunion reactions. Rosenfeld et al. (1973) found that although most returning seamen were eager to reestablish intimacy, their wives needed more time to adjust as they experienced a mixture of feelings including anger as well as a desire for intimacy.

In addition to the reunion experience, the other more difficult period of a long-term work-related separation is the phase before one partner leaves. Nice (1983) found the onset of depressive affect in his sample of 31 separated navy wives started at least two weeks prior to the departure of the husband. Bey and Lange (1974) also found that wives whose husbands were due to leave on a one-year combat assignment in Vietnam experienced a sense of hopelessness and increasing emotional distance before their husbands left. In contrast, the findings of short-term work-related separations have failed to find a relationship between the anticipated separation from a partner and distress (Jupp & Mayne, 1992). Jupp and Mayne found that both single female flight attendants and those with partners reported similar levels of anticipatory distress. This finding suggests there may be other reasons besides separation from an intimate partner that promotes distress.

In the preceding sections, the effects of work-related separation have been described. However work-related separations do not affect everybody in the same way. In the next section differences in the separation experience based on individual differences (such as age), and situational differences (such as long- or short-term separation) are summarised.

3.7 Differences Between Groups in the Effects of Work-Related Separation

In this section, individual and situational differences are discussed in terms of how they affect the experience of work-related separation.

3.7.1 Individual Differences

There are a number of individual differences which affect the way in which individuals experience work-related separation. These differences include age, gender, ethnicity, education, employment, the length of employment, personality, and family factors such as the length of the relationship, and family composition.

Age, Employment Length, and Relationship Length

Age, employment length, and relationship length have generally been found to be correlated (e.g., Eastman, Archer, & Ball, 1990; Rosen, Teitelbaum, & Westhuis, 1994) and are therefore presented together in this section. Nice (1983) found that depressive affect during separation was significantly lower in older navy wives. Older spouses of both navy (Nice, 1983) and deployed service personnel (Rosen et al., 1994) rated themselves as coping more effectively than younger spouses.

Levy et al. (1984) found, in a study of 229 flight attendants, that length of time employed as a flight attendant was negatively correlated with job satisfaction. They suggested that over the years, flight attendants become tired, and that the glamour of travel wears off.

The findings on separation reactions and the length of time in the relationship have been varied. Duvall (1945) did not find any difference in terms of loneliness in wives of servicemen when comparing relationship length. In contrast, Taylor et al. (1985) found that wives of offshore oil riggers who had been married longer, had less psychological

symptomatology (including mood changes, appetite changes and changes in sleeping patterns). Hunter (1989) and Neil (1991) in their studies of New Zealand military families found that partners who had the most difficulty with deployment were newly married partners.

Gender

As most studies of work-related separation have examined the female partner at home, it is difficult to say whether the differences between the partners are due to gender or to factors associated with remaining at home or travelling. Vornbrock (1993) strongly recommends that more research is needed on women who travel and men who stay at home. One Polish study which did compare female and male shiftworkers found that females experience more sleep disturbances than males and had lower ratings of health (Ogińska, Pokorski, & Ogiński, 1993).

Ethnicity

Very few studies have compared separation reactions across different races. One study of 180 military adult dependents (94% were women) separated from their partner in the Persian Gulf War, found that Caucasian women had more physical and psychological symptoms of disturbance (Wexler & McGrath, 1991). Wexler and McGrath also found that Caucasian women reported greater anxiety and insomnia, higher levels of distractibility and irritability, and more skin rashes than the ethnic minority groups.

Education

Once again, few studies have examined separation reaction across levels of education. One study which has (Wexler & McGrath, 1991) found that education was positively correlated to levels of mental and physical health symptoms. That is, the higher the educational qualifications, the more anxiety, excessive eating, and colds the group reported.

Employment

It could be expected from the findings of the effects of employment on women that employment would have an adverse effect on the level of separation distress. In a review of the literature on the effects of employment on women, Haw (1982) found that

employed married women have higher levels of life satisfaction and fewer psychiatric symptoms than nonemployed married women. Pearlin (1975) also found that employed women have better mental health and well-being than nonemployed women. However, differences in mental health and well-being between partners at home who are in paid employment, and those who are full-time homemakers, are not apparent in the work-related separation literature. For example, Duvall (1945) found no differences between employed and nonemployed servicemen's wives in terms of loneliness. The few studies on the partner at home which have found some effect of employment status on separation reactions, show differences on only one or two variables, indicating that any effect is minimal. For example, Taylor et al. (1985) found the only differences between oil riggers' wives who were in paid employment and those who were not, were that the employed wives had higher levels of mood and behavioural changes when the husband was at home. During interviews, the wives said this was because they had difficulty in dealing with both the demands of the paid job and their husbands' demands.

Family Composition

Family composition (the stage of the family and the number of children) is a widely studied variable in the work-related separation literature. These studies have shown that the family composition and the development stage of the family can have an effect on the experience of work-related separation (e.g., Gerstel & Gross, 1984; Hunter, 1989). In fact, Hunter (1989) found that separations of military families did not appear to be a major problem for the civilian partner at home until the birth of their first child. Other studies have also found the presence of children to have a negative effect on the separation experiences of the partners at home, in terms of adjustment (Gerstel & Gross, 1984), psychological health (Taylor et al., 1985), and increased loneliness (Gerstel, 1977, cited in Vormbrock, 1993). In contrast to this trend, Duvall (1945) found no difference in loneliness between those wives of servicemen with children and those with no children.

The number and age of the children can also have an impact on the separation experience. Hill (1949) found that a large number of children resulted in poorer adjustment to separation. Hunter (1989) and Neil (1991) in their studies of New Zealand military families found that those with preschool age children had the most

difficulty with the separation. This finding was confirmed in a study of offshore oil riggers' wives (Taylor et al., 1985) and commuter couples (Gerstel & Gross, 1984).

Personality Variables

Vormbrock (1993), in a review of the work-related separation literature, suggests personality variables be included in the study of work-related separation. However, Jupp and Mayne (1992) found that none of the personality variables they measured (psychoticism, neuroticism, and extraversion-introversion) moderated the separation distress of the 36 female flight attendants they studied.

In this subsection individual differences which influence the effects of work-related separation have been described. The following three subsections briefly outline situational differences and the impact they have on the effects of work-related separation.

3.7.2 Summary of the Differences Between the Travelling Partner and the Partner at Home

In the area of both long- and short-term work-related separation, there are far more studies on the separation reactions of the partner at home. Much more is needed on the travelling partner before similarities and differences in separation reactions can be clearly identified. From the existing literature, two differences between the partners are noticeable. One reaction which appears to be common only in the travelling partner is guilt (Clark et al., 1985; Gross, 1980; Rosenfeld et al., 1973). Travelling partners report that not being able to participate fully in family responsibilities contributes to their feelings of guilt (e.g., Gross, 1980). Another difference between the partners is in the reunion reaction. Rosenfeld et al. (1973) and Holloway (1968) describe how the returning partner is usually keen to reestablish intimacy immediately while the partner at home takes a little more time (see section 3.6).

3.7.3 Summary of the Differences Between Long-Term and Short-Term Work-Related Separation

Although emotional reactions during long-term separations are more intense than the reactions during short-term separations, similar emotions, for example, loneliness, are reported (Vormbrock, 1993). The difference in intensity may be explained by the predictability of short-term work-related separations. Unlike some longer term work-related separations, for example, war-related military separations, the types of jobs involving short-term work-related separations, such as business executives, shiftworkers, and commuter couples, are usually those where the time of, and the duration of, the separations can be planned in advance. This planning may contribute towards the less intense emotional reactions. In support of this hypothesis, McCubbin et al. (1975) found that unplanned separations and separations of indeterminate length disturbed the normal coping patterns military families had developed through their experience of work-related separation. Taylor et al. (1985) found a similar reaction to unpredictable separations in offshore oil couples. Offshore oil wives recorded less symptomatology (mood changes, appetite changes, and changes in sleeping patterns) if the separations were at regular (i.e., predictable) rather than irregular intervals.

3.7.4 Summary of the Differences Between Repeated Separations and Infrequent Separations

Taylor et al. (1985) found that offshore oil wives with previous experience of work-related separation were less affected by the separation, in terms of mood and appetite changes and sleeping pattern difficulties, than those with no previous experience. However these "veterans" of separation differed from the "novices" in several background factors including length of marriage and family composition. "Veterans" had been married longer and were less likely to have preschool children. These two factors have also been found to be associated with less work-related separation symptomatology and were not statistically controlled for in the analysis of the relationship between prior experience and symptoms. However, other studies have found a similar trend. Bell and Quigley (1991) found that partners with previous deployment experience fared better in terms of separation distress, than those partners with no previous experience. Milgram and Bar (1993) found in their study of 40 wives of Israeli reservists on hazardous duty, that prior experience of tours of reserve duty by

husbands were associated with a lower level of stress reactions. Contrary findings include a study of Navy wives (Nice, 1983) where the wives reported that coping became more difficult with succeeding deployments. Pearlman (1970), in his study of 485 submariners' wives, found that no matter how often the experience had been repeated, each separation was a psychological crisis.

In this section differences which influence the effect of work-related separation in both the individual and the situation have been described. The following section discusses areas in the field of work-related separation which need addressing further.

3.8 Summary of the Work-Related Separation Literature

One of the difficulties in the work-related separation field is that there have been few studies using a control group. The effects of separation, both long- and short-term, may in fact be related to other factors such as the fear involved with travelling. With the limited number of studies using control groups, it is unclear how widespread separation distress is. Nice (1983) found that the 31 separated Navy wives had a higher level of depressive affect than the 20 wives of Navy personnel who remained at home. Taylor et al. (1985) found that the 200 wives of offshore oil riggers they studied had higher anxiety scores when their husbands' were absent than the control group of 103 wives of onshore oil riggers. Taylor et al. (1985) also found the majority of offshore wives (60%) complained of appetite and sleep disturbances when their husbands were absent. However, there were no significant differences between the wives in terms of self-rated health or most aspects of mental health. They concluded that the social problem of intermittent husband absence has been exaggerated. Another study which supports this compared single flight attendants with those who left a partner behind (Jupp & Mayne, 1992). There was no evidence to suggest that the reunion distress was associated with returning to a partner as single women were just as distressed as those in a relationship.

Another difficulty in the study of work-related separation is the difficulty in comparing groups because most studies have centred on the female partner at home. There has been little research on the travelling partner (Vormbrock, 1993), and there is a strong sex bias in the literature (Riggs, 1990). In addition, there have been no studies on the effects of separation on same-gender partners. In order to address these areas, the

aviation industry was chosen for the present study. The aviation industry consists of travelling partners who are both female and male, therefore partners at home will be both female and male. In addition, there are a number of people working in the aviation industry who are in same-gender relationships. The aviation industry also affords the opportunity to include a control group, by comparing couples who are not usually separated through their work (national crew and their partners) with those regularly separated (international crew and their partners).

3.9 Chapter Summary

In this chapter the effects of both long- and short-term work-related separation have been reviewed. Individual differences (such as age) and differences in the situation (such as long- or short-term work-related separations) which have an impact on the effects of work-related separations have been briefly summarised. Finally, areas which have received little attention in the study of work-related separation were outlined. The next and final chapter in this introductory section of the thesis focuses on the aviation industry, the context in which the present study was set.

Chapter 4
Work-Related Separation and the Aviation Industry

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4.1 Chapter Overview

The present study was undertaken within the New Zealand aviation industry, where work-related separations are routine for international crew. The aviation industry has some unique working conditions which can affect the health of the employees. These conditions and their effects are summarised in this chapter because of the potential confounds they may be in the study of the effects of work-related separation. The chapter begins with an introduction to work-related separation in the context of the aviation industry, including a discussion on the work-family interface. Following the introduction is a section on the effects the working conditions can have on flight crews' (both pilots and cabin crew) physical and mental health. Next, there is a section on the effect the aviation work environment, including work-related separation, has on mental health. This includes loneliness and social isolation, and levels of satisfaction. Finally, the social context in which the present study is set, and some of the particular difficulties currently within the New Zealand airline studied, are outlined.

4.2 Work-Related Separation as Part of the Aviation Work Environment

International flight crew in New Zealand have different working conditions from national flight crew. Working as part of a New Zealand international flight crew requires a great deal of a crew member's working life to be spent away from their home and family. The work-related separations inherent in this industry occur repeatedly and are short-term in nature (up to a few weeks). The separations are predictable with timetables of the tours of duty being distributed a few weeks in advance. Besides the predictable tours of duty, crew also spend up to several weeks a year on-call. Each tour of duty involves several days away from home followed by time at home calculated according to the time spent away and the actual flight hours of the tour. For some crew, this works out at a ratio of approximately 2:1; that is, half the amount of time spent away is then spent at home. National flight crew in New Zealand do not spend much time away from home. Occasionally, national crew spend one night away from home or work a late night or early morning shift. However, these working hours are not usual and do not constitute shiftwork (see section 2.2.2). Because of the infrequent separations, for the purpose of the present study, national flight crew are not considered to be separated due to their work.

Not all international crew members who are in an intimate relationship leave their partner behind when they go on a tour of duty. Couples, where both partners work as cabin crew in the same airline, can usually choose to be rostered to work together on international flights. Then it is only when they are on-call (for a period of a few weeks, at least once a year) that they are separated through their work. Cabin crew couples who choose to work together report less frustration and less marital distrust of their partner than those who do not work together. They also report less distress when returning home than both those returning to partners, and those who do not have a partner (Jupp & Mayne, 1992).

The next subsection outlines aspects of the work-family interface specific to the aviation work environment.

4.2.1 The Work-Family Interface and the Aviation Work Environment

There have been few studies of flight crew which consider their work in relation to their family. However, due to recent changes in employment laws regarding discrimination in hiring on the basis of age, gender, race, and sexual preference, an increasing number of flight crew are married and have children (Levy et al., 1984). As discussed in section 2.2.1, work and the family can affect each other. In the aviation industry, the effect of family issues on work can have serious safety consequences. For example, marital distress, and the consequent lack of attention given to work matters, may adversely affect pilots' performance (Alkov, Borowsky, & Gaynor, 1982). Alkov et al. (1982) found that crew "who contribute to US Naval aircraft mishaps are more likely to be identified as having troubles with their marriages and other interpersonal relationships" (p. 1145).

The effect of work on the family can also have serious consequences for flight crew. In a study of 17 male pilots and their marital discord, Raschmann, Patterson, and Schofield (1990) identified the biggest difficulty in their marriage as being a lack of communication. Raschmann et al. concluded this was partly due to the pilots' self-sufficient and well controlled attributes (as opposed to interdependent and emotionally expressive attributes), which may be effective in the work environment but not necessarily in an intimate relationship. The second biggest marriage difficulty was

excessive occupational demands. Both pilots and their partners complained of the work-related separations. These work-related separations contributed to the third most common difficulty, which was unfaithfulness as both pilots and their partners admitted having affairs when they were apart. To cope with the conflict between work and family, Raschmann et al. suggest that the pilots in their study compartmentalised the two in an attempt to keep them separated. However, Cooper and Sloan (1987) suggest compartmentalisation could be a reaction to counteract the feeling of missing out on family life. Effects of work-related separation on the relationship were also found by Jupp and Mayne (1992). They reported that half of the 36 female flight attendants studied were suspicious of their partners' fidelity when they were apart and this led to relationship difficulties.

While it is acknowledged that work-related separations in the aviation industry have an effect on the marriage or intimate relationship (Jupp & Mayne, 1992; Raschmann et al., 1990), there is little research on work-related separations and physical health. The absence of research may be due to the complicating health factors of the aviation work environment itself, such as jet lag and fatigue. These factors are briefly examined in the next section, as they could confound any results in the study of health and work-related separation.

4.3 Specific Working Conditions in the Aviation Work Environment Affecting Health

The physical health of crew is one of the most studied aspects of the aviation employee. This is partly because of the serious consequences of poor health, in terms of safety, as well as the number of occupational health risks. These health risks include changes in biological rhythms, jet lag, and fatigue, as well as aspects of the physical work load and the physical worksite (the cockpit or cabin). Health risks in the physical worksite include exposure to radiation and ozone, noise, high temperatures, low humidity, and ergonomic factors such as the restricted space of the worksite.

The following subsection summarises the impact of one serious occupational health risk for crew, the changing of biological rhythms. Disturbances to biological rhythms can

create particular health concerns such as jet lag and fatigue (Preston, Bateman, Short, & Wilkinson, 1973).

4.3.1 Changes to Biological Rhythms, Jet Lag, and Fatigue

Biological Rhythms

Many bodily processes such as sleep, digestion and the elimination of body wastes operate on a cycle, or rhythm. The disturbance of biological rhythms is common in shiftwork as well as for international flight crew. For international flight crew, disturbances occur because of the night work involved, the long and the irregular working hours, as well as the result of transmeridian flights (Klein, Wegmann, & Hunt, 1972). Transmeridian flights are those flights which cross time zones.

One series of biological rhythms, circadian rhythms (which include temperature rhythms and rhythms involving thyroid stimulating hormones), can be particularly disturbed (Gander, De Nguyen, Rosekind, & Connell, 1993). Circadian rhythms are 24-27 hour rhythms (approximately, depending on the individual), related to the Earth's rotation time around the sun (Hawkins, 1987). The Earth rotates creating a dark/light cycle which synchronises a number of biological rhythms. When circadian rhythms are disturbed (due to changes in an individual's exposure to light and darkness), changes occur in the peaking times of an individual's body temperature and hormonal levels (Hawkins, 1987). Sleep loss and sleep disturbances also occur (Edwards & Edwards, 1990). Other changes include increased reaction time, and a decrease in psychomotor performance (Klein et al., 1972).

Once biological rhythms are disturbed, it can take several days to bring them back into synchrony with the environment (Bassett & Spillane, 1985; Preston, 1978). Klein et al. (1972) found that, depending on the individual, body temperature could take up to 15 days after travel to return to its normal cycle. Reaction times on simple tasks returned to normal after up to nine days, while psychomotor performance took up to 12 days. All adjustments were longer for east bound flights than for westward ones, confirming other findings that the transmeridian effect is less severe when travelling from east to west (Hawkins, 1987).

The harmful effects of the disturbances to circadian rhythms are greater for older crew as they are less likely to be "evening types". Evening types are those people who sleep longer and more heavily, and who have later peaking temperature rhythms (Gander et al., 1993). Evening types seem to cope better with shiftwork and time zone changes (Gander et al., 1993).

The most serious consequence of the change in biological rhythms for the aviation industry is jet lag.

Jet Lag

One occupational stressor which air travellers, including crew, are exposed to is circadian dysrhythmia or jet lag. Jet lag is a term used to describe the lack of well-being experienced after long-distance air travel (Hawkins, 1987). Jet lag describes "the effects of sleep disturbance and time zone changes on bodily and mental functioning" (Edwards & Edwards, 1990, p. 76).

For crew, some of the effects of jet lag are increased fatigue, and decreasing efficiency throughout the tour (Bassett & Spillane, 1985). Motivation, mood, and behaviour may be affected as well as the disturbance of sleep, bowel elimination, and digestion (Bassett & Spillane, 1985). In a study of pilots, Chidester (1990) found mood became increasingly negative over the course of a tour. Anxiety, irritability and depression are also associated with jet lag (Hawkins, 1987). Jet lag may slow reaction time and decision-making time, and has been shown to alter memory and increase errors (Hawkins, 1987). For female crew, the menstrual cycle can be prolonged, and ovulation can be delayed or even suppressed (Preston, 1978).

The most common symptom of jet lag, and one of the most serious in terms of safety to the aviation industry, is fatigue.

Fatigue

In a review article on fatigue, Bodrov (1988) stated that interpretation of the results of studies into fatigue were problematic because of the concept's various definitions, and the confusion in methodology as to whether researchers measured the objective or

subjective state of fatigue. Some definitions assume fatigue is a purely objective or physiological state, while to others, fatigue reflects both physiological and psychological states. One simple and often used definition of fatigue is that it is a major effect of sleep disturbance (Edwards & Edwards, 1990).

Reported symptoms of fatigue differ when studied experimentally and this also contributes to confusion in the area. However, it is generally agreed that some manifestations of fatigue are the deterioration of mental functioning including motivation, decision-making, memory, and attention, as well as physical health symptoms such as stomach disorders, constipation and variations in the menstrual cycle (Baker, Lamb, Li, & Dodd, 1993; Edwards & Edwards, 1990). There are many other reported symptoms of fatigue including a feeling of tiredness, general weakness, headaches, a feeling of heaviness, noise in the head, reduced appetite, difficulty in falling asleep, awakening and interrupted sleep, a feeling of apathy, dizziness, nausea, and vomiting (Bodrov, 1988). Irritability and short temperedness, painful sensations of numbness in the limbs, and reduction of sexual potency have also been reported (Bodrov, 1988).

In the aviation industry, fatigue is a potential risk due to the changes in biological rhythms and the effect it has on sleep. In a study of pilots, Chidester (1990) found that while on a tour of duty, pilots experienced a decrease in the duration and the quality of sleep compared with sleeping at home. There is concern in the aviation industry about the contribution fatigue plays in accidents (Baker et al., 1993). One report calculates that twenty-one percent of all reported air accidents are fatigue-related (Graeber, 1988). Fatigue, although one of the most serious health concerns to the aviation industry, is not the only occupational health risk. Other health risks exist due to the physical work load and worksite. Health risks associated with the physical work load and worksite are detailed below.

4.3.2 The Physical Work Load and Worksite

Working within a site thousands of feet above the Earth's surface creates some unusual health risks. These include exposure to radiation and ozone, low relative humidity, high temperature conditions, and noise. Other unique conditions in the aviation work

environment affecting health include the dehumidified recirculated air in the aircraft cabin and the cabin pressure which can lead to mild hypoxia. This is a condition brought about by the deprivation of oxygen as the cabin is pressurised to approximately 10,000 feet above sea level. The health risks and their effects are briefly summarised below, followed by a subsection on the differences between females and males, and between pilots and cabin crew in terms of the degree to which health is affected.

Radiation

One occupational health risk to crew is cosmic radiation. At flight altitudes, cosmic radiation consists of particulate radiation and photons produced when energetic charged particles interact with the constituents of the Earth's atmosphere (such as nitrogen and oxygen). When they enter the Earth's atmosphere, they produce a secondary radiation which is called galactic cosmic radiation (Friedberg, Faulkner, Snyder, Darden, & O'Brien, 1989). Even on the Earth's surface, some galactic cosmic radiation particles are found. Air travellers however, especially those who are flying often, are exposed to a higher level because at higher altitudes they are not so well shielded by the thinner atmosphere.

Death from cancer is the primary health concern associated with exposure to radiation. However, research from North America states that crew constantly exposed to radiation still receive less radiation than the recommended limits, except for pregnant women (Friedberg, Duke, Snyder, Faulkner, O'Brien, Darden, & Parker, 1993; Friedberg et al., 1989). Friedberg et al. (1993) conclude that "although one cannot exclude the possibility of harm from exposure to cosmic radiation at the doses likely to be received during a career of flying, it would be impossible to establish that an abnormality or disease in a particular individual resulted from such exposure" (p. 25).

Ozone

With aircraft cruising altitudes increasing, the risk of ozone in the cabin atmosphere has increased (Hawkins, 1987). Most ozone is destroyed when it passes through the aircraft pressurisation system but each aircraft's system differs. Ozone, a toxic gas, can cause eye irritation as well as dryness of the throat and nose, which in turn may lead to coughing and chest discomfort (Hawkins, 1987).

Humidity, Temperature, and Physical Work Load

The temperature of the cabin is kept quite warm (between 70-80°F), to keep the inactive passengers comfortable. However, the warm temperature, together with the heavy physical work demanded of the cabin crew, causes dehydration and fluid loss in crew (Hawkins, 1987). The temperature of the cabin is not only warm, but also very dry. Because of the dryness, or low relative humidity, mucous membranes can dry out, increasing the risk of infection (Edwards & Edwards, 1990; Hawkins, 1987). The low relative humidity in the cabin also has an drying effect on the skin, and makes nails and hair more brittle (Preston, 1978). These three factors, the low humidity, high temperature and high physical workload of cabin crew, all contribute to fatigue (Preston, 1978).

In the cockpit, the conditions can be quite different from the cabin. The physical work load of pilots is lower than that of cabin crew, and the relative humidity is usually higher because many of the aircraft now have humidifiers in the cockpit (Hawkins, 1987).

Noise and Vibration

The high levels and constancy of noise and vibration crew experience in the aircraft contribute to fatigue and affects the ability to perform mental tasks (Hawkins, 1987). Again, there is a difference between the cockpit and the cabin in terms of the level of noise, with noise being greater in the cabin (Barnes, 1992).

The effects of the health risks outlined above differ among individuals. Some of these differences are summarised in the next subsection.

4.3.3 Individual Differences and Health Effects

Reported health symptoms differ between pilots and cabin crew as well as between females and males. Pilots and cabin crew work under very different conditions and these different conditions appear to affect health complaints (Haugli, Skogstad, & Hellesøy, 1994). Cabin crew have more stressors relating to their physical worksite and physical work load than pilots (Barnes, 1992). For example, in the worksite, the floors of aircraft are made of metal. Cabin crew are constantly walking along the aisles of the

cabin which places an additional strain on feet, particularly if wearing leather or heeled shoes (Hawkins, 1987). The work of cabin crew is more physical than pilots and is carried out in a confined space. This contributes to the large number of reported back injuries in cabin crew (Preston et al., 1973). Barnes (1992) and Haugli et al. (1994) conclude that with the differences in worksite and work load, it is not surprising that cabin crew report a higher number of adverse physical health symptoms than pilots.

Apart from the differences in worksite and work load, another reason for the differences in reported health symptoms could be due to the licensing law requirements for pilots. Pilots have stricter regulatory health controls and can lose their jobs if they are in poor health. They are therefore, both more likely to be in excellent physical health (Raschmann et al., 1990), and also less likely to report health problems (Haugli et al., 1994).

Gender differences are also apparent in the reporting of health symptoms although the effect is less than the difference between the two working groups (Haugli et al., 1994). Preston (1978) reported that female cabin crew sick days were twice that of male cabin crew and almost three times that of pilots. More than eighty percent of the sickness of female cabin crew was upper respiratory disease.

In addition to the differences between job type and gender in the reporting of physical health symptoms, another difference between groups is in the distance travelled. Those travelling longer distances report more health problems than short-haul crew (Haugli et al., 1994).

Common physical complaints for all groups, irrespective of job type, gender, or distance travelled, include dry skin, lower back pain, colds, fatigue, and sleep disturbance. Long distance crew have a higher incidence of skin problems, eye irritations, and diarrhoea. Pilots cite irritability, fatigue, sleep disturbances, and lower back pain as the worst health complaints, while cabin crew cite the worst health complaints to be skin and eye disorders, digestive disturbances, and musculoskeletal pains (Haugli et al., 1994).

In this subsection the health effects of the aviation work environment have been summarised. The following section focuses on the effects the work-related separations can have on both crew and their partners in terms of mental health.

4.4 Features of the Aviation Work Environment Affecting Mental Health

Work-related separations can affect the mental health of flight crew (Edwards & Edwards, 1990). In this section, mental health is divided into loneliness and social isolation, and levels of satisfaction (cf. section 3.3.2).

4.4.1 Loneliness and Social Isolation

There is a sense of isolation associated with being part of an international flight crew. Not only does the job require crew to spend large proportions of their working life away from family and social networks, but also away from the company's organisation. Crew have few links with their employer. The main contact they have is with a small group of other crew members they have been rostered to work with for a short period of time. Often on a flight many or all the crew will be unknown to each other. They spend a few hours working together, and sometimes socialise a little at their stopover. However, most of their time is spent alone. Being in a foreign country on a stopover can also contribute to their sense of isolation. For some, this variety of people they work with and environments they spend time in provides enjoyment; for others, distress (Edwards & Edwards, 1990).

The social isolation associated with the job of an international flight crew member can lead to loneliness and boredom. One Indian study (Barnes, 1992) measuring loneliness and boredom, as part of a general stress measure, found that the 52 flight engineers, pilots, and cabin crew scored highly on both loneliness and boredom. There were no differences between the three groups.

4.4.2 Satisfaction

Satisfaction is one component of mental health (Warr, 1994). In the aviation industry, satisfaction levels (particularly life and dyadic satisfaction) of aviation employees and their partners have received little attention. What little research there is on work-related

separation and dyadic satisfaction suggests that the amount of time spent together may increase dyadic satisfaction. Jupp and Mayne (1992) found that satisfaction with the relationship was higher for female cabin crew members who were able to work together on a tour of duty with their male cabin crew member partners.

Job satisfaction in the aviation work environment can be affected by the length of time employed and relationship status of the individual (Levy et al., 1984). Levy et al. found that the longer the time spent as a cabin crew member, the lower the job satisfaction. They concluded that this was likely to be because the "glamour" of the job wore off over a period of time. Levy et al. also found that married cabin crew have lower levels of job satisfaction than cabin crew not currently in relationships. This could be because of the work-family interface where the work-related separation affects the relationship (Jupp & Mayne, 1992; Raschmann et al., 1990), which in turn could affect job satisfaction (see section 2.2.1 for a discussion on the link between job satisfaction and dyadic satisfaction).

The present study was set in the context of the New Zealand aviation industry. Within the New Zealand industrial relations regime and within the airline studied certain industrial factors may be potential confounds in the study of work-related separation and its effects, particularly in terms of satisfaction. These factors are described in Appendix A.

4.5 Chapter Summary

Work-related separations are intrinsically part of the job for international crew at Air New Zealand and are expected when crew members join. These work-related separations, along with other factors of the aviation work environment such as the working hours and the physical worksite, have an effect on the aviation employee in terms of physical and mental health. Very little has been reported on satisfaction levels of flight crew, however, work-related separations appear to affect some aspects of dyadic satisfaction (Jupp & Mayne, 1992; Raschmann et al., 1990). The industrial tensions currently within Air New Zealand could also affect the satisfaction levels of crew.

Although neither health factors nor industrial factors specific to the aviation industry was controlled for in the present study, they have been acknowledged in this chapter as being possible confounds.

The next five chapters report on the methods and results of the present research. Chapter 5 provides a methodological overview for both parts of the study. This is followed by Chapter 6 which constitutes the first part of the study, qualitative fieldwork. Both the method and the results of Part 1 are presented in Chapter 6, along with a description of the hypotheses formed from the literature review and the fieldwork. Chapters 7, 8, and 9 form the second part of the study. Chapter 7 is a description of the methods used in both the crew study (Chapter 8) and the partner study (Chapter 9).

Chapter 5
Methodological Overview

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5.1 Chapter Overview

In this chapter a rationale for the use of both qualitative and quantitative methods is presented. The chapter begins with an introduction to the multimethod approach, which is followed by a rationale and discussion of the main purpose for the use of a variety of methods. Finally, there is a section on the multimethod approach as it is utilised in the present research.

5.2 The Multimethod Approach

The multimethod approach (a term first used by Campbell & Fiske, 1959) uses a variety of research methods, including both qualitative and quantitative, to explore problems "with the widest array of conceptual and methodological tools that we possess and they demand" (Trow, 1957, p. 35). Solutions to some research problems "require more and different kinds of information than any single method can provide" (Brewer & Hunter, 1989, p. 28). This is because of the complexity of some areas, for example, relationships and the family. Burr and Klein (1994) state that the combination of qualitative and quantitative methods best deals with the complexity in the family realm. In their study on family stress, they found that the qualitative data provided "unique insights into the subtleties and complexities of family stress that have not been adequately studied when quantitative methods are used alone" (p. 52). Brewer and Hunter (1989) argued that solutions based on using a multimethod approach "are likely to be better solutions - that is, to have a firmer empirical base and greater theoretical scope because they are grounded in different ways of observing social reality" (p. 28).

Without entering a debate over the superiority of one research method over another, a rationale for choosing both qualitative and quantitative research methods in a multimethod approach is presented in the following subsection.

5.2.1 Multimethod Research

The multimethod approach allows a planned, systematic synthesis of different research methods. This synthesis compensates for the weakness and limitations of any one method and gains from their individual strengths (Brewer & Hunter, 1989; Minichiello, Aroni, Timewell, & Alexander, 1990). The effectiveness of multimethod research "rests

on the premise that the weaknesses in each single method will be compensated by the counter-balancing strengths of another" (Jick, 1979, p. 604).

When combining qualitative and quantitative methods, the research benefits from the strength of the detail in the qualitative method, and the strength of the statistical control in the quantitative method. Multimethod research involves the collection of data in as many different ways, and from as many different sources, as possible (Riley, 1990). Multiple sets of data then address the same research problem or phenomenon from different viewpoints and at various depths, providing a "depth of perception" or "binocular vision" that one set of data could not provide alone (Stainback & Stainback, 1988). For example, one recent Australian study illustrates the advantages of using both qualitative and quantitative methods to provide a depth of perception. In a study of work-related separation, Jupp and Mayne (1992) combined a survey (quantitative method) with an audio-recorded guided interview (qualitative method). The quantitative data showed no separation distress in the 36 female flight attendants before they were due to leave for a tour of duty, which was contrary to the results from previous research. It was in the interviews that Jupp and Mayne found a possible explanation to the contradictory results. The survey was completed throughout the tour of duty. The flight attendants said that at the time before they left, when they were completing the survey, they had been too preoccupied to acknowledge distress feelings. As one flight attendant said in the interview, "what was happening to me before I left didn't hit me until at least the next day, sometimes it even hits me much later" (p. 157). Jupp and Mayne achieved a broader and clearer picture of separation distress by using more than one method.

Another reason for using multimethod research is that the different research styles and times of delivery can help sequentially, with the results from the first study informing and shaping the second in terms of design, conceptual development and instrumentation, which can expand the scope and breadth of the study (Miles & Huberman, 1994).

Multimethod research is sometimes called "triangulation". Triangulation involves the convergence of qualitative and quantitative data to a single point, achieved by the researcher through analysis. Therefore, the distinction between the two is that

multimethod research is the process of collecting data, and triangulation is the main application (Brewer & Hunter, 1989).

5.2.2 Triangulation

The purpose of triangulation is to reach a broader understanding of the overall field of inquiry by using a combination of multiple data sources, methods, and/or theoretical schemes in analyses. In the case of multiple methods, triangulation involves careful analysis of the results from each method in relation to other methods. Methodological triangulation is recommended by many researchers in psychology and other disciplines such as sociology (e.g., Miles, 1979; Patton, 1980; Sieber, 1973), as different methods produce different information and no single method adequately explains a complex situation.

Triangulation is not new. One form of triangulation often used is the comparing of data from one source with a variety of data from other sources. This triangulation is often used in articles and theses when researchers refer to other studies in literature reviews and in the discussion of results. Although recent published reports using the multimethod approach and triangulation in psychology are fairly rare, the most prevalent attempts to use methodological triangulation are in the efforts to integrate fieldwork and the survey method (e.g., Brannon, Cyphers, Hesse, Hesselbart, Keane, Schuman, Viccaro, & Wright, 1973; Jupp & Mayne, 1992; Morrice et al., 1985; Sieber, 1973). One advantage of combining fieldwork with the survey method is that by entering the natural social group and setting, fieldwork allows hypotheses to be formulated which are derived from the participants themselves, which in turn guide the analysis of survey data.

The most common way to present results in methodological triangulation is to use the qualitative data to add richness to quantitative results (Miles & Huberman, 1994). Jick (1979) describes this as using qualitative data as "the glue that cements the interpretation of multimethod results" (p. 609). This does not imply that qualitative data is more useful or important than quantitative data, but by using qualitative data in this way, comprehensive quantitative data can be enriched.

Some advantages of linking qualitative and quantitative data through methodological triangulation are; to elaborate or develop analyses, to provide richer detail, and to initiate new lines of thinking through attention to surprises or paradoxes (Miles & Huberman, 1994, p. 41). In triangulation, both convergence (agreement) and divergence (disagreement) in the data obtained from different methods is examined.

Methodological triangulation also enables researchers to be more confident of their results because of the constant validation efforts inherent in multimethod research (Jick, 1979). It can increase the reliability of findings (Patton, 1980) by decreasing possible biases which occur when using a single method (Minichiello et al., 1990).

In this section multimethod research and the practical application of triangulation have been introduced. The next section describes the use of the multimethod approach and triangulation in the present research.

5.3 The Multimethod Approach and Triangulation in the Present Research

Both qualitative and quantitative research styles have been utilised in the present research. The first part of the research involved fieldwork, and includes in-depth interviews and participant observation. The data from the interviews was thematically analysed and used, together with literature from past studies, to formulate hypotheses and a theory of work-related separation. The information gained from this part of the research was also used in the selection of individual constructs and subsequent measures, and in the design of open-ended questions, which formed the survey used in the second part of the research. The second part of the research combined the qualitative content analysis of open-ended questions with the quantitative analysis of survey data. A more detailed description of the research methodology chosen for each part of the present research, its purpose, and the type of analysis used, can be found in the method and findings or results sections in each of the two parts. Methodological triangulation was used to explore the research question of the effects of work-related separation. This was achieved by combining the findings of the fieldwork in the first part of the research with both the qualitative and quantitative results from the survey in the second part of the research to use in the discussion.

5.4 Chapter Summary

In this chapter, a rationale for the use of a multimethod approach in the present research has been presented. The following chapter forms the first part of the research, a study involving qualitative fieldwork. Chapter 6 includes the method and findings of the fieldwork, along with a brief discussion of the findings. In this chapter there is also a list of hypotheses formed from both the literature review and the findings of the fieldwork.

Part 1

Chapter 6

Fieldwork and the Development of Hypotheses

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6.1 Chapter Overview

In this chapter the first part of the research is presented. First, the purpose for the fieldwork is outlined, followed by an account of the method employed. The participants in this part of the research are then introduced. The ensuing section describes the procedure, and the site and timing of the interviews. A description of the analysis is given, followed by the presentation of the findings and a brief discussion. Finally, the contribution the findings in this part of the research make towards the design of the second part of the research are described. These contributions include the design of the questionnaire, the formulation of a theory of work-related separation, and the formulation of a set of hypotheses.

6.2 Purpose

One of the primary reasons why qualitative fieldwork (see section 6.3.2 for a description of qualitative fieldwork) was chosen as part of the overall design of the research was to allow the researcher to become more familiar with the area of work-related separation in the aviation industry. It was proposed that this familiarity would then help in the construction of a more relevant survey to be used in the second part of the research. Qualitative fieldwork allowed the participants to have an influence on the direction of the research, rather than relying purely on the researcher's construction of work-related separation.

The following section outlines the method chosen for the first study.

6.3 Method

6.3.1 Qualitative Research

There are many different strands of "qualitative" research including content analysis, discourse analysis, fieldwork, and in-depth interviews, to name but a few. Qualitative research, often characterised as naturalistic, has an emphasis on discovery and understanding phenomena in their naturally occurring state, as opposed to the primary focus of quantitative research, which is the verification of hypotheses. "The naturalistic and inductive nature of the inquiry makes it both impossible and inappropriate to specify

operational variables, state testable hypotheses, and finalise either instrumentation or sampling schemes" (Patton, 1980, p. 61).

Qualitative research is characterised by an inductive approach, where the data is considered the foundation of the research. One begins with an area of study, and what is relevant to the area is allowed to emerge from within the data (Strauss & Corbin, 1990). This is achieved through a careful analysis of what the participants themselves say or do, without a predetermined set of measures.

6.3.2 Method Used in the Present Study

A qualitative method was chosen because by studying people as near as possible to their natural settings "you have a good chance of producing ideas that are close to reality" (Riley, 1990). By qualitatively examining a group, the researcher is provided with valuable information about the frames of reference of the participants.

The particular qualitative method chosen was fieldwork. "Qualitative fieldwork includes any source of personal familiarity with a setting or group to be surveyed" (Sieber, 1973, p. 1342). This includes in-depth interviews and participant observation, the two data gathering techniques used in this part of the present study. Fieldwork facilitates a more "legitimate survey" by enabling the researcher to ask more relevant and appropriate questions (Keats, 1993; Sutherland & Davidson, 1993). "The more knowledgeable the questionnaire designer about his [sic] ultimate population, the more sophisticated the instrument and the smoother its administration" (Sieber, 1973, p. 1344). Minichiello et al. (1990) suggest that a Type 3 error (asking the wrong question) is avoided when the researcher is familiar with the research population. By incorporating fieldwork in the research, the researcher is able to build rapport with the people in the area, and to learn and then use the language the population use to describe the issues concerning them (Miles & Huberman, 1994).

The findings from fieldwork allow the formulation of hypotheses which then guide the design and analysis of survey data (Sieber, 1973). They can also assist in the analysis and interpretation of survey data by illustrating or clarifying issues which are puzzling. The findings can be used to make inferences from some specific observations to a more

general rule, and then used in constructing propositions of theories from data (Minichiello et al., 1990).

Because of the private nature of some issues involved in the present study (in particular, areas concerning intimate relationships and the family), it seemed important to collect data in a way that allowed people to be at ease, willing to reflect, and willing to share their experiences with the researcher. Individual in-depth interviews were used as part of the fieldwork method. "The fundamental principle of qualitative interviewing is to provide a framework within which respondents can express their own understandings in their own terms" (Patton, 1980, p. 205). The participant observation approach, which involves studying people by participating in social interaction with them (including activities and talking) was also used as a means of gathering data (Minichiello et al., 1990). Although both these techniques involve talking and listening with participants, they are different in terms of the scope and depth of responses they generate.

Ethical approval for the research was given by the Massey University Human Ethics Committee and was conducted within the guidelines of the New Zealand Psychological Society.

The following section describes the participants in the present study.

6.4 Participants

Two groups of participants took part in the present study. The main group, who were formally interviewed, consisted of 13 pilots and cabin crew travelling together on a tour of duty. The other group included more than 40 pilots and cabin crew who made comments in informal conversations throughout the tour of duty. This second group did not wish to be formally interviewed, but asked to tell of their experiences of work-related separation. They consented to notes being taken during the conversations. In reporting the findings, quotes from only the interviewed group are included for reasons of accuracy. Clear distinctions are made in the findings between the two groups.

6.4.1 Interviews

Of the 18 crew working together on the tour of duty that the researcher accompanied, 13 were willing to be interviewed (10 cabin crew and 3 pilots). Their personal details and family situations were diverse, as described below. Crew are not described individually for reasons of anonymity and to protect them from being identified.

Pilots

The three pilots were all European New Zealanders aged between 35 and 52 years. They were all married (for all, this was their first marriage) and had been for 5, 15, and 28 years. One had two children, both of whom had left home. Two of their partners had full-time paid employment and the third was a full-time homemaker. The pilots' length of employment with Air New Zealand ranged from 2 to 28 years.

Cabin Crew

There were four female (two married, two not currently in a relationship) and six male (three married, three not currently in a relationship) cabin crew. All the cabin crew were heterosexual except for two of the single males.

The two single females were 35 and 36 years old. One was a New Zealand Maori and the other a European New Zealander. Neither had children. They had been cabin crew for seven and eight years. Neither of the two married females had children. They had been with their partners for 5 and 16 years, and one had been previously married. One was a Samoan New Zealander and the other a European New Zealander. They were 29 and 31 years old. They had been cabin crew for five and seven years. Both their partners had full-time paid employment, one as a cabin crew member for another airline.

Of the six male cabin crew, three were married, and three were single. The three single males were 28, 40, and 43 years old, and had been flying for five, six, and nine years. Two were New Zealand Maori and one was a European New Zealander. One had been married twice before and had children. The three married males were 35, 46, and 49 years old. They had been with their partners for 3, 8, and 16 years. One had children. They had been cabin crew for 11, 19, and 28 years. One of their partners was a full-

time homemaker, and two had full-time paid employment, one as an international cabin crew member in the same airline but they chose not to fly together.

6.4.2 Informal Conversations

More than 40 additional crew members working on other tours of duty took part in the present study while the researcher was on stopovers. These participants, both pilots and cabin crew, were willing to tell of their experiences of work-related separation and asked to take part in the study. Most of this second group were cabin crew, and all were employed with Air New Zealand.

The next section outlines the procedure of the present study, including the site and timing of the fieldwork, and the role of the researcher and possible researcher effects.

6.5 Procedure

Air New Zealand management arranged for the researcher to accompany a crew on a 10 day tour of duty, where for seven of these days the crew remained constant. Of the 18 crew (both pilots and cabin crew) working together on the one tour of duty, 13 were willing to take part in a taped interview. Each of the 13 participants talked about their experiences of work-related separations in an individual session which was tape recorded and later transcribed. The participants were given an introductory letter (Appendix B) and information sheet (Appendix C), and all signed a consent form (Appendix D).

The interviews were minimally structured, using an "aide memoir" or interview guide (Stainback & Stainback, 1988). The interview guide¹ (Appendix E) contained a list of general topics in the field of work-related separation (e.g., health) which were used as prompts. The topics were prepared from a literature review completed before the tour of duty. The interview guide did not contain set questions, so was therefore not standardised. An interview guide was used because the researcher was aware that

¹*While the formulation of preconceived ideas or hypotheses is to be avoided in qualitative research, some pre-fieldwork is important (Stainback & Stainback, 1988). Only general topics were used as prompts to minimise potential bias.*

international travel may contribute towards tiredness, affecting the quality of her questioning. Having an interview guide provided a checklist to ensure all topics were covered. The interview guide had other advantages, including the possibility for participants to see what types of things were to be asked which avoided suspicion. It also contributed towards informed consent. The interview guide did not control the interview format. Instead, recursive questioning was used throughout the interviews to follow up on the issues participants raised (Minichiello et al., 1990). A hesitant style was used by the researcher to gain more searching replies (Paget, 1983). Stainback and Stainback (1988) suggest that it is worthwhile for the researcher to appear unfamiliar with the issues of the group. It is one of the advantages of the researcher being an "outsider", that the researcher is accepted as a novice, or learner rather than being expected to be an expert or experienced participant (Stainback & Stainback, 1988). Issues are then explained more fully and in more detail.

Traditionally, researchers are not supposed to disclose their own opinions in an interview, or to answer questions, or be too friendly (Oakley, 1981). Oakley says this is limited and mechanical. Participants, she says, tend to be more forthcoming the less detached the interviewer is. Oakley states that it is important to become involved in a nonhierarchical way, and to be open about the specific information required. She also suggests interviewers be willing to share of themselves in the same way the participants are expected to. "Personal involvement is more than dangerous bias - it is the condition under which people come to know each other and to admit others into their lives" (Oakley, 1981, p. 58). In the 13 interviews of the present study, the researcher did not remain detached, but became involved in the interview, answering any personal questions the participants asked.

Each interview began with a list of general questions concerning biographic and personal details about the crew member themselves and about their partner or family. Part of this section was played back to each participant at the beginning of the interview in order that they feel more comfortable with the recording process (Keats, 1993). Crew were told of their rights as participants, including confidentiality issues and informed consent. They each signed a consent form and were advised they were free to

turn the recorder off at any point. They were also advised they could avoid any topics they did not wish to discuss, and could introduce any material they considered relevant.

Notes were taken continuously throughout the tour of duty to capture comments made by crew during informal conversations. A diary, recording the thoughts and observations of the researcher, was kept during the tour.

6.5.1 Site and Time of the Interviews

The interviews took place in the familiar work setting of the participants to create a more relaxed atmosphere (Keats, 1993; Stainback & Stainback, 1988). This work setting included the aircraft and the stopover hotels. Participants were free to choose the place they felt most comfortable.

The timing of the research (April) was chosen to avoid the busiest travelling periods (December to February) so that crew would be more relaxed about spending time in an interview.

6.5.2 Role and Effects of the Researcher

In the present study, the main role of the researcher was one of a participant observer whereby the researcher watched and observed the activities and behaviours of the crew, as well as taking part in some of the activities and conversations during the stopovers. The researcher was also the interviewer.

Both the crew and Air New Zealand management were initially wary of the research. They both feared the other would use any damaging or contentious results against them in industrial negotiations. Talking with the four employee representative groups (see Appendix A) and with Air New Zealand management before the tour of duty helped allay some of the suspicions. On the tour of duty, crew were eager to speak about their experiences once they were satisfied results would not be used against them by the researcher. It is important to consider the effects the researcher may have on the research (as well as the effects of the research on the researcher) as "local informants can implicitly or explicitly boycott the researcher, who is seen variously as a spy, a voyeur or a pest" (Miles & Huberman, 1994, p. 265). To avoid participants viewing the

researcher as a "spy", the researcher spent a great deal of time with the participants before the interviews, building rapport and establishing relationships.

It was noted that responses may have been different from males and females, as they were responding to a female interviewer (Keats, 1993; Oakley, 1981; Roberts, 1981). However, no interviewer effect was noticed as both females and males seemed equally comfortable talking with the interviewer.

In this section the procedure of the present study has been described. The following section details the method used to analyse the interview data.

6.6 Data Analysis

Data collection and analysis of data are parallel tasks (Miles & Huberman, 1994; Stainback & Stainback, 1988). Data was continually "analysed" by the researcher throughout the tour of duty, enabling a progressive focusing of ideas and issues which were important to the participants.

Once the formal data collection stage of the research had ended, the taped interviews were transcribed with help from an associate of the researcher. Only sections of the interviews relating directly to the study were transcribed (Riley, 1990; Strauss & Corbin, 1990), as much of the interview conversations contained irrelevant material concerning the establishing of rapport or information about the researcher. For ethical reasons, the associate signed a form protecting participants' confidentiality. Also for ethical reasons, all tapes were destroyed at the end of the research.

Content analysis (Mostyn, 1985) was specifically chosen as the method of analysis in this part of the study, as opposed to the more language oriented approaches such as discourse analysis. This was because the researcher was not interested, in this instance, in the process of communication, but in themes relating to work-related separations. Content analysis involved examining the data through the detection of recurring patterns and specific themes (Mostyn, 1985). "The overall purpose of the content analysis approach is to identify specific characteristics of communication systematically and

objectively in order to convert the raw material into scientific data" (Mostyn, 1985, p. 117).

Once the interviews were transcribed, the researcher read and re-read the texts, cutting up material and physically sorting through the transcripts (Patton, 1980; Riley, 1990; Stainback & Stainback, 1988). As an understanding of the material developed, themes and common experiences began to emerge which were labelled into several categories and two dominant themes, and then compared across participants. Many of the experiences were unique but there were a number of commonalities in the way in which participants experienced and coped with the work-related separations.

Representativeness was taken into consideration (Miles & Huberman, 1994). Once common themes and experiences had been identified, any contradictory comments and negative instances were sought (Riley, 1990) to protect the study from any bias and to make conceptual coherence (Miles & Huberman, 1994).

In the following section, the data is presented using the language of the participants as this gives participants some power and ownership of their account of work-related separation. Quotations have been included in the presentation of the findings as these are an integral part of the analysis.

6.7 Findings

The data is presented in three subsections. First, an overall response to work-related separations is described, followed by data grouped in eight categories, reflecting the areas of concern raised in the interviews and in the informal conversations. These areas of concern are; the time before a tour of duty, concerns while away, reunion, the sexual relationship, loneliness, children, health, and coping. Finally two themes which emerged, independence and choice, are introduced.

6.7.1 An Overall Response

All crew interviewed reported that the separations had *some* effect on their relationship. For a few, the separations were a positive experience enabling a number of "honeymoon" reunions. For others, the effect was negative.

Many of those for whom the separation was positive stated that their marriage would not have lasted if they and their partner had been constantly together. As one male married pilot revealed:

We don't fight as much we ah enjoy the time together a lot more, we ah I think you appreciate each other more when you're at home together....we do it [sex] a lot more now than we did when we you know when I wasn't going away....in some ways it's better because of the anticipation and the break I spouse.

A female married cabin crew member echoed his response:

...starting that relationship again which is really good....it's like another honeymoon...the flying yeah it sort of helps our relationship.

However, these comments were the exceptions. Most crew found the separations to have a negative effect on their relationship. A female married cabin crew member described her negative experience of separation:

We miss each other terribly, it has a horrible effect on our relationship...when you get home after being nice to everyone for so long and trying to be nice, sometimes you can take it out on the ones you really care for....sometimes I'm really quite horrible with him [the partner] when I get home just on my first day and um it's not really very fair and I know it's because you've locked away all those emotions for so long suddenly they just come out yeah....he would like to make love a lot more but sometimes it's really a really horrible thing to say but I sometimes I don't have the energy...because I'm tired because of the flying....you're not as nice when you're tired....if you're tired sometimes you can fly off the handle.

Opinion was divided over the effects work-related separations had over time. Half the crew interviewed said the effects had got worse over time. One of the female married cabin crew, who was thinking of starting a family, reported that the separations had been getting more difficult. One pilot was more and more concerned about the effects of loneliness on his wife, as both their children had left home. The other half of the interviewed crew explained that things got easier as they settled into a "pattern of irregularity".

In terms of overall reaction to work-related separations, there appeared to be a difference between cabin crew and pilots. Pilots spoke more of their work and family lives as being quite separate. As one said: "work's work; home's home".

For some, the most difficult thing about leaving their homes was the need to ask their partner to post letters and pay bills. Crew said they felt they were "using and abusing" their partner, treating them like a secretary, but they said they didn't have enough time at home to take care of all the household chores themselves.

It was not just the relationships with their partners that crew reported as suffering because of the constant comings and goings associated with their lifestyle. One thing many of the crew regretted was their inability to join clubs or teams, as their absences made them unreliable.

One female single cabin crew member reported that even simple things in her everyday life were difficult because of the disrupted lifestyle.

I dunno I just find it quite difficult to get into any routine I mean even down to taking a vitamins I I forget um I dunno....there's no routine absolutely no routine in my life.

With regard to relationships, it was not just the crew currently with partners who felt the effect of work-related separations. Time spent away from home also had an effect on single crew. Most of the single crew interviewed wanted a partner but said they couldn't find anyone because of the separations - both because future partners couldn't accept the lifestyle, and because the crew didn't have enough energy left on their days off for socialising. Some of them had decided not to bother with a relationship because of the effects they saw in other crew. The two female single cabin crew described their predicament:

I almost feel peopled out I don't I really don't enjoy socialising I like time on my own....I had noticed that um I'd become somewhat of a social recluse...but my days off at home I (sigh) enjoy nothing better than um getting out in the garden so again away from people....I also wonder whether I want to, I don't like the idea of

um having to leave somebody behind all the time ah I really, I mean I'd want to be with that person.

And:

I want a life and I'll never never have it if I carry on with this job but that's my choice....I think that's maybe why I don't have a partner because I don't want to feel that guilt maybe they feel...you probably feel quite a foreigner...I don't think separation is good for anyone.

In this subsection, an overall response to work-related separations has been described. The next subsection groups responses into eight major areas of concern raised in the interviews and informal conversations.

6.7.2 Responses to Constructs

In this subsection, some major areas of concern raised in the interviews and informal conversations are presented in eight categories. They are; the time before a tour of duty, concerns while away, reunion, the sexual relationship, loneliness, children, health, and coping. These concerns were raised in response to prompts the interviewer introduced based on literature (see section 6.5), as well as concerns which arose from the participants, unprompted.

Leaving

Crew said they tried not to argue with their partner or family before they left on a tour of duty, even if they "knew" they were right. One female married cabin crew member explained why:

I think in my mind I want to sort of leave on a good note because that there's always that thing in the back of my mind if anything happened.

Crew said they were constantly aware of the next imminent departure and planned the few days before they left accordingly. Some said they did nothing strenuous, while others said they made an effort to spend time with their partner, children, or parents.

Concerns While Away

Two of the male married crew (one pilot, one cabin crew) interviewed spoke of their fears for their partners, left alone at home. They said they were scared their partner would be raped or molested and this troubled them while they were away.

Many crew said they were anxious people close to them would die while they were away. The two female single cabin crew were concerned for their parents. As one explained:

...one of my biggest fears is losing um my parents while I'm away....I find myself ensuring that I tell them that I love them you know before I go away um I'll often yeah I often think that this could be the last time that I see them.

Reunion - Adjusting Back Home

The "home-coming" was difficult for many. Some said this was because they were extremely tired, and others said this was because they were "peopled out" and didn't feel like talking. Almost all the married crew interviewed said they didn't like hearing about all the things that had gone wrong while they were away the minute they walked through the door.

One of the main difficulties half of the interviewed crew reported was the coming home to a less-than-clean house. They said they had become used to tidy hotel rooms. One female married cabin crew member said "it's the worst thing in the world to come home to a messy house". She admitted she would clean the house as soon as she returned, even though she had cleaned it thoroughly before she left. Another female married cabin crew member felt similarly and said:

He [her partner] does try though I mean I always say oh yes you've done oh that's lovely dear you've done that for me thank you very much you know....yeah and then he pops out, he goes out and then I huh get stuck into the housework.

Many crew talked of their tiredness and "grumpy" moods which made settling into home life difficult. One male married pilot said it took him three days to recover from tiredness.

The Sexual Relationship

With Their Partner

For some crew, their sexual relationship improved because of the absences. Crew said they were more "keen" after a time away, although two male married crew (one pilot and one cabin crew member) bemoaned the fact that their partners were more "horny" on the phone when they were miles away, than when they were together.

However, most of the crew claimed their sexual relationship was "zilch" or "pretty poor" because they were too tired, had no energy, and because of performance anxiety.

One male single cabin crew member claimed that, when he had a partner, his guilt for the time spent away meant he felt he had to make up for the lack of quantity in his sex life with a particularly good performance.

With Someone Other Than Their Partner

Many crew said there were increased opportunities for affairs and "bonking" (the term they used to describe casual sex) because of the lifestyle. Other crew members, passengers, and people they "just met" were all potential partners. The availability of a private hotel room increased the temptation, as did the amount of free time available during stopovers. For some, bonking just filled in the time and avoided feelings of loneliness and boredom. All crew who claimed they had sexual relationships with people other than their partner emphasised the distinction between a relationship and a bonk. They said they preferred bonking because they didn't have the energy to sustain a more intimate relationship. Different crew members, both those interviewed and those who took part in informal conversations, had various ways of justifying other relationships. As one said "home's home; work's work", thus completely separating their two lives.

Although one male married pilot claimed his wife was constantly worried that he would have an affair, not many of the crew were concerned about their partners' fidelity. However, many described how their earlier relationships had ended because their partner at home had had an affair.

Loneliness

Almost all the crew interviewed, and all the crew who took part in informal conversations, spoke of the loneliness associated with their lifestyle. They said loneliness was particularly noticeable if the crew they were travelling with were not very social, that is, if there was no-one to "buddy up with". They said non-English speaking countries were the most lonely places, and claimed tiredness and insomnia were factors contributing to loneliness. Some found contact with family and friends back home helpful to feel less lonely, while others said a phone call only made them realise how far away they were. Many thought loneliness was probably a greater problem for their partner who was at home, especially if the partner was living alone.

Children

Two single mothers who took part in the informal conversations said they noticed a difference in their children's behaviour and attitude while they were away including an increase in bedwetting and tantrums. One father interviewed said his only son was extremely bossy and took over the "father-role" even after he had returned home. The father said he had now learned not to say "look after your mother while I'm away". He noticed other behaviours in his children which he attributed to the work-related separations. For example, he said four of his five children used to ignore him for a day after he returned when they were younger. He also reported that his wife found it difficult to deal with one of their daughters as she "pined after him" when he was absent.

The one other parent interviewed said he had noticed no problems with his children and said this was because it was the only lifestyle they had known.

Health

It is difficult to isolate any particular health problems with such a small sample. The one complaint all crew interviewed, and all crew who took part in informal conversations mentioned, was extreme tiredness which they claimed affected many of their life activities.

Two other common health complaints that emerged in the interviews and informal conversations concerned the female cabin crew. The first, and most often mentioned complaint, concerned hair loss. About three quarters of the females reported clumps of hair falling out. As one female single cabin crew member interviewed revealed:

...often it's sleep deprivation that would um alter my moods....we're talking about stressed out look at this, I've lost a lot of hair. Hopefully it'll come back, quite a nice patch....I only just discovered it about eight weeks ago, it will come back but um since I've mentioned it to other girls that fly all of them are saying oh my hair comes out in clumps too. Amazing yeah.

The other common complaint concerning female cabin crew was oral health, where ulcers and teeth loosening in the gums were reported.

Coping

One of the areas crew were asked to comment on was the way in which they and their partner or family coped with the work-related separations. The responses were varied, although some common themes appeared, including fitting in with the family and listening to the news of the partner at home first. One male married cabin crew member said:

One of the main things we try to make sure of when I come home I don't disrupt the family, I fit in with them, they don't fit in with me which is important because again they must have the stable basis for their ah life.

A female married cabin crew member advised:

When you get home from a trip be aware of their feelings and find out what they've been doing, don't harp on about all your flights, you did this, you did that....you've gotta be aware of their feelings and you've gotta find out what they did.

Contact with partners and family, and giving gifts, were two other ways crew described as coping strategies. Most crew brought gifts back for their partner or family, although they gave different reasons for doing so. Some said they bought gifts for practical reasons, some said it was a sign of love, and some said it was to ease their guilt. The two male married crew with children (one pilot and one cabin crew) no longer brought

gifts home as they said the gifts were not good for their relationship with either their partner or family. The cabin crew member explained:

...our youngest daughter before she greeted me asked me what I'd brought her home....the real joy of seeing me...was not for me but for what I ah bought home and from that day I never bought them anything home from a trip.

Some form of contact was used by all interviewed crew with partners as a way to maintain their relationship. Either notes were left in clothing, under pillows, or around the house before they left, or crew stayed in contact by telephone or fax while on a tour of duty. One female married cabin crew member and her partner contacted each other most days by fax. Most of the crew rang their partner at least once during the trip. An exception to this was that two of the pilots who had no contact with their partners while away. All those who did contact their partners found contact was helpful, most of the time.

In this subsection, data has been presented in eight categories of areas of concern. The next subsection introduces two themes which emerged from the data, in both the taped interviews and the informal conversations.

6.7.3 Themes Emerging From the Data

In addition to the data already presented, two themes emerged throughout the taped interviews and the informal conversations. They were independence and choice. Crew mentioned independence and choice in a variety of ways when discussing the constructs prompted by the interviewer and when talking of work-related separations generally.

Independence

All the female cabin crew and half the male cabin crew interviewed spoke of the independence the job afforded them in terms of independence within their lives, including financial independence, and independence within their relationships.

Independence was referred to in a number of ways. As one male single cabin crew member said:

Flying makes you independent and it makes you um makes you financially independent, it makes you emotional independent you know especially for women....lonely but emotionally independent.

For some, independence helped strengthen their relationship. A one female married cabin crew member explained:

Since I've been in this job, it's made me grow up a lot, it's made me more independent of him which is good and he I think he he's pleased about that 'cos I relied on him so much um that for both of us it's a good thing.

For one female married cabin crew member, independence gave her the strength to leave a previous marriage.

When I went flying with Air New Zealand um made me realise that there's other things out there and it in a sense I got a bit stronger I sponse so in a way it also meant an end to our relationship....I didn't really gather the strength to break it off until I started flying I sponse and got that independence.

Choice

Another theme which emerged was one of choice. While many of the crew complained about the conditions of their work and the way in which separations affected their relationships, they also emphasised that it was their choice they stayed. Most crew claimed, after talking through the issues of work-related separation in the interviews or informal conversations, that the advantages of money and travel outweighed any negative effects. As one female single cabin crew member said:

I don't think it does me any good, I want a life and I'll never never have it if I carry on with this job but that's my choice.

The next section briefly discusses these findings and compares them to findings from previous research.

6.8 Discussion

In this section a summary of the findings is presented together with a discussion of the degree to which the findings compare with previous research. A more detailed discussion of the limitations of both parts of the research, together with recommendations for future research is provided in Chapter 10.

All the crew who participated in the present study said work-related separations had some effect on themselves and on their relationships. These effects were both positive and negative. Findings of previous research have also identified both positive (e.g., Nice, 1983; Rosenfeld et al., 1973) and negative (e.g., Levy et al., 1984) effects of work-related separations on both the individuals and their relationships. These effects include adverse physical health problems (e.g., Snyder, 1978) and positive aspects of increasing independence (Gerstel & Gross, 1984). In terms of intimate relationships, single crew also described negative effects claiming that there were decreased opportunities for them to form meaningful relationships.

As with previous research (e.g., McCubbin et al., 1975; Simon, 1990) loneliness was reported by most crew. Crew claimed loneliness was exacerbated because of their tiredness and the foreign countries they spent time in, as well as the lack of friendships they had with other crew members. For the present sample, loneliness appeared to be associated with boredom. Crew reported feeling lonely because they had nothing to do at some stopovers, particularly if they were awake during the night. Loneliness and boredom were two factors reported in a study of Indian flight crew (Barnes, 1992). For many crew in the present study, one strategy for coping with the loneliness was contact with their families at home. However, like the commuters in a study by Gerstel and Gross (1984) some crew found contact made them feel even more lonely because they realised how far away from home they were. Many of the crew thought loneliness would be worse for the partners at home.

One negative effect which was often mentioned was the limited amount of time available to spend with their partners and families. Some crew complained that because of the limited time at home, some of their household chores had to be handed over to their partners to complete in their absence. This finding was similar to previous studies

where travelling partners have reported difficulties in fulfilling household duties (e.g., Renshaw, 1976). Crew also said they were unable to join clubs or teams because of the amount of time spent away and the restrictions on time when they were at home which they said contributed towards their dissatisfaction with their lives. The inability of travelling partners to join social groups could be a limiting factor in forming friendships which may contribute to their feelings of loneliness. Although no previous study has reported this difficulty in travelling partners, a lack of social outlets has been found to be a problem for partners at home (McCubbin & Dahl, 1976).

Another finding which supported previous research on the travelling partner was the reporting of guilt (Clark et al., 1985; Culbert & Renshaw, 1972; Renshaw, 1976; Rosenfeld et al., 1973). Both single crew and crew in relationships reported that they felt guilty because of the time spent away from their partners and families. Like offshore oil riggers (Clark et al., 1985) and sailors (Rosenfeld et al., 1973) some crew members said guilt was one reason they bought gifts for their family. For single crew, anticipated guilt was a reason some gave as to why they did not want to form intimate relationships.

Some parents in the present study said that their children's behaviours had changed which they attributed to the work-related separations. These behavioural changes included increased bedwetting and tantrums. Other studies of the effects of work-related separations on children report similar findings (Rosenfeld et al., 1973). A boundary change in the family was reported by one father when his son took over the father-role which supported findings by Boss (1980a). In contrast, one parent said his children's behaviour did not alter because they were accustomed to the work-related separations. In one previous study on children and repeated separations, Field (1991) found that children became accustomed to repeated separations, and few behavioural changes occurred in the second and subsequent separations.

Physical health concerns were varied although tiredness was cited by all crew. It could be argued that this is a factor of their job rather than the work-related separations specifically. However, Scott and LaDou (1990) suggest that it is a combination of both the tiredness associated with the job itself and the disruption to social and family life

which interact to produce harmful effects on health in shiftworkers. The two most common health complaints reported by the women in the present study (but not the men) were hair loss and oral health problems. No other study on the aviation employee or work-related separation has reported these health problems although Marcenes and Sheiham (1992) found that oral health was associated with work stress.

Two themes which emerged from the interviews were independence and choice. Independence has been found in other studies to be both a positive (Gerstel & Gross, 1984) and a negative (White & Keith, 1990) outcome of work-related separations, as well as a coping strategy (Boss et al., 1979). For the crew in the present study, independence was only ever mentioned as being a positive factor. This independence included both emotional independence as well as financial independence. The financial benefit of the job of both pilot and cabin crew member was a factor in the second theme, choice. Despite all the difficulties crew reported as being associated with either the work itself or the work-related separations, many said that the financial and the travel benefits of their employment outweighed the negative effects. For this group, continued employment as part of a flight crew was a deliberate choice. Those who mentioned choice had a sense of control over their employment and inherent work-related separations which may be a contributing factor in the degree to which the work-related separations affect them both individually and on their relationships.

Findings from the present study regarding sexual relationships were similar to findings from previous research. Sexual relationships with their partners at home were for some better than ever, while for others, they were "pretty poor" (Gerstel & Gross, 1984). Like the commuters in a study of Gerstel and Gross (1984), crew in the present study reported increased opportunities for sex with people other than their partners. All the crew who claimed to have had sex with people other than their partners at home said that the "bonking" was different from a "close" relationship and did not interfere with their marriages or intimate relationships. This supported the findings of Gerstel and Gross (1984) and Rosenfeld et al. (1973). In addition, some crew claimed that bonking was a coping strategy for the loneliness and boredom they felt while away. Unlike the studies of Jupp and Mayne (1992) and White and Keith (1990), crew in the present study were not very concerned about their partners' fidelity. However, many claimed

that their former relationships had ended because their partners had had other relationships. The crew claimed that the extra-marital relationships of the partners at home contributed more to the deterioration of their relationships. This could be because, unlike the casual "bonking" of the crew, the relationships of the partners at home were reported to be more serious and long-term. Factors which may contribute to the difference in extra-marital relationships of the crew and their partners could be the difference in energy levels, the more stable environment (homes compared with hotel rooms) and amount of time available in which to form relationships.

The findings in the present study, like those of previous studies, were mixed concerning the effects of work-related separation over time. Some crew claimed that the negative effects on their family life had increased, including the demands growing children made on their time (Nice, 1983), while others reported that the work-related separations had got easier over time as they settled into a "pattern of irregularity" (Bell & Quigley, 1991; Taylor et al., 1985). The present study reflected past studies in that the reunion time was reported to be the most difficult period of the work-related separations (Clark et al., 1985; Gerstel & Gross, 1984; McCubbin & Dahl, 1976). However, the tense reunion periods may have been exacerbated by the reported tiredness and change from a hotel room to a "messy house" which are factors associated with the job of international flight crew. Like the recent Australian study of female cabin crew (Jupp & Mayne, 1992), there was evidence of anticipatory distress or at least awareness, as crew reported spending increased time with their loved ones as well as avoiding arguments before they left on a tour of duty.

Coping strategies which were common were the fitting back into family life without disruption, listening to the partner at home, contact, and the giving of gifts. Pilots in the present study appeared to compartmentalise their work and family lives. This was apparent in their explanations of extra-marital relationships as well as in their discussions of the effects the work-related separations had on their relationships and families. Other research has also found that pilots tend to separate work from family (Raschmann et al., 1990) as do some commuters (Gerstel & Gross, 1984). As all the pilots were male, it is unclear if this separation of work from family is a gender difference (although male cabin crew did not appear to separate the two) or a factor

relating to the difference in job type. For example, pilots and cabin crew may have different views of their work (for example, pilots may be more career oriented) which may affect the way they relate work to their family life.

In this section the findings of Part 1 of the present study have been summarised and compared with previous research. In the next section the influence the first study had on Part 2 of the research in terms of the questionnaire design, the formulation of a theory of work-related separation, and the formulation of a set of hypotheses, is described.

6.9 Towards the Second Part of the Research

In addition to collecting data for qualitative analysis, one of the primary purposes of the first part of the present research was to facilitate the construction of a relevant and appropriate questionnaire, incorporating areas which were of concern to members of the aviation industry experiencing work-related separation. Not all the issues and perceived effects reported by the crew in Part 1 of the research were included in the second part of the present study. This was partly because of the constraints of space allocation in the questionnaire as well as the availability of measures. However, the issues raised in Part 1 are compared with issues reported in Part 2 when the studies are linked through the process of triangulation (see section 10.2.2). The experiences of the participants in the first part of the study were valuable in highlighting some of the difficulties of work-related separation and in identifying areas requiring further research. Although single crew reported difficulties which they associated with the work-related separations, it was decided not to include crew without a current partner (which included single crew with children) in Part 2 because the focus of interest for the present study was on the effects of work-related separation on the individual and their intimate relationship. However, single crew and single parents would be interesting populations for further investigation on the effects of work-related separations. In addition to excluding single crew, those who took part in the interviews were asked not to complete the survey. This was to ensure that the fieldwork did not affect the survey (a potential risk of the multimethod approach). The survey could have been affected because those who took part in the interviews had become aware of issues they had not perhaps consciously considered before. The increased awareness might affect their responses in the survey.

In the following subsection, the constructs chosen and open-ended questions selected for the questionnaire used in Part 2, based on the literature review and the findings of Part 1, are listed. This is followed by an introduction to a proposed theory of work-related separation. Finally, a rationale for the hypotheses and research goal is presented.

6.9.1 Questionnaire Design

Issues which were important to the participants of the first part of the study influenced the selection of both the constructs (which became the outcome variables) chosen for the second part of the study, as well as the open-ended questions. Loneliness (one aspect of mental health) was an obvious outcome variable to include because of the frequency in which it was reported. Physical health was included for two reasons. First, because of the number of health complaints mentioned, particularly by the cabin crew, and second, because physical health and work-related separation have not been closely examined. It was decided to include measures of physical health symptoms and self-rated health because of the difference between objective and subjective health measures (Diener, 1984). A measure of psychological distress, an outcome variable often examined in studies of work-related separation, was included because of the ability to compare this research with other research in the field of work-related separation. Finally, three satisfaction measures (satisfaction being another aspect of mental health) were included. Dyadic satisfaction was chosen because of the participants' claims that work-related separations affected their intimate relationship. A measure of life satisfaction was chosen because of the reports that work-related separations decreased their enjoyment of life in terms of joining clubs and organisations, as well as maintaining contact with friends. A third satisfaction measure, job satisfaction, was chosen to allow the investigation of the spillover hypothesis of the work-family conflict (see section 2.2.1). All seven outcome variables chosen measure some aspect of health. Continuing throughout this thesis, in hypotheses, descriptions, and analyses, the outcome variables have been grouped in the following manner. The three satisfaction variables form one group, while psychological distress and the two physical health variables (physical health symptoms and self-rated health) form another group. Loneliness is usually considered separately because of its additional role as a potential moderator (see section 6.9.2).

In addition to the six main outcome variables and loneliness, it was decided to include six open-ended questions based on the findings in Part 1. These questions covered a variety of topics, including ways in which crew and their partners coped with the separations, and helped their children cope with the parental absence. There have been a variety of coping strategies identified in the study of long-term work-related separation, but very few studies have addressed coping associated with short-term work-related separation. These questions aimed to identify common coping strategies. Because of the limited generalisability of a study with so few participants, a question asking for respondents to nominate the most difficult problem of work-related separation was included. This was to test the prevalence of loneliness in a larger sample. Finally, a general question on the effects of work-related separation was included to provide participants the opportunity to share any experiences they may have had with work-related separation which was not covered in the questionnaire.

In this subsection, a rationale for the selection of outcome variables and open-ended questions, based on the literature review and on the findings of Part 1, has been given. The next subsection proposes a theory of work-related separation.

6.9.2 A Theory of Work-Related Separation

Burr (1973), in his book *Theory Construction and the Sociology of the Family*, states that theories should not be borrowed from other research fields, but be formulated from already existing findings and propositions in the relevant field. The theory of work-related separation proposed in this subsection is based on previous findings, and has the additional advantage of being grounded in the data (Strauss & Corbin, 1990).

In Part 1, the frequency with which loneliness was reported was overwhelming. Those few crew who claimed loneliness was not a problem also said that the separations themselves were not problematic. Previous studies have also found loneliness to be the most commonly reported problem (e.g., Duvall, 1945; McCubbin et al., 1975). This led the researcher to formulate a theory of work-related separation based on a proposed moderating effect of loneliness. This theory reflects a model used by Solomon et al. (1990) in a study of combat stress reactions, social support, and family functioning. Solomon et al. proposed that loneliness would not only be the most direct antecedent of

combat stress reactions but would also moderate the effect of perceived social support on combat stress reactions.

The proposed theory of work-related separation to be tested in Part 2 is that loneliness will not only be a significant predictor of the other six outcome variables (job, life, and dyadic satisfaction, and psychological distress, physical health, and self-rated health), but will also moderate the relationship between separation and each outcome variable. That is, if loneliness is high, there will be a strong relationship between separation and each of the six outcome variables, and if loneliness is low, the relationship will be weaker.

The specific hypotheses resulting from this theory are:

1. Loneliness will be a significant predictor of all six outcome variables.
2. Loneliness will moderate the relationship between separation and all six outcome variables.

The next subsection outlines the additional hypotheses and research goal which direct the second part of the research.

6.9.3 Hypotheses and Research Goal

Findings from the first part of the present research, together with results from previous studies, were combined to formulate hypotheses and the research goal which directed the analyses in Part 2. The main hypotheses were directed at four of the five primary research aims (see section 1.3) of the present study. In summary, these aims were; the study of both the travelling partner and the partner at home, the study of both genders as the travelling partner and as the partner at home, the inclusion of same-gender relationships in the study of work-related separation, and the study of work-related separation using a control group. The fifth primary research aim was the use of both qualitative and quantitative research methods. There are six hypotheses addressing these four research aims which form the basis of Part 2. Other hypotheses and the research goal in the present study relate to the aviation industry and differences between groups (across personal characteristics such as age) in all seven outcome variables. The following subsections provide a rationale for the hypotheses and list them separately under main research aims, aviation, and the outcome variables. All the hypotheses are then combined and summarised in a concluding subsection.

6.9.3.1 Primary Research Aims and the Hypotheses

One research aim in the present study was to include both the travelling partner and the partner at home. There has been little research on the travelling partner (Vormbrock, 1993) so there are few reasons to propose differences between the two groups. The findings from Part 1 suggest that international crew (the travelling partners) may have lower levels of life satisfaction, as it is they who leave behind friends and social organisations. For this reason, they may also be more lonely. However, the crew interviewed said they believed their partners at home to be more lonely. Because of the occupational health risks associated with the aviation industry (see Chapter 4), it could be expected that crew would report increased physical health symptoms. Also, because of the fatigue associated with circadian dysrhythmia, crew may report increased psychological health symptoms. Addressing this research aim, the two hypotheses are:

1. The travelling partner (international crew) will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than the partner at home (international partners).
2. There will be no differences in loneliness or job, life, or dyadic satisfaction between travelling partners (international crew) and partners at home (international partners).

Another research aim was to address the gender bias in the study of both the travelling partner and the partner at home. There is no reason to assume that there will be any differences between female and male travelling partners, or between female and male partners at home, in terms of the effects of separation other than those differences expected within each individual outcome variable. These proposed differences are detailed under each individual outcome variable listed in section 6.9.3.3. The hypothesis addressing this research aim is:

1. There will be no differences in work-related separation effects between females and males for either the travelling partner (international crew) or the partner at home (international partner).

One further aim of the present study was to examine the effects of work-related separation on same-gender couples. There is no reason to assume that there would be any differences between heterosexual and same-gender relationships. Therefore, the hypothesis is:

1. There will be no differences in work-related separation effects between those in heterosexual and those in same-gender relationships for either the travelling partner (international crew) or the partner at home (international partner).

To address another primary research aim, the present study used a control group by including national pilots, cabin crew, and their partners who do not regularly experience work-related separation. For the purpose of this study, international crew and their partners are considered to be separated, and national crew and their partners are not. Findings from the fieldwork suggest that work-related separations do have an effect on crew and their partners, and for most, the effect is negative. Crew reported dissatisfaction with some aspects of their life, specifically in their relationship, and in their ability to join clubs and maintain friendships. In addition to the findings, past research suggests there will be a difference between those who are separated and those who are not. Those who are separated report increased loneliness (e.g., Duvall, 1945; McCubbin et al., 1975), increased physical health symptoms (e.g., Snyder, 1978), and increased psychological distress symptoms (e.g., Beckman et al., 1979; Isay, 1968). They are also likely to report difficulties with their relationships (e.g., Rosenfeld et al., 1973). Based on previous research regarding both work-related separation and the work-family interface, and the findings from Part 1, the two hypotheses addressing this research aim are:

1. Those who are separated, both the travelling partner and the partner at home (international crew and international partners), will report higher levels of loneliness, physical health symptoms, and psychological distress symptoms, and report lower self-rated health than those who are not separated (national crew and national partners).
2. Those who are separated, both the travelling partner and the partner at home (international crew and international partners), will report lower levels of job satisfaction, life satisfaction, and dyadic satisfaction than those who are not separated (national crew and national partners).

The six hypotheses listed above direct the analyses in the second part of present study. In addition, there are a number of other hypotheses and a research goal relating to the aviation industry itself, as well as to the individual outcome variables. These are listed in the following subsections.

6.9.3.2 Hypotheses Relating to the Aviation Industry

In the aviation industry health differences between pilots and cabin crew have been identified. Haugli et al. (1994) found that cabin crew report more physical health symptoms. No differences have been found between pilots and cabin crew in terms of loneliness (Barnes, 1992). Both the findings from Part 1 ("home's home; work's work") and the research of Raschmann et al. (1990) suggest that pilots compartmentalise their lives. For those who are separated, this may promote less work-family conflict. Addressing factors relating to work-related separation and the aviation industry itself, and taking into account the positive relationships among various aspects of physical and mental health, the hypotheses are:

1. International cabin crew will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than international pilots.
2. International pilots will report higher levels of job, life, and dyadic satisfaction than international cabin crew.
3. There will be no difference between international cabin crew and international pilots in terms of loneliness.

6.9.3.3 The Research Goal Relating to the Individual Outcome Variables

The research goal is to examine the relationships between personal (age, gender, ethnicity, education), family (length of relationship, family composition, the type of relationship), and employment (employment, length of employment, length of time in the current position) characteristics and the seven outcome variables in both crew and their partners (international and national). Many of these personal characteristics will be considered as covariates in the multivariate analyses. The expected relationships and differences on some personal characteristics in the seven outcome variables are outlined below under each individual outcome variable.

The Relationships Among the Outcome Variables

Because of the relationship between mental and physical health (see section 3.3.2), it is expected that there will be positive correlations between physical health symptoms, psychological distress symptoms, and loneliness. It is also expected that there will be negative correlations between self-rated health and physical health symptoms, between self-rated health and psychological distress symptoms, and between self-rated health and loneliness. In addition, it is expected that there will be a negative correlation between each of the three satisfaction measures (job, life, and dyadic) and physical health symptoms, psychological distress symptoms, and loneliness. It is also expected there will be a positive correlation between each of the three satisfaction measures and self-rated health. In line with the spillover hypothesis (see section 2.2.1), it is expected that there will be positive correlations between job and life satisfaction, between job and dyadic satisfaction, and between dyadic and life satisfaction.

Loneliness

It is expected that those with children will report higher levels of loneliness (Gerstel, 1977, cited in Vormbrock, 1993).

Satisfaction

Based on previous studies, it is expected that certain groups will report lower levels of job and dyadic satisfaction. For job satisfaction, these groups are; those who have been in their current position for a longer period of time (Levy et al., 1984), younger individuals, and those with higher educational qualifications (Blegen, 1993). For dyadic satisfaction, it is expected that those with children will report lower levels (George & Gold, 1991).

Psychological Distress

It is expected that certain groups will report more psychological distress symptoms. These groups are; Caucasians, those with higher educational qualifications (Wexler & McGrath, 1991), younger individuals (Nice, 1983), those with children, and those who have been in their relationship for a shorter period of time (Taylor et al., 1985).

Physical Health

Based on previous studies, it is expected that certain groups will report more physical health symptoms. These groups are; females (Haugli et al., 1994), Caucasians (Wexler & McGrath, 1991), and older individuals (Near et al., 1978).

Self-Rated Health

In terms of self-rated health, males, Caucasians (Near et al., 1978), parents, and employed partners at home (Muller, 1986) are expected to have higher ratings.

In this subsection predicted relationships among the outcome variables and expectations in differences between groups in the outcome variables have been described. The next subsection summarises all the hypotheses and the research goal which form the basis of Part 2.

6.9.4 Summary of Research Hypotheses

All the hypotheses directing Part 2 of the present study are listed below and are worded to encompass both the crew study and the partner study. The numbers assigned to each hypothesis in this subsection are used in Chapters 8 and 9 to describe and discuss the results. The hypotheses are:

1. Loneliness will be a significant predictor of all six outcome variables.
2. Loneliness will moderate the relationship between separation and all six outcome variables.
3. The travelling partner (international crew) will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than the partner at home (international partner).
4. There will be no differences in loneliness or job, life, or dyadic satisfaction between travelling partners (international crew) and partners at home (international partners).

5. There will be no differences in work-related separation effects between females and males for either the travelling partner (international crew) or the partner at home (international partner).
6. There will be no differences in work-related separation effects between those in heterosexual and those in same-gender relationships for either the travelling partner (international crew) or the partner at home (international partner).
7. Those who are separated, both the travelling partner and the partner at home (international crew and international partners), will report higher levels of loneliness, psychological distress symptoms, and physical health symptoms, and report lower self-rated health than those who are not separated (national crew and national partners). Applying this to the multivariate analyses, separation will predict psychological distress symptoms, physical health symptoms, and self-rated health.
8. Those who are separated, both the travelling partner and the partner at home (international crew and international partners), will report lower levels of job satisfaction, life satisfaction, and dyadic satisfaction than those who are not separated (national crew and national partners). Applying this to the multivariate analyses, separation will predict all three satisfaction variables.
9. International cabin crew will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than international pilots.
10. International pilots will report higher levels of job, life, and dyadic satisfaction than international cabin crew.
11. There will be no difference between international cabin crew and international pilots in terms of loneliness.

In addition to these hypotheses, the research goal is to examine the relationships between personal, family, and employment characteristics, and the seven outcome variables in both the crew and their partners (international and national).

6.10 Chapter Summary

This chapter has presented the method and findings for the first part of the present research. Following the discussion, it has presented a rationale, combining both the literature review (Chapters 2, 3, and 4) and the findings from the fieldwork, for the hypotheses to be used in the second part of the research. A theory has been proposed, based on a moderating process, to explain the manner by which loneliness is associated with separation and the other six outcome measures. The next section (Chapters 7, 8, and 9) outlines the method and results for the second part of the research. Chapter 7 details the method and measures used while Chapters 8 and 9 present the quantitative and qualitative results of both the crew study and the partner study respectively.

Part 2

Chapter 7
Method

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7.1 Chapter Overview

The second part of the present research consists of two studies; the crew study and the partner study. Data was collected for both studies through a single self-report questionnaire. Details of the samples, the research procedure, and the questionnaire development are presented in the following sections of this chapter.

7.2 Samples

Part 2 of the research consists of two research groups. In the crew study, the respondents were international and national pilots and cabin crew of Air New Zealand. (Flight engineers were not included in the study because of the lack of a national equivalent to use as a control group.) In the partner study, the respondents were partners of Air New Zealand pilots and cabin crew. The next two subsections describe the ways in which the two groups were approached.

7.2.1 Crew Study

The researcher's goal was to distribute the questionnaire to all crew currently married, or in a relationship similar to a marriage. However, as Air New Zealand hold no details regarding the relationship status of their employees, it was difficult to know which crew were in a relationship. Due to the tense industrial climate at the time of the study (see Appendix A), Air New Zealand management asked that, instead of targeting a small group of crew, all pilots and cabin crew could be given a copy of the questionnaire. This was to avoid any suspicion that the researcher had been given access to personal information and to avoid crew thinking they had been missed out. Therefore, all 2,020 pilots and cabin crew employed with Air New Zealand at the time of the study had access to a questionnaire. However, only those currently married, or in a relationship similar to a marriage, were eligible to participate.

Because of the blanket distribution method and because of a distribution problem (see section 7.3), it is impossible to estimate a meaningful response rate. However, assuming all crew did have access to a questionnaire, and all were eligible to participate, the total return rate was 15.3% (310). Of those, the return rate was 18.3% (88) for pilots, and 14.4% (222) for cabin crew. During the course of the research, one pilot withdrew from the study acting under the instructions of his union (see section 7.3). The low

response rate was expected because of the blanket distribution method, and because it was impossible to know how many crew were in a relationship and therefore eligible to participate. A low response rate is common for surveys distributed at Air New Zealand, including Air New Zealand's own internal studies. In a recent survey on communication, Air New Zealand achieved one of their highest response rates - 27% (F. Blackwood, personal communication, May, 1995).

In addition to the 310 completed questionnaires returned, a further seven questionnaires were returned unanswered, all with accompanying letters. Three were annoyed because flight engineers had not been included, two expressed concern about confidentiality (several other crew members rang or wrote to the researcher expressing concern about confidentiality), one explained that, acting on their union's advice, they were not interested in participating, and one expressed concern about the researcher's use of "liberal language" throughout the questionnaire.

7.2.2 Partner Study

To gain access to the partners of pilots and cabin crew, it was decided to ask all eligible crew to take home a questionnaire to their partner, regardless of whether they themselves had filled in a questionnaire. To achieve this, an identical questionnaire intended for partners was included with the 2,020 questionnaires distributed among the crew.

It is impossible to estimate a response rate for partners as it is unknown how many crew had partners, and how many of those partners received a questionnaire. As expected, the number of responses (200) was lower for partners than for crew. This was partly because the distribution relied on crew taking a questionnaire home. However, it was decided not to access crew's addresses for the distribution of the partners' questionnaires to ensure the crew's privacy.

The next section describes the procedure for both studies.

7.3 Procedure

Data collection occurred over a nine month period. Crew were first introduced to the research through articles in the staff publication *Crews News*, as well as through notices on the company bulletin, telephone hot-line, and the staffing rosters.

A questionnaire pack² was intended to be distributed to every pilot and cabin crew member employed by Air New Zealand (see section 7.2.1) through the internal mail system. If eligible to participate, crew were asked to take a questionnaire and accompanying information (included in the pack) home to their partner for the partner to complete. Each questionnaire pack included two sets of all documents, one for the crew member, and one for their partner. Both sets were identical except for the employment questions in the biographic section of the questionnaire, slight adjustments to wording, and the colour of the paper which was different to enable easy sorting for the researcher.

However, problems were encountered with the distribution process. Although relevant personnel had been asked to distribute the questionnaire packs in the internal mail system, some decided to distribute a few of the packs at crew briefings and store the remainder. It is therefore difficult to estimate how many crew received a copy of the questionnaire. When the distribution flaw was discovered (about half-way through the nine month data collection period), several individual interested crew members helped distribute packs. The largest cabin crew union, FARSA, also helped by publishing an article in their magazine, *Plane Talk*, advising their members of a location where they could get a copy of the questionnaire. At the same time, the researcher sent a reminder letter (Appendix J) to all crew, this time ensuring that the letters were all distributed through the internal mail system.

²The questionnaire packs contained information and questionnaires for both the crew member and their partner, including; introductory letters outlining the purpose of the study (Appendix F), information sheets explaining the rights of the participants (Appendix G), questionnaires (Appendix H and I), freepost envelopes (addressed to the researcher at Massey University for the questionnaires to be returned individually by New Zealand Post), and envelopes for the participants to self-address and return so that they could receive a summary of the results.

From the beginning of the research process, support from each of the four staff representative groups (see Appendix A) was sought and initially given. The largest cabin crew group, FARSA, published articles in *Plane Talk* recommending the study to their members. ALPA, the largest pilot group, sent a letter to all their members recommending the study. However, due to industrial concerns, ALPA withdrew their support after the questionnaires had been distributed, and again wrote to their members, this time advising them not to take part in the research.

Ethical approval for the research was given by the Massey University Human Ethics Committee and was conducted within the guidelines of the New Zealand Psychological Society.

The following section describes the questionnaires, providing details of the questions and each of the seven measures used in both studies.

7.4 Questionnaire

The questionnaire used in Part 2 of the research was the same for both the crew study and the partner study, except for the biographic items concerning employment. The complete questionnaire used with the crew can be found in Appendix H. The partners' biographic section can be found in Appendix I. The questionnaires contained a measure of loneliness, three measures of satisfaction (job, life, and dyadic), a measure of psychological distress, two measures of physical health (physical health symptoms and self-rated health), a section of general questions regarding biographic details, and six open-ended questions. Measures and open-ended questions were included after a review of the work-related separation literature, and as a result of the findings from Part 1 of the research (see section 6.9.1).

Listed in this section is a summary of the questions asked in the biographic section and a description of each of the measures chosen, along with their psychometric properties. A summary of the alpha reliability coefficients and means for the seven measures (for the crew study, the partner study, and for both studies combined) can be found in Appendix K. Also in this section is a discussion on the open-ended questions, including reasons for incorporating open-ended questions in the present study.

7.4.1 Biographic Information

For both studies, information was sought on participants' age, gender, ethnicity, educational qualifications, as well as relationship details (length of relationship, family composition, and type of relationship), and employment details. In the crew study, crew were asked about the length of time they had been employed with Air New Zealand, the current position they held, the length of time they had spent in their current position, and which airline they were employed with (international or national). In the partner study, partners were asked if they were in paid employment, and if the position was full-time or part-time.

7.4.2 Loneliness

Feelings of loneliness were assessed with the revised UCLA (University of California, Los Angeles) Loneliness Scale (Russell, Peplau, & Cutrona, 1980). The scale consists of 20 items, half reflecting dissatisfaction and half reflecting satisfaction with social relationships. None of the 20 items mention the terms "lonely" or "loneliness". Item scores in the UCLA are summed to reflect one total score. Scores can range from 20 to 80, with higher scores reflecting greater loneliness. Russell et al. report an alpha reliability coefficient for the UCLA of .94. In the present study, participants were asked to answer how often they felt the way described about their social life on a four point scale ranging from "never" to "very often". The alpha reliability coefficient for the crew sample was .91 ($M = 36.90$, $SD = 9.33$) and the range was 20 to 71. For the partners, the reliability coefficient was .92 ($M = 37.36$, $SD = 10.15$) and the range was 20 to 67.

7.4.3 Job Satisfaction

The short form of the Minnesota Satisfaction Questionnaire (MSQ; D. J. Weiss, Dawis, England, & Lofquist, 1967) was used to assess job satisfaction. The 20 item MSQ can be used to measure intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. In the present study, the 20 items were summed to form a general satisfaction measure. Respondents indicated the extent to which they believed each statement was true for them on a five point scale ranging from "very dissatisfied" to "very satisfied". The total score for the MSQ general satisfaction scale can range from 20 to 100. For this scale, D. J. Weiss et al. report an alpha reliability coefficient of .90. The reliability coefficient

of the MSQ for the crew sample was .89 ($M = 61.85$, $SD = 10.90$) and the range was 33 to 90. For the partners, the reliability coefficient was .91 ($M = 72.75$, $SD = 12.28$) and the range was 37 to 99.

7.4.4 Life Satisfaction

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) was used to assess global life satisfaction. The SWLS consists of five items which use a seven point scale (1 = "strongly disagree" to 7 = "strongly agree"). The scores on the five items are summed to form a global life satisfaction score. Diener et al. report an alpha reliability coefficient of .87 for the SWLS. The possible range is 5 to 35. Pavot and Diener (1993) report, in a review of studies using the SWLS, that most group averages fall in the range of 23 to 28, or the range of "slightly satisfied" to "satisfied". In the present study, the reliability coefficient for the crew was .89 ($M = 23.56$, $SD = 6.61$) and the range was 5 to 35. For the partners, the reliability coefficient was .87 ($M = 24.59$, $SD = 5.87$) and the range was 8 to 35.

7.4.5 Dyadic Satisfaction

The degree of satisfaction in the dyadic relationship was measured with the Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS consists of 32 items representing four components of dyadic adjustment: dyadic satisfaction, dyadic cohesion, dyadic consensus, and affectional expression. The DAS can be summed to form a total score measuring overall marital satisfaction (Kazak, Jarmas, & Snitzer, 1988; Spanier, 1988). When used as a global measure, alpha reliability coefficients have been reported as .96 (Sharpley & Cross, 1982; Spanier, 1976) and .91 (Spanier & Thompson, 1982). In the present study, only the total marital satisfaction score was used which has a possible range of 0 to 151. The reliability coefficient of the total DAS for the crew was .93 ($M = 113.12$, $SD = 16.62$) and the range was 30 to 148. For the partners, the reliability coefficient was also .93 ($M = 114.83$, $SD = 15.69$) and the range was 60 to 145.

7.4.6 Psychological Distress

The Hopkins Symptom Checklist (HSCL) was originally developed by Parloff, Kelman, and Frank in 1954 to measure change in the clinical status of psychotherapy patients (Parloff, Kelman, & Frank, 1954) and now has many shorter versions. The 21 item

version of the HSCL, developed in New Zealand (Green, Walkey, McCormick, & Taylor, 1988), was used in the present study to assess psychological distress. Green et al. state that the HSCL-21 has three sub-scales: general feelings of distress, somatic distress, and performance difficulty, but can also be used as a general measure of psychological distress when all 21 items are summed. Green et al. report an alpha reliability coefficient of .90 for the total scale. The scores can range from 21 to 84. In the present study, respondents were asked to indicate how distressing they had found the 21 items during the past month on a four point scale ranging from "not at all" to "extremely". The items were then summed to form a total distress score. The reliability coefficient of the HSCL-21 for the crew was .89 ($M = 36.27$, $SD = 9.19$) and the range was 21 to 67. For the partners, the reliability coefficient was .90 ($M = 34.30$, $SD = 8.98$) and the range was 21 to 68.

7.4.7 Physical Health

Physical health symptoms were measured with the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982). The PILL is a 54 item inventory of common physical symptoms and sensations. Respondents were asked to "...indicate how much each of the following problems has bothered or disturbed you during the last month" on a five point scale ranging from "not at all" to "extremely". The measure was scored by summing items so that the total score can range from 0 to 216. Pennebaker reports an alpha reliability coefficient of .91 when all 54 items are summed. In the present study, the reliability coefficient for the crew was .92 ($M = 36.10$, $SD = 23.60$) and the range was 0 to 117. For the partners, the reliability coefficient was also .92 ($M = 18.91$, $SD = 16.16$) and the range was 0 to 117.

7.4.8 Self-Rated Health

A single question was used to provide a self-rating of respondents' current health. Respondents were asked to rate their current health compared to a person in excellent health on a seven point scale ranging from "terrible" to "excellent". This measure, although seemingly simplistic, has been shown to be predictive of mortality (Idler & Kasl, 1991).

7.4.9 Open-Ended Questions

Six open-ended questions were designed from the information given by participants in Part 1 of the research (see section 6.9.1) and included in the questionnaire. Although the participants in Part 1 of the research were all international crew, the issue of separation applied to both the international crew (travelling partner) and their partners (partner at home). Therefore, the open-ended questions were included in both the crew study and the partner study.

The most elementary form of qualitative data is responses to open-ended questions in a questionnaire (Patton, 1980). Open-ended questions are variable in content and provide more detailed information than researchers could gain from a straightforward quantitative design. They provide a framework in which participants can tell of their experiences in their own words. The purpose of open-ended questions in the present study was to provide depth and detail that may have been missed in the questionnaire, allowing the researcher "to understand and capture the points of view of other people without predetermining those points of view through prior selection of questionnaire categories" (Patton, 1980, p. 28). Using open-ended questions allowed triangulation (see section 5.2.2) by providing the opportunity to illustrate and validate comments or responses made in both the small subsample in Part 1 of the research, and the quantitative questionnaire data in the crew study and the partner study of this second part of the research. Some limitations of open-ended questions are the writing skills of participants, the effort required of the participant (which may cause the response rate to be low), and that the researcher is unable to probe or extend the responses (Patton, 1980).

7.5 Chapter Summary

In this chapter, the two research groups, the procedure, and the questionnaires used in Part 2 of the present research have been described. The next chapter presents the results and a brief discussion of the crew study.

Chapter 8

Results and Discussion - Crew Study

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8.1 Chapter Overview

In this chapter the results of the crew study are presented. These results are broken into two parts. The first part, Part A, is the analysis of the quantitative data. These results include both correlation analyses and *t* tests, and multivariate analyses. Part B is the analysis of the qualitative open-ended questions. Concluding this chapter is a brief discussion of the results comparing the findings with previous research, and a comparison of the quantitative and the qualitative findings. The next section describes the analyses used for the quantitative part of the crew study.

Part A - Quantitative

8.2 Analyses

The statistical package, SPSS/PC (Norusis, 1988) was used for all data analyses with an alpha level set at .05. Analyses were undertaken in three main stages. First, the relationships among the variables were examined using correlations to explore the research goal. Second, specific hypotheses were tested using *t* tests. Third, demographic variables (including separation) and loneliness were regressed on the six individual outcome variables, along with a created product term, to test the predicted interaction of loneliness as stated in hypothesis 2. The next section describes the data screening process.

8.3 Data Screening

Prior to the main analyses, data was screened for accuracy of data entry, missing values, and the fit between variable distributions to the assumptions of multivariate analyses.

Univariate distributions showed nine variables which were moderately or highly skewed. For use in multivariate analyses, these variables were transformed. Relationship length, employment length, and the PILL were all moderately positively skewed. These were all improved with square root transformations. Length of time in the current position, the HSCL, and the UCLA were all highly positively skewed. These were all improved with logarithmic transformations. The DAS, the SWLS, and self-rated health were all

moderately negatively skewed and were improved with reflection and square root transformations.

Where descriptive statistics are provided, untransformed means and standard deviations are reported for ease of interpretation. Any tests of significance use the transformed variables. Because of the reflection before transformation of negatively skewed variables, interpretation of scores becomes confusing. To counter this, the signs in the correlation matrices and regression tables have been reversed, with the exception of the correlation between the variables where both have been reflected before transformation (life satisfaction and self-rated health, dyadic satisfaction and self-rated health, dyadic satisfaction and life satisfaction).

Checks for multivariate outliers produced one case which met the use of the $p < .001$ criterion for Mahalanobis distances. This case was deleted, and the remaining 308 cases were retained for analyses. All variables were retained as none had less than 5% missing cases (Tabachnick & Fidell, 1989). Missing cases were replaced with the mean for that variable. This was done to retain the remainder of the information from those cases. The next section describes the crew who participated in this study.

8.4 Sample Description

Detailed biographic, employment, and family information for the present sample are provided in Tables 1, 2, and 3. Some items were not answered by, or were not applicable to, all participants. Therefore, where numbers of responses for the question differ from the total sample, individual *N*s are reported. All current crew statistics reported for comparisons were provided by Air New Zealand and are current at November 20, 1995. The total number of crew (pilots and cabin crew) at Air New Zealand (international and national) was 2,242.

Employment details show that 78.9% of participants worked for the international airline. This is slightly lower than the percentage of international crew at Air New Zealand (85.1%). Most of the participants were cabin crew (71.8%) which is similar to the percentage employed at Air New Zealand (73.0%). The range for the number of years employed at Air New Zealand (1 to 34) and the mean (11 years) for the crew sample

reflect the range (1 to 35) and the estimated mean of total Air New Zealand crew. The length of time spent in the current position ranged from 1 to 29 years, with a mean of 5 years. Overall, this sample is fairly similar in composition on the variables measured to the total crew (pilots and cabin crew) employed with Air New Zealand.

Table 1

Summary of biographical information for Air New Zealand crew ($N = 308$).

Variable	Number of respondents	Percentage of respondents
Gender		
Female	169	54.9
Male	139	45.1
Age (years)		
20 - 29	46	14.9
30 - 39	156	50.7
40 - 49	83	26.9
50 +	23	7.5
Ethnic group	306	
New Zealand Maori	14	4.5
New Zealand European	267	86.7
Pacific Island	5	1.6
Other	20	6.5
Educational qualifications	306	
No school qualifications	14	4.5
School qualifications	146	47.4
Post-school qualifications	146	47.4

Females made up 54.9% of the present sample which is slightly higher than the percentage of female crew at Air New Zealand (47.5%). The age range (21 to 57) and the mean age of the present sample (37 years) reflects the range (20 to 57) and estimated mean of all crew employed at Air New Zealand. The majority of participants were New Zealanders of European descent (86.7%) which is similar to the total Air New Zealand crew. Only 4.5% described themselves as New Zealand Maori, and 1.6% as Pacific Islanders. Because the percentages of ethnic groups other than European New Zealanders were less than the recommended group size of 10% (Tabachnick & Fidell, 1989), and could not be meaningfully combined, ethnicity was not included in further analyses. Almost half the participants had post-school qualifications (47.4%) with only 4.5% having no school qualifications.

Table 2
Summary of employment information for Air New Zealand crew (*N* = 308).

Variable	Number of respondents	Percentage of respondents
Airline		
International	243	78.9
National	65	21.1
Position		
Captain	38	12.3
First Officer	35	11.4
Second Officer	14	4.5
Inflight Services Director	21	6.9
Flight Attendant 3	53	17.2
Flight Attendant 2	58	18.8
Flight Attendant 1	58	18.8
Flight Attendant (unspecified)	28	9.1
Cabin crew with ground/management duties	3	1.0
Length of employment with Air NZ (years)		
1 - 2	40	13.0
3 - 5	18	5.8
6 - 9	108	35.1
10 - 14	37	12.0
15 - 19	46	14.9
20 - 24	38	12.4
25 +	21	6.8
Length of employment in current position (years)		
1	99	32.1
2 - 4	86	28.0
5 - 9	94	30.5
10 +	29	9.4

Table 3
Summary of relationship/family information for Air New Zealand crew ($N = 308$).

Variable	Number of respondents	Percentage of respondents
Length of current relationship (years)		
1 - 2	47	15.3
3 - 4	58	18.8
5 - 9	79	25.6
10 - 14	58	18.8
15 - 19	27	8.7
20 +	39	12.8
Type of relationship		
Same-gender	20	6.5
Heterosexual	289	93.5
Employment status of partner		
Not in paid employment	68	22.1
Employed part-time	44	14.3
Employed full-time	196	63.6
Family life cycle		
Neither partner has children	150	48.7
Children, but not living with couple	14	4.5
Eldest child 0 - 5 years	37	12.0
Eldest child 6 - 12 years	42	13.7
Eldest child 13 - 18 years	24	7.8
Some children 19 + years at home	23	7.5
All adult children live away	18	5.8
Number of children		
none	165	53.6
1	32	10.4
2	67	21.8
3 +	44	14.2
Partner also Air NZ crew		
Yes	68	22.1
No	240	77.9
Partners fly		
International	59	86.8
National	9	13.2
Crew couple works/flies together		
Yes	34	52.3
No	31	47.7

Crew also provided information about their relationship and family life. Only 6.5% of crew were in a same-gender relationship, while 93.5% were in a heterosexual relationship. Because the split on this dichotomous variable was so uneven (Tabachnick & Fidell, 1989), relationship type (heterosexual or same-gender) was not included in multivariate analysis. However, because of the research aims, relationship type was used for comparisons in the *t* tests. The length of time spent in their current relationship ranged from 1 to 33 years with a mean length of 9 years. Most crew had partners who were in paid employment; 14.3% working part-time, and 63.6% working full-time. The number of children the participants had ranged from none to 6. Those with three or more children consisted of 14.2% of the sample, with 53.6% having no children. Twelve percent of the sample lived with preschoolers, 13.7% lived with children where the eldest was at primary school, and 7.8% lived with children where the eldest was a teenager. Crew with partners also working as Air New Zealand crew numbered 22.1%. Of those, 86.8% of the crew's partners worked with the international airline, and 52.3% chose to work together. All crew who "chose" to work together were international crew members as the national airline does not provide a "spouse alert" system (see Appendix A). Crew members who chose to work together ($n = 34$) were not therefore separated from each other due to work except for periods when they were on-call. To avoid a potential confound, crew who chose to work together were not included as part of the international crew in the *t* tests and regression analyses.

International crew and national crew were compared using *t* tests on all of the personal characteristic variables. The only significant difference between the two groups was that national crew had been in their current position for a longer period of time than international crew and this is reported in section 8.5.2. There were no significant differences between the two groups on any other personal characteristic variable.

In this section the sample has been described. The following section describes the results from the correlation analyses and *t* tests.

8.5 Correlations and t Tests

This section is divided into two subsections. The first describes the results from the correlation analyses in line with the research goal (see section 6.9.3). In the second subsection results from the t tests are described as they relate to individual hypotheses (see section 6.9.3).

8.5.1 Relationships Among Variables

The relationships among study variables were investigated in line with the research goal presented in section 6.9.3. A correlation matrix is presented in Table 4. In this subsection the relationships are described under the headings of personal characteristics and each of the seven individual outcome variables.

Personal Characteristics

Not surprisingly, age, relationship length, employment length, and length of time in the current position were all significantly positively correlated with each other. These four personal characteristics were also significantly correlated with other demographic variables. The relationships associated with age can be described as; those who are older are more likely to be male, pilots, and parents. The relationships associated with relationship length can be described as; those who have been in their relationship longer are more likely to be male, pilots, and parents. The relationships associated with employment length can be described as; those who have been employed longer with Air New Zealand are more likely to be male, pilots, parents, and to have fewer educational qualifications. The relationship associated with length of time in the current position is such that those who have been in their current position for a longer period of time are more likely to be parents.

Education was significantly correlated with gender and employment length such that those with higher educational qualifications were more likely to be female and to have been employed for a shorter period of time.

Table 4Inter-correlations^a between personal, employment, and outcome variables for crew ($N = 308$).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Separation ^b															
2 Age	-.04														
3 Gender	.03	-.53**													
4 Education ^c	-.06	-.13	.16*												
5 Job type	-.22**	-.37**	.55**	.08											
6 Employment length	-.08	.82**	-.38**	-.16*	-.20**										
7 Time in current position	.12	.35**	-.10	-.06	-.02	.46**									
8 Relationship length	-.03	.69**	-.40**	.01	-.37**	.57**	.26**								
9 Children	.11	.58**	-.44**	-.05	-.02	.41**	.16*	.51**							
10 Loneliness	-.05	.09	-.13	.13	.04	.10	.06	.10	.12						
11 Job satisfaction	-.07	.03	-.09	-.07	-.18*	-.05	-.10	.14	.08	-.32**					
12 Life satisfaction	-.03	-.06	-.01	-.04	-.17	-.10	-.07	.00	-.07	-.47**	.43**				
13 Dyadic satisfaction	-.06	-.09	.06	-.03	.01	-.10	-.04	-.09	-.13	-.27**	.05	.38**			
14 Psychological distress	-.17*	-.18*	.24**	.11	.35**	-.06	.04	-.24**	-.19**	.28**	-.41**	-.35**	-.11		
15 Physical health	-.14	-.23**	.33**	.09	.49**	-.07	.01	-.27**	-.25**	.18*	-.40**	-.29**	-.09	.77**	
16 Self-rated health	.00	.18*	.29**	-.09	-.26**	.11	.05	.21**	.12	-.22**	.40**	.36**	.11	-.48**	-.57**

^a using simple Pearson correlation coefficients. ^b $N = 274$ after excluding crew who work together.^c no school & school qualifications = 1, post-school qualifications = 2.* $p < .05$. ** $p < .01$.

Gender was significantly correlated with age, education, job type, employment length, relationship length, and children. These relationships can be described such that males are more likely to be older, pilots, parents, have fewer educational qualifications, and to have been in their relationship and employment for a longer period of time.

Job type was significantly correlated with separation, age, gender, employment length, and relationship length. These relationships can be described such that pilots are more likely to be older, males, to have been in their relationship and employment for a longer period of time, and to be national crew members (i.e., not separated).

Children was significantly correlated with age, gender, relationship length, employment length, and length of time in the current position. These relationships can be described such that those with children are more likely to be older, male, and to have been in the relationship, employment, and current position for a longer period of time.

Separation was only significantly correlated with one personal characteristic, job type. This can be described such that cabin crew are more likely to be international crew (i.e., separated).

Loneliness

Loneliness was not significantly related with any of the personal characteristics but was significantly correlated with all the other outcome variables. The relationships between loneliness and the other variables can be described as; those who report higher levels of loneliness are more likely to report higher levels of psychological distress symptoms and physical health symptoms. Those who report higher levels of loneliness are more likely to report lower levels of self-rated health, and lower levels of life, job, and dyadic satisfaction. Although the expected group difference between those with children and those with no children was not found, these results support the expected relationships among the health variables as described in section 6.9.3.3.

Job Satisfaction

Job satisfaction was significantly correlated with one of the personal characteristics, job type. This can be explained such that those reporting higher levels of job satisfaction are more likely to be pilots. Job satisfaction was also significantly correlated with all the other outcome variables except dyadic satisfaction. These relationships can be explained as; those who report higher levels of job satisfaction are more likely to report higher levels of life satisfaction and self-rated health. They are also more likely to report lower levels of loneliness, psychological distress symptoms and physical health symptoms. None of the expected group differences outlined in section 6.9.3.3 were apparent although the expected relationships among the health variables were found. These expected relationships included the positive relationship between job and life satisfaction, thus supporting the spillover hypothesis. However, the expected relationship between job and dyadic satisfaction, one component of life satisfaction was not found.

Life Satisfaction

Life satisfaction was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables. These relationships can be explained as; those who report higher levels of life satisfaction are more likely to report higher levels of job and dyadic satisfaction, and self-rated health. They are also more likely to report lower levels of loneliness, psychological distress symptoms and physical health symptoms. These results support the expected relationships among the health variables (as outlined in section 6.9.3.3) including the positive relationships among the satisfaction variables, thus supporting the spillover hypothesis.

Dyadic Satisfaction

Dyadic satisfaction was not significantly correlated with any of the personal characteristics, and was significantly correlated with loneliness and life satisfaction only. These relationships can be explained as; those who report higher levels of dyadic satisfaction are more likely to report higher levels of life satisfaction, and report lower levels of loneliness. The expected group difference between those with children and

those with no children was not found. These results support some of the expected relationships among the health variables (as outlined in section 6.9.3.3) including the positive relationship between dyadic and life satisfaction. However, the spillover hypothesis between job and dyadic satisfaction was not supported.

Psychological Distress

Psychological distress was significantly correlated with a number of the personal characteristics. These relationships can be described as; those who report higher levels of psychological distress symptoms are more likely to be separated, younger, female, cabin crew, have no children, and to be in their relationship for a shorter period of time. Psychological distress was also significantly correlated with all the other outcome variables except dyadic satisfaction. These relationships can be described as; those who report higher levels of psychological distress symptoms are more likely to report higher levels of loneliness and physical health symptoms, and report lower self-rated health. They are also more likely to report lower levels of job and life satisfaction. As expected, younger individuals, and those who have been in their relationship for a shorter period of time were more likely to report higher levels of psychological distress symptoms. However, contrary to expectations, those with no children reported higher levels of psychological distress symptoms. The other expected group differences (as outlined in section 6.9.3.3) were not found, however, these results support the expected relationships among the health variables.

Physical Health

Physical health was significantly correlated with a number of the personal characteristics. These relationships can be described as; those who report higher levels of physical health symptoms are more likely to be younger, female, cabin crew, have no children, and to have been in their relationships for a shorter period of time. Physical health was also significantly correlated with all the other outcome variables except dyadic satisfaction. These relationships can be described as; those who report higher levels of physical health symptoms are more likely to report higher levels of loneliness and psychological distress symptoms, and report lower self-rated health. They are also

more likely to report lower levels of job and life satisfaction. As expected, females were more likely to report higher levels of physical health symptoms, however, contrary to expectations, so were younger individuals. Other expected group differences, (as outlined in section 6.9.3.3), were not found. These results support the expected relationships among the health variables.

Self-Rated Health

Self-rated health was significantly correlated with a number of the personal characteristics. These relationships can be described as; those who report higher self-rated health are more likely to be older, male, pilots, and to have been in their relationships for a longer period of time. Self-rated health was also significantly correlated with all the other outcome variables except dyadic satisfaction. These relationships can be described as; those who report higher self-rated health are more likely to report lower levels of loneliness, psychological distress symptoms, and physical health symptoms. They are also more likely to report higher levels of job and life satisfaction. As expected, males were more likely to report higher self-rated health. Although the other expected group differences (as outlined in section 6.9.3.3) were not found, these results support the expected relationships among the health variables.

8.5.2 Analyses Addressing Specific Hypotheses

Two-tailed t tests were used to examine differences in group means (between females and males, between those in heterosexual and those in same-gender relationships, between those who are separated and those who are not, and between pilots and cabin crew) on personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables. These are presented in Tables 5 to 10. These analyses were undertaken in order to test hypotheses 5 to 11.

Table 5
Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across gender for international crew.

	Female (<i>n</i> = 93)		Male (<i>n</i> = 116)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	31.49	6.53	41.65	7.16	10.71***
Relationship length	2.20	.83	3.51	1.23	9.18***
Employment length ^a	.36	.37	.54	.43	3.23**
Loneliness	1.54	.10	1.58	.11	2.87**
Job satisfaction	61.70	9.86	63.38	10.49	1.12
Life satisfaction	3.38	.93	3.45	.94	.54
Dyadic satisfaction	5.69	1.38	6.01	1.39	1.65
Psychological distress	1.58	.10	1.53	.11	4.05***
Physical health	6.35	1.60	5.14	2.10	4.73***
Self-rated health	1.79	.34	1.58	.31	4.81***

^a current position.
p* < .01. *p* < .001.

Differences Between Female and Male Travelling Partners

There were three significant differences in personal characteristics between females and males. Males were older than females, $t(203.58) = 10.71, p<.001$, had been in their relationship longer, $t(201.60) = 9.18, p<.001$, and had been in their current position longer, $t(207) = 3.23, p<.01$. There were a number of significant differences between females and males on the seven outcome variables. These differences were on loneliness, psychological distress symptoms, physical health symptoms and self-rated health. Males had higher levels of loneliness than females, $t(207) = 2.87, p<.01$, and lower self-rated health, $t(207) = 4.81, p<.001$. Females had higher levels of psychological distress symptoms than males, $t(207) = 4.05, p<.001$, and higher levels of physical health symptoms, $t(206.62) = 4.73, p<.001$.

Table 6
Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across gender for national crew.

	Female (<i>n</i> = 31)		Male (<i>n</i> = 34)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	32.94	4.34	39.53	5.58	5.27***
Relationship length	2.51	.92	3.12	1.34	2.34*
Employment length ^a	.68	.27	.47	.33	2.73**
Loneliness	1.56	.11	1.54	.12	.45
Job satisfaction	58.84	11.27	62.47	12.21	1.24
Life satisfaction	3.63	1.10	3.35	.89	1.12
Dyadic satisfaction	6.33	1.72	5.82	1.15	1.38
Psychological distress	1.54	.12	1.48	.09	1.99
Physical health	5.99	2.00	4.17	1.66	4.01***
Self-rated health	1.77	.37	1.59	.33	1.98

^a current position.
p* < .05. *p* < .01. ****p* < .001.

These differences could be in terms of gender alone, rather than a gender difference associated with work-related separation. To test for this, female and male national crew members were compared (Table 6). There were fewer significant differences between females and males among the national crew. Similarities to the international comparisons were in terms of age, relationship length, and physical health. Males were older than females, $t(63) = 5.27, p < .001$, had been in their relationship longer, $t(63) = 2.34, p < .05$, and reported lower levels of physical health symptoms, $t(63) = 4.01, p < .001$. However, unlike the international comparisons, there were no significant differences between females and males in terms of loneliness, psychological distress symptoms, and self-rated health. In addition, the significant relationship on length of time in their current position was reversed. Females were the ones who had been employed in their current position longer, $t(63) = 2.73, p < .01$.

Differences Between Heterosexual and Same-Gender Travelling Partners

There was only one significant difference between those in heterosexual and those in same-gender relationships, and that difference was on the personal characteristic variable, relationship length. Those in a heterosexual relationship had been in their relationship longer than those in a same-gender relationship, $t(207) = 2.46, p < .05$.

There were no significant differences between the two groups on any of the outcome variables. It was not possible to test national crew for differences between those in same-gender and those in heterosexual relationships as the number of national crew in same-gender relationships was too small.

Table 7

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across relationship type for international crew.

	Same-gender (<i>n</i> = 14)		Heterosexual (<i>n</i> = 195)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	35.57	4.59	37.24	8.74	1.21
Relationship length	2.14	1.11	2.91	1.25	2.46*
Employment length ^a	.51	.36	.46	.42	.47
Loneliness	1.57	.09	1.56	.11	.36
Job satisfaction	64.29	7.32	62.46	10.40	.65
Life satisfaction	3.67	.69	3.40	.95	1.05
Dyadic satisfaction	6.23	1.47	5.84	1.39	1.01
Psychological distress	1.57	.10	1.55	.11	.68
Physical health	5.80	2.10	5.67	1.97	.25
Self-rated health	1.58	.27	1.68	.35	1.02

^a current position.

* $p < .05$.

Differences Between Those Who Are Separated and Those Who Are Not

There was one significant difference in personal characteristics between those who are separated (international crew) and those who are not separated (national crew). Those who were not separated (national crew) had been in their current position longer than those who were separated (international crew), $t(136.18) = 2.23, p < .05$. On the outcome

variables, there were two significant differences between those who were separated (international crew) and those who were not (national crew). Those who were separated (international crew) reported higher levels of psychological distress symptoms, $t(272) = 2.78, p < .01$, and higher levels of physical health symptoms than those who were not separated (national crew), $t(272) = 2.27, p < .05$.

Table 8

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across airline.

	International (<i>n</i> = 209)		National (<i>n</i> = 65)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	37.13	8.53	36.38	6.00	.78
Relationship length	2.92	1.23	2.83	1.08	.61
Employment length ^a	.46	.41	.57	.32	2.23*
Loneliness	1.56	.10	1.55	.11	.86
Job satisfaction	62.58	10.22	60.74	11.82	1.22
Life satisfaction	3.42	.93	3.48	1.00	.48
Dyadic satisfaction	5.87	1.39	6.06	1.46	.98
Psychological distress	1.55	.11	1.51	.11	2.78**
Physical health	5.68	2.00	5.04	2.04	2.27*
Self-rated health	1.67	.34	1.68	.36	.08

^a current position.

* $p < .05$. ** $p < .01$.

Differences Between International Pilots and International Cabin Crew (Travelling Partners)

There were two significant differences in personal characteristics between international pilots and international cabin crew. International pilots were older than international cabin crew, $t(207) = 6.69, p < .001$, and had been in their relationship longer, $t(207) = 7.03, p < .001$. There were a number of significant differences between international pilots and international cabin crew on the seven outcome variables. These differences were on job and life satisfaction, and psychological distress symptoms, physical health symptoms, and self-rated health.

Table 9

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across job type for international crew.

	Pilots (<i>n</i> = 53)		Cabin crew (<i>n</i> = 156)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	43.28	7.31	35.04	7.89	6.69***
Relationship length	3.87	1.15	2.61	1.12	7.03***
Employment length ^a	.51	.43	.44	.41	1.02
Loneliness	1.55	.10	1.57	.11	.74
Job satisfaction	66.51	8.45	61.24	10.45	3.32**
Life satisfaction	3.02	.81	3.56	.93	3.76***
Dyadic satisfaction	5.77	1.25	5.90	1.44	.56
Psychological distress	1.48	.09	1.58	.10	6.32***
Physical health	3.88	1.62	6.28	1.70	8.99***
Self-rated health	1.51	.32	1.73	.33	4.17***

^a current position.

p* < .01. *p* < .001.

International cabin crew had higher levels of psychological distress symptoms, $t(207) = 6.32$, $p < .001$, higher levels of physical health symptoms, $t(207) = 8.99$, $p < .001$, and higher levels of self-rated health than international pilots, $t(207) = 4.17$, $p < .001$.

International pilots had higher levels of job satisfaction than international cabin crew, $t(207) = 3.32$, $p < .01$, but lower levels of life satisfaction, $t(207) = 3.76$, $p < .001$.

These differences could be in terms of job type alone, rather than a difference associated with work-related separation. To test for this, national pilots and national cabin crew were compared (Table 10).

Table 10

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across job type for national crew.

	Pilots (<i>n</i> = 32)		Cabin crew (<i>n</i> = 33)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	39.41	5.40	33.45	5.08	4.58***
Relationship length	3.13	1.16	2.54	.92	2.26*
Employment length ^a	.46	.31	.67	.30	2.79**
Loneliness	1.53	.12	1.56	.11	.98
Job satisfaction	62.44	11.71	59.09	11.88	1.14
Life satisfaction	3.30	.89	3.66	1.01	1.46
Dyadic satisfaction	5.87	1.15	6.24	1.71	1.04
Psychological distress	1.49	.10	1.53	.11	1.61
Physical health	4.24	1.84	5.80	1.94	3.32**
Self-rated health	1.59	.32	1.76	.38	1.97

^a current position.

p* < .05. *p* < .01. ****p* < .001.

There were fewer significant differences between national pilots and national cabin crew. Similarities to the international comparisons were in terms of age, relationship length, and physical health symptoms. National pilots were older than national cabin crew, $t(63) = 4.58$, $p < .001$, had been in their relationship longer, $t(63) = 2.26$, $p < .05$, and reported lower levels of physical health symptoms, $t(63) = 3.32$, $p < .01$. However, unlike the international comparisons, there were no significant differences between national pilots and national cabin crew in terms of job and life satisfaction, and psychological distress symptoms and self-rated health. There was one relationship which was significant between national pilots and national cabin crew which was not apparent in the international comparison. This was on employment length, where national cabin crew had been in their current position longer than national pilots, $t(63) = 2.79$, $p < .01$.

This section has detailed results from both the correlation analyses and the *t* tests. The next section describes the multivariate analyses.

8.6 Regression Analyses

To examine the relationships found among the variables in the simple correlation analyses, multivariate regression analyses were run to control for the inter-relationships among variables and to assess higher order relationships. In the *t* tests international and national crew were separated to test the effects of work-related separation using a control group. In the following regression analyses both international and national crew were included, as separation (the dichotomous variable where international crew = 0, and national crew = 1) was one of the variables entered in the equation.

Hierarchical regression analyses were used to assess three blocks of variables on each of the six outcome variables. In the first block, the effects of separation and personal characteristic variables were estimated. Levels of educational qualifications were made into a dichotomous variable by grouping those with no qualifications and those with school qualifications together, and by grouping those with post-school qualifications together ("Education", where no qualifications and school qualifications = 1, and post-school qualifications = 2). Family composition was made into a dichotomous variable by grouping those with children together, and grouping those with no children together ("Children", where no children = 0, and children = 1). Gender was dichotomous (where male = 1, and female = 2), and separation was dichotomous (where separated = 0, and not separated = 1). Other personal characteristic variables entered were age and relationship length. Work-related variables entered on this step were the dichotomous variable "Job type" (pilots = 1, and cabin crew = 2), employment length, and length of time in the current position. On the second step, the effect of loneliness was estimated after controlling for separation and personal characteristics. On the third step, the interaction of loneliness and separation was entered. To create the product term ("Separation X Loneliness"), the scores on the variable "Loneliness" were centred (by subtracting the mean of the variable from each score) in order to eliminate nonessential

correlation between the interaction term and its individual parts (the variables "Separation" and "Loneliness") (Jaccard, Turrisi, & Wan, 1990). By entering the product term, the proposed moderating effect was tested (hypothesis 2). The proposed moderating effect suggests that loneliness moderates the relationship between separation and each of the six outcome variables. That is, if loneliness is low, there is a weak relationship between separation and the outcome variables. If loneliness is high, the relationship is stronger (this assumes a linear relationship). If the beta weight for the interaction term is significantly different from zero, then the estimated effect of separation on the outcome variable varies across levels of loneliness (Jaccard et al., 1990).

In the following six regression equations, the standardised beta coefficient for each variable is reported as well as the total variance explained by each step of each regression equation (R^2 and adjusted R^2). The added variance explained by each block of variables while controlling for previous blocks is also reported (R^2 change). The six regression equations have been divided into two groups - equations involving the three satisfaction variables, and equations involving the other three health measures.

8.6.1 The Relationship of Separation, Loneliness, and Satisfaction

In this subsection, results are presented of three hierarchical multiple regression analyses which determine if separation and level of loneliness significantly predict the level of job satisfaction, life satisfaction, and dyadic satisfaction (hypotheses 1 and 8). All three regression analyses also tested the hypothesis that loneliness would moderate the effect separation has on satisfaction (hypothesis 2).

Job Satisfaction

The results of this analysis are presented in Table 11. R was significantly different from zero at each step.

Table 11

Hierarchical multiple regression of personal characteristics and loneliness on job satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.105	-.102	-.105
Age	-.121	-.117	-.114
Gender	.026	-.054	-.048
Education	-.169**	-.124*	-.123*
Job type	-.167*	-.090	-.091
Employment length	-.099	-.083	-.085
Time in current position	-.121	-.106	-.114
Relationship length	.259**	.250**	.253**
Children	-.012	.005	.003
Loneliness		-.318***	-.289***
Separation X Loneliness			-.054
Multiple R	.34***	.45***	.46***
Total R^2	.11	.21	.21
Adj R^2	.08	.18	.17
ΔR^2		.09***	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

At the first step, separation and personal characteristics explained 8% of variance (adjusted R^2) in job satisfaction, $F(9,262) = 3.69$, $p < .001$. The three significant contributing variables were education, relationship length and, as expected from the correlation analysis, job type. Education and relationship length were not significantly correlated with job satisfaction in the correlation analyses, however, Tabachnick and Fidell (1989) suggest that a large regression coefficient does not always directly predict the DV, but can predict the DV well after another IV "suppresses" irrelevant variance. There may be a variable in the regression equation that is suppressing some shared variance and allowing another aspect of the relationships between education and job satisfaction, and relationship length and job satisfaction to be expressed. When IVs are correlated with each other, correlations and regression coefficients can be misleading (Tabachnick & Fidell, 1989). Education was correlated with gender and employment length, and relationship length was correlated with age, employment length, and length

of time in the current position. The three significant beta weights may be interpreted as higher job satisfaction levels for pilots, for those with no post-school qualifications, and for those who have been in their current relationship longer.

At step two, with the addition of loneliness, total variance explained in job satisfaction increased to 18% (adjusted R^2), $F(10,261) = 6.75$, $p < .001$. Loneliness, which was significantly associated with job satisfaction in the correlation analysis, and a significant predictor in this analysis ($Beta = -.318$), accounted for 10% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, job type, which was significant in the first step and significantly associated with job satisfaction in the correlation analysis, was no longer significant, with a drop in $Beta$ from $-.17$ to $-.09$. This suggests that the relationship of job type with job satisfaction is mediated by loneliness. Education and relationship length maintained their significant relationships with job satisfaction, with education dropping slightly in magnitude and significance.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which was 17%, $F(11,260) = 6.19$, $p < .001$. The R^2 change after entering the interaction term was not significant. Loneliness, education, and relationship length maintained their significant relationships with job satisfaction. Separation, age, gender, employment length, length of time in the current position, and children were not significantly related to job satisfaction in the correlation analyses, and were not significant predictors at any step in the multivariate analysis.

Life Satisfaction

The results of this analysis are presented in Table 12. R was significantly different from zero at each step.

At the first step, separation and personal characteristics explained 9% of variance (adjusted R^2) in life satisfaction, $F(9,262) = 3.84$, $p < .001$. The only significant contributing variable was job type which was not significantly associated with life satisfaction in the correlation analyses. However, this IV may be predicting life

satisfaction after other IVs have suppressed irrelevant variance (Tabachnick & Fidell, 1989). Job type was related to separation in the correlation analysis. The significant beta weight may be interpreted as higher life satisfaction levels for pilots.

Table 12

Hierarchical multiple regression of personal characteristics and loneliness on life satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.112	-.108	-.112
Age	-.222	-.216	-.212
Gender	.120	.019	.028
Education	-.056	.000	.003
Job type	-.371***	-.273***	-.272***
Employment length	-.034	-.014	-.017
Time in current position	-.014	-.005	-.006
Relationship length	.146	.134	.139
Children	-.065	-.044	-.047
Loneliness		-.404***	-.357***
Separation X Loneliness			-.086
Multiple R	.34**	.52**	.52***
Total R^2	.12	.27	.27
Adj R^2	.09	.24	.24
ΔR^2		.15***	.01

** $p < .01$. *** $p < .001$.

At step two, with the addition of loneliness, total variance explained in life satisfaction increased to 24% (adjusted R^2), $F(10,261) = 9.47$, $p < .001$. Loneliness, which was significantly associated with life satisfaction in the correlation analysis, and a significant predictor in this analysis ($Beta = -.404$), accounted for 15% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, job type maintained its significant relationship with life satisfaction, although its effect was partially mediated by loneliness (the beta weight dropped in magnitude).

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 24%, $F(11,260) = 8.80, p < .001$. The R^2 change after entering the interaction term was not significant. Job type and loneliness both maintained their significant relationships with life satisfaction. Separation, age, gender, education, employment length, length of time in the current position, relationship length, and children were not significantly related to life satisfaction in the correlation analyses, and were not significant predictors at any step in the multivariate analysis.

Dyadic Satisfaction

The results of this analysis are presented in Table 13. R was significantly different from zero at steps two and three but not at step one.

At the first step, separation and personal characteristics explained only 2% of variance (adjusted R^2) in dyadic satisfaction, $F(9,262) = 1.49, p = .15$. The one significant contributing variable was job type which was not significantly correlated with dyadic satisfaction in the correlation analysis. The significant beta weight may be interpreted as higher dyadic satisfaction levels for pilots.

At step two, with the addition of loneliness, total variance explained in dyadic satisfaction increased to 7% (adjusted R^2), $F(10,261) = 3.11, p < .001$. Loneliness, which was significantly associated with dyadic satisfaction in the correlation analysis, and a significant predictor in this analysis ($Beta = -.251$), accounted for 6% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, job type was no longer significant with a drop in $Beta$ from $-.17$ to $-.11$ suggesting that the relationship of job type with dyadic satisfaction is mediated by levels of loneliness.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 7%, $F(11,260) = 2.82, p < .01$. The R^2 change after entering the interaction term was not significant. Loneliness maintained its significant relationship with dyadic satisfaction. Separation, age, gender, education, employment length, length of time in the current position, relationship length, and children were not significantly

associated to dyadic satisfaction in the correlation analyses, and were not significant predictors in the multivariate analysis.

Table 13

Hierarchical multiple regression of personal characteristics and loneliness on dyadic satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.108	-.106	-.106
Age	-.061	-.056	-.057
Gender	.029	-.034	-.035
Education	-.028	.007	.006
Job type	-.170*	-.109	-.108
Employment length	-.128	-.116	-.116
Time in current position	.084	.095	.097
Relationship length	.013	.005	.005
Children	-.096	-.083	-.082
Loneliness		-.251***	-.256***
Separation X Loneliness			.009
Multiple R	.22	.33***	.33**
Total R^2	.05	.11	.11
Adj R^2	.02	.07	.07
ΔR^2		.06***	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

8.6.2 The Relationship of Separation, Loneliness, and Health

In this subsection, results are presented of three hierarchical multiple regression analyses which determine if separation and level of loneliness significantly predict the level of psychological distress symptoms, physical health symptoms, and self-rated health (hypotheses 1 and 7). All three regression analyses also tested the hypothesis that loneliness would moderate the effect separation has on each of the three health variables (hypothesis 2).

Psychological Distress

The results of this analysis are presented in Table 14. R was significantly different from zero at each step.

At the first step, separation and personal characteristics explained 17% of variance (adjusted R^2) on the HSCL, $F(9,262) = 6.96, p < .001$. The four significant contributing variables were separation, education, job type, and relationship length. Separation, job type, and relationship length were all significantly related to the HSCL in the correlation analyses. However, education was not related to the HSCL in the correlation analysis. There may be a variable in the regression equation that is suppressing some shared variance and allowing another aspect of the relationship between psychological distress and education to be expressed (Tabachnick & Fidell, 1989). These four significant beta weights may be interpreted as higher reporting of psychological distress symptoms for those who are separated, for those with post-school qualifications, for cabin crew, and for those who have been in their relationship for a shorter period of time.

At step two, with the addition of loneliness, total variance explained on the HSCL increased to 24% (adjusted R^2), $F(10,261) = 9.43, p < .001$. Loneliness, which was significantly related to the HSCL in the correlation analysis, and a significant predictor in this analysis ($Beta = .281$), accounted for 8% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, education was no longer significant with a drop in $Beta$ from .14 to .11, suggesting that the relationship of education with psychological distress is mediated by levels of loneliness. Separation, job type, and relationship length maintained their significant relationships on the HSCL. The beta weight for job type dropped in both magnitude and significance, suggesting a partial mediating effect of loneliness on the relationship between job type and psychological distress.

Table 14

Hierarchical multiple regression of personal characteristics and loneliness on psychological distress showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.121*	-.123*	-.121*
Age	-.041	-.045	-.047
Gender	.053	.123	.119
Education	.144*	.105	.103
Job type	.238**	.170*	.171*
Employment length	.149	.134	.137
Time in current position	.069	.056	.062
Relationship length	-.225**	-.216**	-.219**
Children	.041	.026	.028
Loneliness		.281***	.257***
Separation X Loneliness			.043
Multiple R	.44***	.52***	.52***
Total R^2	.19	.27	.27
Adj R^2	.17	.24	.24
ΔR^2		.07***	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 24%, $F(11,260) = 8.60$, $p < .001$. The R^2 change after entering the interaction term was not significant. Separation, job type, relationship length, and loneliness all maintained their significant relationships on the HSCL. Employment length and time in the current position were not significantly associated with the HSCL in the correlation analyses, or in the multivariate analysis. Age and gender, while significantly related to the HSCL in the correlation analyses, were not significant predictors in the multivariate analysis. This may be as a result of their significant relationships with other personal characteristics (with each other, and with a number of other personal characteristic variables) in the correlation analyses (Tabachnick & Fidell, 1989).

Physical Health

The results of this analysis are presented in Table 15. R was significantly different from zero at each step.

Table 15

Hierarchical multiple regression of personal characteristics and loneliness on physical health symptoms showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.043	-.044	-.045
Age	-.113	-.115	-.115
Gender	.030	.071	.072
Education	.111*	.087	.088
Job type	.409***	.368***	.368***
Employment length	.196	.188	.188
Time in current position	.032	.024	.024
Relationship length	-.163*	-.158*	-.158*
Children	.026	.017	.017
Loneliness		.166**	.167**
Separation X Loneliness			-.000
Multiple R	.54***	.56***	.56***
Total R^2	.29	.31	.31
Adj R^2	.26	.29	.28
ΔR^2		.03**	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

At the first step, separation and personal characteristics explained 26% of variance (adjusted R^2) on the PILL, $F(9,262) = 11.73$, $p < .001$. The three significant contributing variables were education, job type and relationship length. Job type and relationship length were both significantly associated with the PILL in the correlation analyses but education was not. There may be a variable in the regression equation that is suppressing some shared variance and allowing another aspect of the relationship between education and physical health to be expressed (Tabachnick & Fidell, 1989). These three significant beta weights may be interpreted as higher reporting of physical health symptoms for those with post-school qualifications, cabin crew and for those who have been in their relationship for a shorter period of time.

At step two, with the addition of loneliness, total variance explained on the PILL increased to 29% (adjusted R^2), $F(10,261) = 11.87, p < .001$. Loneliness, which was significantly related to physical health symptoms in the correlation analysis, and a significant predictor in this analysis ($Beta = .166$), accounted for 2% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, both job type and relationship length maintained their significant relationships on the PILL with the beta weight for job type dropping slightly in magnitude. Education, which was significant in the first step, was no longer significant, with a drop in $Beta$ from .11 to .09. This suggests that the relationship of education with physical health is mediated by loneliness.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which was 28%, $F(11,260) = 10.75, p < .001$. The R^2 change after entering the interaction term was not significant. Job type, relationship length, and loneliness all maintained their significant relationships on the PILL. Separation, age, gender, and children did not significantly contribute to dyadic satisfaction in the multivariate analysis although they were all significantly related to the PILL in the correlation analyses. This may be a result of the significant relationships between each individual variable and other personal characteristics as seen in the correlation analyses (Tabachnick & Fidell, 1989). Education, employment length, and length of time in the current position were not significantly associated to the PILL in the correlation analyses, and were not significant predictors in the multivariate analysis.

Self-Rated Health

The results of this analysis are presented in Table 16. R was significantly different from zero at each step.

At the first step, separation and personal characteristics explained 10% of variance (adjusted R^2) in self-rated health, $F(9,262) = 4.35, p < .001$. The two significant contributing variables were gender and children. Gender was significantly associated with self-rated health in the correlation analyses but children was not. There may be a variable in the regression equation that is suppressing some shared variance and

allowing another aspect of the relationship between children and self-rated health to be expressed (Tabachnick & Fidell, 1989). The two significant beta weights may be interpreted as higher levels of self-rated health for males and for those with no children.

Table 16

Hierarchical multiple regression of personal characteristics and loneliness on self-rated health showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for crew ($N = 274$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.014	-.012	-.016
Age	.008	.011	-.016
Gender	-.226**	-.282***	-.271**
Education	-.041	-.068	-.065
Job type	-.126	-.071	-.074
Employment length	-.062	-.051	-.054
Time in current position	.006	.017	.004
Relationship length	.170	.163	.168
Children	-.151*	-.140	-.144
Loneliness		-.224***	-.172*
Separation X Loneliness			-.096
Multiple R	.36***	.42***	.43***
Total R^2	.13	.18	.18
Adj R^2	.10	.14	.15
ΔR^2		.05***	.01

* $p < .05$. ** $p < .01$. *** $p < .001$.

At step two, with the addition of loneliness, total variance in self-rated health increased to 14% (adjusted R^2), $F(10,261) = 5.58$, $p < .001$. Loneliness, which was significantly associated with self-rated health in the correlation analysis, and a significant predictor in this analysis ($Beta = -.224$), accounted for 5% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, gender maintained its significant relationship with self-rated health. Children, which was significant in the first step, was no longer significant, with a drop in $Beta$ from $-.15$ to $-.14$. This suggests that the relationship of children with self-rated health is mediated by loneliness.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which was 15%, $F(11,260) = 5.28$, $p < .001$. The R^2 change after entering the interaction term was not significant. Gender and loneliness both maintained their significant relationships with self-rated health. Separation, education, employment length, and time in the current position were not significantly related to self-rated health in the correlation analyses, or in the multivariate analysis. Age, job type, and relationship length, while significantly related to self-rated health in the correlation analyses, were not significant predictors at any step in the multivariate analysis. This could be due to their significant relationships with other personal characteristics (to a number of other personal characteristic variables) as can be seen in the correlation analyses (Tabachnick & Fidell, 1989).

The previous five sections have presented the results from the quantitative analyses. The following section addresses the analysis, sample description, and results from the qualitative part of the crew study.

Part B - Qualitative

8.7 Open-Ended Questions

The following subsections address the qualitative part of the survey used in the crew study. This section begins with a description of the analysis used, which is followed by an introduction to the respondents. Finally, the results are presented under each of the six individual questions.

8.7.1 Analysis

Content analysis was chosen as the most appropriate qualitative method of analysis for the six open-ended questions as it enabled the identification of ideas and patterns.

The content analysis was qualitative in form in that the categories, or grouped responses, came from the data (Morgan, 1993; Mostyn, 1985). The use of counts that resulted from the coding effort summarised patterns which helped guide the interpretation of the data (Morgan, 1993).

Using numbers is not uncommon in qualitative analysis. In essence, most qualitative researchers rely on an underlying logic of quantification in order to understand the patterns in data (Morgan, 1993). Miles and Huberman (1994) suggest using numbers as an alternative to cumbersome narrative text but advise including direct quotations (the raw data) in any reporting as they reveal the level of emotion of the participant.

Using counts has several advantages. It allows the researcher to "express your degree of confidence that your data really does support the points that you have called categories" and serves "as an indication of how important or widespread each category is among your informants" (Riley, 1990, p. 123). Using counts explicitly improves "impressionistic judgements of the frequencies of codes" and therefore "helps keep researchers honest" (Miles & Huberman, 1984). They also give the reader a "tangible basis for assessing what the analyst claims are the important patterns in the data" (Morgan, 1993, p. 118).

8.7.2 Sample Description

An instruction on the questionnaire asked that participants complete this section of the questionnaire if they were international crew, or if they felt work-related separations affected their relationships. This allowed national crew to participate if they felt that the times they left home early in the morning and returned home late at night, or the times over night they spent away as part of their work constituted separations from their family. In addition, national crew who had previously flown with the international airline and who therefore had experiences of work-related separations were able to respond. It was proposed that the few national crew who completed this part of the questionnaire would not distort the trends reported by the international crew because of the small number involved. Not all the open-ended questions were applicable to all participants, for example, the first question was directed at parents. Also some questions sought additional information to that already asked in the quantitative section of the questionnaire. Therefore, the response rate varied depending on whether the question was applicable and whether participants had anything further to add. The response rate does not in this case suggest a lack of salience or lack of interest, but could mean the questionnaire was comprehensive. (The number of respondents is recorded separately under the relevant question in the results subsection.)

8.7.3 Results

Although every individual response is a valid expression of the experience of work-related separation, not all responses can be recorded here. The results are therefore presented with the most common response for each separate question listed first, along with the number and percentage of respondents mentioning it. After the most common response has been presented, responses made by fewer people are listed, along with the number of people who responded similarly. With the small numbers (typical of qualitative data), percentages become meaningless and are not presented for the later, and less-often mentioned responses. Some direct quotations are provided to illustrate the response category, as suggested by Miles and Huberman (1994).

Question 1: *What do you think you can do to help your children cope with the tours of duty?* Of the 157 international and national crew with children, either of their own or of their partner, 108 (68.8%) completed this question.

The most common response was to spend "quality time" with the children when they returned home ($n = 43$, 39.8%). This quality time included family activities ($n = 3$) but usually was not specified. Two respondents noted a negative aspect to spending time with their children. As one respondent wrote:

Spend as much quality time with them as is poss' when at home (leaves less time for partner!)

Another common response was explaining to the children where they were going, using maps and an atlas ($n = 25$). Three respondents suggested it helped the children cope if they were allowed to do some of the packing and unpacking of suitcases.

Other ways of helping the children cope with the work-related separations included taking the children on working trips ($n = 14$), and keeping in contact with the children while they were away ($n = 12$). Three respondents suggested building the children's sense of independence and responsibility, and six respondents wrote that the children should be shown love and told that they are loved. Two respondents said they took care to avoid arguments when they returned. Three respondents thought routines should be kept the same whether they were at home or not.

Some respondents suggested changing the working environment so that it would be easier for the children. These changes included making the trips shorter ($n = 4$), working part-time ($n = 2$), having more flexible rosters ($n = 1$), spending more time between trips ($n = 1$), and resigning ($n = 3$).

Not all respondents had suggestions for helping their children cope with the work-related separations. One respondent didn't know what could be done to help the children cope, six respondents said the children were used to the parental absences so it was not an issue, and four respondents said that as their children were older, it was no longer a problem.

Question 2: *Is there anything you notice which is affected by the separations which has not been covered in this questionnaire?* Of the 309 crew members who completed the questionnaire, 108 answered this question (35.0%).

Fatigue and tiredness were cited most often ($n = 19$, 17.6%) and blamed for putting pressure on their relationships.

The crew member's position in the family was a concern for many respondents. Fitting back into the role of parent or partner caused problems when they returned ($n = 14$), and five respondents were concerned that the bonding between themselves and their children was jeopardised, especially if the children were young. The loss of involvement in family life such as birthdays and special occasions concerned many, as well as the day-to-day activities ($n = 14$). As one respondent wrote:

I notice that it is impossible to catch up on the small things (both good & bad) that have happened in the life of my wife/children while I have been away. This reduces the feeling of sharing in our relationship and the sense of facing life/enjoying life as a family unit.

Other concerns were that their social lives were disrupted ($n = 7$) as well as daily routines ($n = 4$). Three respondents felt resentment that their partner thought they were leading a glamorous life. Because of the necessity for organisation, four respondents

wrote that they missed spontaneity in their lives and relationships. Nine respondents said the reuniting phase of the separation was difficult, especially if the tour was long.

In contrast, two respondents said that nothing was affected because of the work-related separations.

Question 3: *What is the most difficult problem you face (if any) during the period of separation (e.g., loneliness, household maintenance, children)?* Of the 309 crew members who completed the questionnaire, 232 answered this question (75.1%).

By far the most common problem mentioned was loneliness ($n = 83$, 35.8%). This included missing others, including their partner ($n = 42$), their children ($n = 23$), family generally ($n = 12$), and friends ($n = 4$). Some respondents wrote that they did not like doing things alone including going out alone ($n = 1$), eating alone ($n = 2$), and sleeping alone ($n = 13$). Sexual frustration was mentioned by 10 respondents. Four respondents found it difficult not being able to share their day-to-day happenings with their partner and seven respondents wrote that they wanted to share the sights and experiences overseas with their partner.

The second most common difficulty mentioned was boredom when overseas ($n = 23$).

As one respondent wrote:

Loneliness compounded by insomnia eg keeping occupied at 2am in the morning especially in Asian countries when little English spoken - therefore no T.V. readily available.

Some respondents spoke of the feeling that time away was enforced and wasted. For example:

Having time on your hands when you're away, I sometimes think - if I had this time off at home, I'd be doing...or...that or...tonnes of things!

And:

Loneliness, feeling I sitting here in Taipei/Singapore sitting beside a swimming pool, wandering around shops when I could be with family completing a project, enjoying my child, loving my wife.

Four respondents said that time away made them feel they were putting their life on hold. Others were concerned that they were missing out on life at home ($n = 20$). Nine respondents said they wanted to be home when they were overseas, and another nine said they were frustrated at not being able to help at home. One respondent wrote:

Feeling that 'life goes on' without you when you are away, & you miss out on a lot of home life.

Household maintenance related problems concerned 23 of the respondents. One respondent wrote:

Worried garden trees, will be pruned harshly - things will be broken - T.V. etc & expensive bills will presented on my return

And another:

Maintenance pile up when I'm away. Feel like a caretaker at home ie come home, mow lawns & go away!

Other difficult problems during the period of separation included tiredness ($n = 5$), decisions made by their partner without consultation ($n = 5$), the worry that something would happen to the partner, children, or property while they were away ($n = 8$), and concern about financial problems occurring while away ($n = 5$).

Question 4: *What, if any, special things do you do for your partner (e.g., cook special meals, notes in suitcase/under pillow, buying presents)?* Of the 309 crew members who completed the questionnaire, 245 answered this question (79.3%).

Most of the 245 respondents wrote several things for this question, including general statements about doing "lots of special things" ($n = 192$, 78.4%). One respondent wrote:

I always bring him something home as a gift, I love to cook and do anything I can for him while I'm home.

And another:

Cook lovely meals when at home. Sometimes bring presents back. When at home I try & do lots of special things - just when its good - you have to go away again. It's like a slap in the face to [the partner].

Three specific "special things" were each cited by more than one-third of the respondents. First, most respondents said they brought presents back for their partners ($n = 154$, 62.5%) or bought flowers ($n = 21$). Second, notes were left around the house or in clothing ($n = 121$, 49.4%), and under the pillow ($n = 34$). Other contact was kept by fax ($n = 13$), letter ($n = 8$), or telephone ($n = 16$). Third, food featured prominently, with 89 respondents (36.3%) cooking the meals when at home. Other respondents wrote that they brought their partner breakfast in bed ($n = 5$), took their partner out to dinner ($n = 18$), arranged the family meals before they left ($n = 8$), or left baking for the family ($n = 3$).

Help around the house was another common thing respondents said they did for their partner ($n = 25$), including specifically washing and ironing ($n = 13$). Some respondents said they were aware that their partner needed time on their own so they looked after the children while their partner went out ($n = 19$).

Not all respondents did "special things" for their partners. Three respondents said they did nothing special for their partner, another three respondents said they used to do special things for their partners but not anymore, and one respondent said they didn't, but would start.

Some respondents used the opportunity to write that they wished their partner would do certain things for them, such as having fresh fruit in the house ($n = 3$), tidying the house ($n = 2$), and picking them up and dropping them off at the airport ($n = 1$).

Question 5: *Is there anything in particular which you do to cope with the separations which has not been covered here?* Of the 309 crew members who completed the questionnaire, 135 answered this question (43.7%).

Most respondents said they coped with the work-related separations by being active, including keeping busy ($n = 18$, 13.3%), keeping fit ($n = 11$), having a hobby which they could do while overseas ($n = 2$), touring the country ($n = 3$), reading ($n = 5$), keeping a diary ($n = 2$), meeting other people for dinner ($n = 2$), being with other crew members ($n = 3$), shopping ($n = 3$), or learning another language ($n = 1$).

Contact was used to cope with the separations ($n = 15$), particularly phone calls ($n = 9$). However, two respondents stated it was better not to telephone home. As one explained:

I don't phone home anymore because it's very depressing to get the answer machine all the time!!

Some respondents said that they coped by keeping positive ($n = 4$), thinking of the positive aspects of the job ($n = 5$), not worrying ($n = 2$), accepting the separations ($n = 2$), and getting on with things ($n = 3$).

Other ways of coping with the work-related separations included planning ahead for time with their partner or family by doing the paper work while away ($n = 5$), writing letters ($n = 2$) or a diary ($n = 2$) to show their partner when they returned, and simply looking forward to being home ($n = 5$). Another 14 respondents said they coped by spending quality time with their partner when they were together.

Some respondents found compartmentalising their lives helped them to cope. One respondent said he had two separate lives, one respondent said he had created such an independent lifestyle that there was no need for a partner anymore, five respondents said they didn't think of home, and two respondents said it was best to forget about their partners. As one respondent wrote:

I try to forget about her. If I don't think about her too much, I don't miss her too much.

Three respondents said there was no need to "cope" with the separations as they needed the time apart from their partner and enjoyed the time alone.

Question 6: *If there was one thing you could share with others in your situation to cope with the separations, what would it be?* Of the 309 crew members who completed the questionnaire, 216 answered this question (69.9%).

This question provided the most individual responses although some advice was mentioned by several respondents. Trust was mentioned most often, with 24

respondents (11.1%) advising both crew members and their partners to trust each other. Another 23 respondents (10.7%) advised others not to be unfaithful. One respondent wrote:

It is really important that you trust your partner when they go away otherwise this adds extra stress to the already hard situation.

And another:

Don't ever be unfaithful to your spouse - avoid situations which could lead to temptation (or even misunderstanding by your spouse if she heard about it).

Other advice included spending time at home with the partner or family rather than friends ($n = 21$), keeping busy when overseas ($n = 11$), enjoying both the time apart and the time together ($n = 10$), making friends with other crew members and doing things with them when away ($n = 9$), and talking about the separations with others ($n = 9$), especially those in the same situation ($n = 6$). As one respondent wrote:

If you feel lonely pick up the phone and dial another crew member - chances are they're feeling the same way.

Some respondents gave warnings to others such as "don't have children" ($n = 1$), "don't fly international" ($n = 1$), "don't marry aircrew" ($n = 1$), and "don't be an international pilot" ($n = 1$).

One respondent wrote that he wished he knew some advice to give others and two respondents said they had no advice to give as they didn't consider the work-related separations to be a problem.

Additional Comments

Fifteen respondents added additional information on the back of the open-ended question sheet.

Trust, or in this case distrust, was mentioned again:

Relationship terminated since completion of this form - undoubtedly due to stressful separations brought about by aircrew separation & distrust on both sides.

Being able to organise time together was important to one respondent.

Predictability in work patterns means a lot to us. My roster comes out in two week periods so we try and plan and organise our activities and life ahead. When there are changed and disruptions that entail more work or stuff up particular plans, that causes tension between us.

Other respondents wished the researcher well with the research ($n = 8$), while some respondents expressed concern about confidentiality ($n = 8$). Some respondents gave the researcher advice on things which would affect the way individuals responded to the work-related separations, such as whether the crew member was a smoker or nonsmoker and what their gender was. As one respondent wrote:

Generally, I think women cope better than men. Women read, knit, do cross-stitch & shop when overseas. Men eat & drink & wander about!

This section has presented the results from the qualitative part of the crew study. In the next section there is a brief discussion of the results comparing the findings with previous research and comparing and contrasting results from both the quantitative and the qualitative analyses.

8.8 Discussion

In this section a summary of the findings from the crew study are presented. Findings are discussed in terms of the hypotheses and are compared with previous research findings when applicable. In the present crew study, hypotheses are discussed as they relate to the crew (travelling partners and their control group). In Chapter 9 (section 9.9), most of the same hypotheses (those which are relevant) and some additional hypotheses relating to the comparisons between travelling partners and partners at home, are also discussed. Following the discussion of the findings from the crew study, a comparison is made between the quantitative findings and the qualitative open-ended responses. General limitations of the study and recommendations for future research, together with linkages between this study and both the qualitative study of Part 1 and the partner study are discussed in Chapter 10.

8.8.1 Summary of Findings: Part A - Quantitative

Hypothesis 1: Loneliness will be a significant predictor of all six outcome variables.

The results from section 8.6 support this hypothesis in that loneliness was a significant predictor of job, life, and dyadic satisfaction, as well as psychological distress, physical health, and self-rated health. Loneliness contributed 10% to explained variance in job satisfaction, 15% in life satisfaction, and 6% in dyadic satisfaction. In psychological distress, loneliness contributed 8% to explained variance, 2% to physical health, and 5% to self-rated health.

Hypothesis 2: Loneliness will moderate the relationship between separation and all six outcome variables.

The results from section 8.6 did not support this hypothesis. Loneliness did not moderate the relationship between separation and any of the six outcome variables.

Hypothesis 5: There will be no differences in work-related separation effects between females and males for the travelling partner (international crew).

The results presented in 8.5.2 did not support this hypothesis. There were differences between male and female travelling partners (international crew). The differences were such that females reported higher levels of psychological distress, physical health symptoms and lower self-rated health. Males reported higher levels of loneliness. These differences may not be associated with work-related separation, but instead, may be related to gender alone. For instance, past research has found that females report higher levels of psychological distress (Whisman & Jacobson, 1989), while in the aviation industry, studies have shown that females report higher levels of physical health symptoms (Haugli et al., 1994). Differences were found in personal characteristics among the crew such that males were older, and had been in their relationship and their current position for a longer period of time. Age has been found to be positively correlated with self-rated health (Near et al., 1978) which may impact on the relationship between gender and self-rated health in this group of flight crew. Relationship length has been found to be negatively correlated with psychological distress symptoms (Taylor et al., 1985) which may also impact on the relationship

between gender and psychological distress in the present sample. When national crew were compared males were once again older and had been in their relationships for a longer period of time. However, females had been in their current position longer. The only difference in outcome variables for national crew was that females reported higher levels of physical health symptoms. One conclusion from comparing the analyses of international crew with national crew and the findings from previous research is that female and male travelling partners are affected differently by the work-related separations in terms of their levels of loneliness. Males are more likely to report higher levels of loneliness which may be explained by the comments of one respondent:

Generally, I think women cope better than men. Women read, knit, do cross-stitch & shop when overseas. Men eat & drink & wander about!

Hypothesis 6: *There will be no differences in work-related separation effects between those in heterosexual and those in same-gender relationships for the travelling partner (international crew).*

Hypothesis 6 was supported in that there were no differences between those in heterosexual and those in same-gender relationships in terms of the seven outcome variables. The only difference was that those in heterosexual relationships had been in their relationships longer than those in same-gender relationships.

Hypothesis 7: *Those who are separated (i.e., the travelling partner - international crew), will report higher levels of loneliness, psychological distress symptoms, and physical health symptoms, and report lower self-rated health than those who are not separated (i.e., national crew). Applying this to the multivariate analyses, separation will predict psychological distress symptoms, physical health symptoms, and self-rated health.*

The results presented in 8.5.2 partly supported this hypothesis. Those who were separated did report higher levels of psychological distress symptoms and higher levels of physical health symptoms. This finding is consistent with previous research which has found physical health (Bermudes, 1973; Hill, 1949; McCubbin et al., 1975; Snyder, 1978) and mental health (Beckman et al., 1979; Nice, 1983) to be associated with work-related separations. There was no difference between those who were separated and

those who were not in terms of loneliness and self-rated health which did not support this hypothesis.

The results from the regression analyses (see section 8.6) only partly supported this hypothesis. Separation did predict psychological distress symptoms, in that those who were separated were more likely to report higher levels of psychological distress. However, separation did not predict physical health symptoms or self-rated health. While separation appeared to be related to physical health in the bivariate analysis, when entered in a controlled regression analysis it was not a predictor of physical health. This apparent contradictory finding of the bivariate analyses and the regression analysis may be explained by the aviation work environment itself. International flight crew fly longer distances than national flight crew, a factor which has been shown to affect physical health (Haugli et al., 1994). Therefore, it is possible that the distance and features of the aviation work environment rather than the physical separation are associated with physical health symptoms.

In addition to separation predicting psychological distress, job type and relationship length were also predictors such that those who had been in their relationships for a shorter period of time and cabin crew were more likely to report higher levels of psychological distress symptoms. Education was also a predictor of psychological distress with those with post-school qualifications being more likely to report higher levels of psychological distress symptoms. This finding is supported by Wexler and McGrath (1991) who found that military dependents with higher educational qualifications were more likely to show symptoms of psychological distress. The relationship of education with psychological distress was mediated by loneliness.

Although separation was not a predictor of either of the two physical health variables, relationship length was a significant predictor of physical health symptoms. This can be explained such that those who had been in their relationships for a shorter period of time were more likely to report higher levels of physical health symptoms. Physical health symptoms was also predicted by job type and education such that cabin crew and those who had post-school qualifications were more likely to report higher levels of physical health symptoms. The relationship between physical health symptoms and job

type is supported by Haugli et al. (1994), who found that cabin crew are more likely to report higher levels of physical health symptoms. Self-rated health was also predicted by gender and children in that males and those with no children were more likely to report higher levels of self-rated health. The finding of gender and self-rated health is consistent with previous research (Near et al., 1978; Ogińska et al., 1993).

Hypothesis 8: Those who are separated (i.e., the travelling partner - international crew), will report lower levels of job satisfaction, life satisfaction, and dyadic satisfaction than those who are not separated (i.e., national crew). Applying this to the multivariate analyses, separation will predict all three satisfaction variables.

Hypothesis 8 was not supported. There were no differences in any of the three satisfaction variables between those who were separated and those who were not. In addition to this, results from the regression analyses (see section 8.6) did not support this hypothesis. Separation did not predict job, life, or dyadic satisfaction.

Although separation was not a predictor of job satisfaction, job satisfaction was predicted by education, relationship length and job type. These relationships can be explained such that those who had no post-school qualifications, those who had been in their relationships for a longer period of time and pilots were more likely to report higher job satisfaction levels. The relationship between job type and job satisfaction was mediated by loneliness. Job type also predicted life satisfaction in that pilots were more likely to report higher life satisfaction. The relationships between job type and job and life satisfaction may be explained by the higher salary and prestige, and the greater level of responsibility which the job of pilot carries in comparison to the job of a cabin crew member.

Hypothesis 9: International cabin crew will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than international pilots.

The results in section 8.5.2 partly supported this hypothesis. International cabin crew did report higher levels of psychological distress and physical health symptoms than international pilots. However, contrary to expectations, international cabin crew reported higher levels of self-rated health. This apparently contradictory finding supports Diener's (1984) assertion that objective and subjective health are different constructs.

Hypothesis 10: International pilots will report higher levels of job, life, and dyadic satisfaction than international cabin crew.

This hypothesis was partly supported by the results in section 8.5.2. International pilots did report higher levels of job satisfaction than international cabin crew. However, contrary to expectations, international cabin crew reported higher levels of life satisfaction than international pilots. This finding is difficult to explain given the increased salary and prestige associated with the job of pilot in comparison to the job of a cabin crew member. There was no difference between the two groups in terms of dyadic satisfaction.

Hypothesis 11: There will be no difference between international cabin crew and international pilots in terms of loneliness.

The results from section 8.5.2 supported this hypothesis. There was no difference between international pilots and international cabin crew in terms of loneliness.

The research goal: To examine the relationships between personal, family, and employment characteristics, and the seven outcome variables in both the international and national crew.

The results in section 8.5.1 support results from previous studies in relation to the correlations between the seven health measures in the following ways. Loneliness was found to be negatively correlated with self-rated health (Lynch, 1976) and the three satisfaction measures (Shaver & Brennan, 1991), and positively correlated with psychological distress symptoms (Shaver & Brennan, 1991) and physical health

symptoms (Lynch, 1976). Job satisfaction was positively correlated with life satisfaction (Rain et al., 1991) as well as self-rated health (Cranny et al., 1992). It was negatively correlated with psychological distress symptoms and physical health symptoms (Cranny et al., 1992). Life satisfaction was positively correlated with dyadic satisfaction (Glenn & Weaver, 1981) as well as self-rated health (Arrindell et al., 1991). Life satisfaction was negatively correlated with psychological distress symptoms and physical health symptoms (Arrindell et al., 1991). Psychological distress symptoms was positively correlated with physical health symptoms (Brenner, 1979) and negatively correlated with self-rated health (Brenner, 1979). Physical health symptoms was negatively correlated with self-rated health. Contrary to expectations, one variable which did not correlate with other health variables apart from loneliness and life satisfaction was dyadic satisfaction. One possible explanation is that, for this group of flight crew, factors of their jobs (such as the working conditions described in Chapter 4) may have more impact on their health than family factors.

Expected group differences across personal characteristics based on previous research, as outlined in sections 6.9.3.2 and 6.9.3.3 were not found except for the following. Cabin crew (Haugli et al., 1994), those who were separated (Beckman et al., 1979), those who were younger (Nice, 1983), and those who had been in their relationships for a shorter period of time (Taylor et al., 1985) were more likely to report higher levels of psychological distress symptoms. Cabin crew (Haugli et al., 1994), those who were separated (Snyder, 1978), those who had been in their relationships for a shorter period of time, females (Haugli et al., 1994), and those with no children were more likely to report higher levels of physical health symptoms. Males (Near et al., 1978), pilots (Haugli et al., 1994), those who were older, and those who had been in their relationships for a longer period of time were more likely to report higher self-rated health. Job satisfaction was correlated with job type such that pilots were more likely to report higher levels of job satisfaction. In contrast to the findings from previous research (Taylor et al., 1985) those with no children reported higher levels of psychological distress symptoms and those who were younger reported higher levels of physical health symptoms (Near et al., 1978).

8.8.2 Summary of Findings: Part B - Qualitative

The open-ended questions provided additional information on the effects of work-related separation and coping strategies. This section was included to provide participants with the opportunity to share experiences of work-related separations which were not included in the questionnaire, and to identify common coping strategies (see section 6.9.1). While most of the respondents wrote of additional negative effects and described their coping strategies for the work-related separations, some crew explained that the work-related separations were not an issue for either themselves or their families. The responses of crew who did not perceive work-related separations have been included under each relevant question.

In summary, the most common negative effects of work-related separations which crew described were tiredness, the changing role of the crew members' positions in their families (including fitting back into the family, and a loss of involvement in their children's lives) and the disruption to their social lives. The changing role of their positions in their families was consistent with the findings of Boss (1980a, 1980b) who reported that returning military fathers often had difficulty fitting back into their families. Like previous studies, the reunion was reported as being a particularly difficult period of the separations (Clark et al., 1985; Gerstel & Gross, 1984; McCubbin & Dahl, 1976). Loneliness has been reported in several previous studies to be the most difficult problem of work-related separations for the partner at home (Decker, 1978; Duvall, 1945; McCubbin et al., 1975; Rosenfeld et al., 1973). In the present study, loneliness was also reported as being the most difficult problem for crew (the travelling partners), with boredom the second most commonly mentioned problem. In a study of Indian flight crew, Barnes (1992) also found loneliness and boredom to be high among crew. Household maintenance issues were another concern for crew.

In terms of coping, crew were asked to describe strategies they used to cope with the separation, strategies they used to help their children cope with the separation, and advice on coping to others in a similar situation. The most common coping strategies crew claimed they used included keeping busy and being active while away. This coping strategy of busyness was also one of the more common strategies crew advised others in a similar situation to use. Culbert and Renshaw (1972) found keeping busy

and having an active and meaningful life were coping strategies for female partners of travelling business executives. Another common coping strategy crew in the present study described was keeping in contact with their partners and families while away. This was consistent with the findings of Gerstel and Gross (1984). However two respondents said it was depressing calling home if nobody answered. Flight crew in an Australian study claimed suspicion of their partners was fuelled when nobody answered the telephone (Jupp & Mayne, 1992). Nine respondents wrote of the way in which they tried to keep work and family separate in order to cope with the separations. This finding supports previous research where commuter couples compartmentalised work and family lives (Gerstel & Gross, 1984) as did pilots in a study by Raschmann et al. (1990). Common advice given by crew to others for whom work-related separations were part of their lives included trusting their partners, not to be unfaithful, spending time with the partner or family rather than friends, and making the most of both the time spent together and the time spent apart. Some crew suggested making friends and doing things with other crew members while away and talking to them about the separations if crew found them to be a problem. Talking to others in a similar situation was found to be a helpful coping strategy in previous studies (Hunter, 1980; McCubbin & Dahl, 1976). One-third of the crew said they bought gifts for their partners, one-third said they left notes for their partners before they left or contacted them while away, and one-third said they cooked or bought food for their partners when they were at home. Some of the strategies crew said they used to help their children cope with the work-related separations were spending quality time with them and including them in the planning of the trip. One respondent noted that by spending more time with their children, less time was available for their partner. Other strategies were taking the children on working trips, and keeping in contact with the children while on a tour of duty. Keeping in contact with the children may be a way of maintaining their "psychological presence", a phenomenon identified by Boss (1977, 1980b) in military families where work-related separations were common. This "psychological father presence" can be both a successful coping strategy and a strategy which hinders coping, depending on its degree (see section 3.4.4). It was not possible to determine the degree to which psychological father presence existed in the families of the present study.

8.8.3 A Comparison Between the Quantitative and Qualitative Findings

Questions asked in the quantitative and qualitative sections were designed to assess different aspects of the effects of work-related separations. For example coping strategies were a focus in the qualitative section, and health was a focus in the quantitative section. However, the qualitative finding that loneliness is the most difficult reported problem for the travelling partner reinforced the importance of loneliness which was found to be present in the quantitative findings. In addition, the qualitative section may have provided a clue for the presence of loneliness in crew. The clue may be in the number of reports of boredom. Further comparisons between qualitative and quantitative findings from both Part 1 and Part 2 of the present study are discussed in Chapter 10.

8.9 Chapter Summary

In this chapter the results of the crew study have been presented. These results are from both the quantitative and the qualitative analyses. A discussion of the results comparing findings with previous research concluded this chapter. The next chapter presents the results of the partner study.

Chapter 9

Results and Discussion - Partner Study

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9.1 Chapter Overview

In this chapter the results of the partner study and the results of the comparisons between crew and partners are presented. The results are divided into two parts. The first part, Part A, includes both the analyses of the quantitative data of the partner study, and the analyses comparing crew with partners. These results include both correlation analyses and *t* tests, and multivariate analyses. Part B is the analysis of the qualitative open-ended questions. Concluding this chapter is a brief discussion of the results comparing the findings with previous research and a comparison of the quantitative with the qualitative findings. The next section describes the analyses used for the quantitative part of the partner study.

Part A - Quantitative

9.2 Analyses

The statistical package, SPSS/PC (Norusis, 1988) was used for all data analyses with an alpha level set at .05. Analyses were undertaken in four main stages. First, the relationships among the variables were examined using correlations to explore the research goal. Second, specific hypotheses were tested using *t* tests. Third, demographic variables (including separation) and loneliness were regressed on the six individual outcome variables, along with a created product term, to test the predicted interaction of loneliness as stated in hypothesis 2. Finally, the data sets of both the crew and the partners were combined. After screening, *t* tests were used to examine predicted differences as outlined in hypotheses 3 and 4. The next section describes the data screening process.

9.3 Data Screening

Prior to the main analyses, data was screened for accuracy of data entry, missing values, and the fit between variable distributions to the assumptions of multivariate analyses.

Univariate distributions showed five variables which were moderately or highly skewed. For use in multivariate analyses, these variables were transformed. Relationship length and the PILL were both moderately positively skewed. These were both improved with

square root transformations. The HSCL was highly positively skewed. Logarithmic transformation reduced this considerably. The SWLS and self-rated health were both moderately negatively skewed and were improved with reflection and square root transformations.

Where descriptive statistics are provided, untransformed means and standard deviations are reported for ease of interpretation. Any tests of significance use the transformed variables. Because of the reflection before transformation of negatively skewed variables, interpretation of scores becomes confusing. To counter this, the signs in the correlation matrices and regression tables have been reversed, with the exception of the correlation between the two variables, life satisfaction and self-rated health, which were both reflected before transformation.

Checks for multivariate outliers produced no cases which met the use of the $p < .001$ criterion for Mahalanobis distances. All 200 cases were retained for further analyses. All variables were retained as none had less than 5% missing cases (Tabachnick & Fidell, 1989) except for job satisfaction. Job satisfaction had a large number of missing cases ($n = 54$, 27.0%) due to the number of partners who were not in paid employment. Where job satisfaction is used in analyses, the N is reported for each separate analysis. All other missing cases were replaced with the mean for that variable. This was done to retain the remainder of the information from those cases.

The next section describes the partners who participated in this study.

9.4 Sample Description

Detailed biographic and family information for the present sample are provided in Tables 17 and 18. Females consisted of 55.0% of the total sample and males 45.0%. Age ranged from 22 to 58 years with a mean age of 37 years. The majority of participants were New Zealanders of European descent (83.5%). Only 3.0% described themselves as New Zealand Maori and 1.0% as Pacific Islanders. Because the percentages of ethnic groups other than European New Zealanders were less than the recommended minimum group size of 10% (Tabachnick & Fidell, 1989), and could not be meaningfully combined, ethnicity was not included in further analyses.

Table 17

Summary of biographical information for partners of Air New Zealand international and national crew ($N = 200$).

Variable	Number of respondents	Percentage of respondents
Gender		
Female	110	55.0
Male	90	45.0
Age (years)		
20 - 29	26	13.0
30 - 39	97	48.5
40 - 49	62	31.0
50 +	15	7.5
Ethnic group		
New Zealand Maori	6	3.0
New Zealand European	167	83.5
Pacific Island	2	1.0
Other	25	12.5
Educational qualifications		
No school qualifications	20	10.0
School qualifications	67	33.5
Post-school qualifications	113	56.5
Employment		
Not in paid employment	52	26.0
Employed part-time	43	21.5
Employed full-time	105	52.5

More than half the participants had post-school qualifications (52.5%) with only 10.0% having no school qualifications. Most participants were in paid employment with 21.5% working part-time and 52.5% working full-time. Participants provided information about their relationship and family life. Twelve percent of the sample were in a same-gender relationship and 88.0% in a heterosexual relationship. The length of time spent in their current relationship ranged from 1 to 33 years with a mean length of 10 years. Most of the sample were partners of international crew (89.5%). The number of children the participants had ranged from none to 6. Those with three or more children consisted of 19.0% of the sample, with 46.5% having no children. Eleven percent of the sample lived with preschoolers, 15.5% lived with children where the eldest was at primary school, and 9.5% lived with children where the eldest was a teenager.

Table 18

Summary of relationship/family information for partners of Air New Zealand crew ($N = 200$).

Variable	Number of respondents	Percentage of respondents
Crew partners		
International	179	89.5
National	21	10.5
Length of current relationship (years)		
1 - 2	32	16.0
3 - 4	30	15.0
5 - 9	50	25.0
10 - 14	32	16.0
15 - 19	22	11.0
20 +	34	17.0
Type of relationship		
Same-gender	24	12.0
Heterosexual	176	88.0
Family life cycle		
Neither partner has children	88	44.0
Children, but not living with couple	12	6.0
Eldest child 0 - 5 years	22	11.0
Eldest child 6 - 12 years	31	15.5
Eldest child 13 - 18 years	19	9.5
Some children 19 + years at home	18	9.0
All adult children live away	10	5.0
Number of children		
none	93	46.5
1	22	11.0
2	47	23.5
3 +	38	19.0

Partners of international crew and partners of national crew were compared using t tests on all of the personal characteristic variables. There was no difference between the two groups on any of the variables.

In this section the sample has been described. The following section describes the results from the correlation analyses and t tests.

9.5 Correlations and t Tests

This section is divided into two subsections. The first describes the results from the correlation analyses in line with the research goal (see section 6.9.3). In the second subsection results from the t tests are described as they relate to individual hypotheses (see section 6.9.3).

9.5.1 Relationships Among Variables

The relationships among study variables were investigated in line with the research goal presented in section 6.9.3. A correlation matrix is presented in Table 19. In this subsection the relationships are described under the headings of personal characteristics and each of the seven individual outcome variables.

Personal Characteristics

Not surprisingly age and relationship length were significantly positively correlated. Relationship length was also significantly correlated with gender, children, and employment. These relationships can be described such that females, parents, and those not in paid employment are more likely to have been in their relationships longer. Age was also significantly correlated with gender and children in that those who were older were more likely to be female, and parents.

Gender was significantly correlated with age, education, employment, relationship length, and children. These relationships can be described such that females are more likely to be older, parents, to have been in their relationships longer, to have fewer educational qualifications, and not to be in paid employment.

Children was significantly correlated with age, gender, employment and relationship length. These relationships can be described as parents being more likely to be female, to be older, to have been in their relationship longer, and not to be in paid employment.

Separation and relationship type were not significantly correlated with any of the personal characteristics. Education and employment were both significantly correlated with one other personal characteristic only, gender. These relationships can be

described such that those with higher educational qualifications, and those in paid employment, are more likely to be male.

Loneliness

Loneliness was not significantly related to any of the personal characteristics but was significantly correlated to all the other outcome variables except job satisfaction. The relationships between loneliness and the other variables can be described as; those who report higher levels of loneliness are more likely to report higher levels of psychological distress symptoms and physical health symptoms. Those who report higher levels of loneliness are more likely to report lower levels of self-rated health and life and dyadic satisfaction. Although the expected group difference between those with children and those with no children was not found, these results support the expected relationships among the health variables as described in section 6.9.3.3.

Job Satisfaction

Job satisfaction was only significantly correlated with one other variable, life satisfaction. This relationship can be explained such that those who report higher levels of job satisfaction are more likely to report higher levels of life satisfaction. None of the expected group differences outlined in section 6.9.3.3 were found. The expected positive relationship of job satisfaction with life satisfaction was apparent, thus supporting the spillover hypothesis. However, the expected relationship between job and dyadic satisfaction, one component of life satisfaction, was not found.

Life Satisfaction

Life satisfaction was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables. These relationships can be explained as; those who report higher levels of life satisfaction are more likely to report higher levels of job and dyadic satisfaction, and report higher self-rated health. They are also more likely to report higher levels of loneliness, and lower levels of psychological distress symptoms and physical health symptoms. These results support the expected relationships among the health variables (as outlined in section 6.9.3.3) including the positive relationships among the satisfaction variables, thus supporting the spillover hypothesis.

Table 19Inter-correlations^a between personal and outcome variables for partners ($N = 200$).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Separation														
2 Age	-.01													
3 Gender	-.00	.32**												
4 Education ^b	-.01	-.06	-.19*											
5 Employment	.03	.08	-.38**	.10										
6 Relationship length	-.02	.61**	.57**	-.11	-.37**									
7 Children	.02	.56**	.58**	-.09	-.43**	.59**								
8 Relationship type	.03	.06	.16	-.04	-.04	.14	.17							
9 Loneliness	-.10	-.06	-.13	.07	-.07	-.08	-.04	-.06						
10 Job satisfaction ^c	.21	.07	.09	-.05	.08	-.05	.05	-.03	-.18					
11 Life satisfaction	.12	.15	.15	-.03	.02	.13	.13	-.09	-.48**	.26*				
12 Dyadic satisfaction	.05	-.03	.03	.05	.01	.01	-.06	-.01	-.39**	.05	.46**			
13 Psychological distress	-.09	-.01	.14	.03	-.12	.07	.05	.01	.35**	-.16	-.32**	-.41**		
14 Physical health	-.09	-.01	.07	.01	-.03	.02	-.04	.01	.20*	-.10	-.26**	-.38**	.73**	
15 Self-rated health	.03	.02	-.09	-.01	.14	-.08	-.06	-.05	-.24**	.06	.24**	.26**	-.50**	-.55**

^a using simple Pearson correlation coefficients. ^b no school & school qualifications = 1, post-school qualifications = 2. ^c $n = 146$.* $p < .05$. ** $p < .01$.

Dyadic Satisfaction

Dyadic satisfaction was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables except job satisfaction. These relationships can be explained as; those who report higher levels of dyadic satisfaction are more likely to report higher levels of life satisfaction, and report higher self-rated health. They are also more likely to report higher levels of loneliness, and lower levels of psychological distress symptoms and physical health symptoms. Although the expected group difference between those with children and those with no children was not found, these results support the relationships among the health variables (as outlined in section 6.9.3.3). These expected relationships included the positive relationship between dyadic satisfaction and life satisfaction, thus supporting the spillover hypothesis. However, there was no significant correlation between dyadic satisfaction and job satisfaction.

Psychological Distress

Psychological distress was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables except job satisfaction. These relationships can be explained as; those who report higher levels of psychological distress symptoms are more likely to report higher levels of loneliness and physical health symptoms, and report lower self-rated health. They are also more likely to report lower levels of life and dyadic satisfaction. Although the expected group differences (as outlined in section 6.9.3.3) were not found, these results support the expected relationships among the health variables.

Physical Health

Physical health was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables except job satisfaction. These relationships can be explained as; those who report higher levels of physical health symptoms are more likely to report higher levels of loneliness and psychological health symptoms, and report lower self-rated health. They are also more likely to report lower levels of life and dyadic satisfaction. Although the expected group differences (as outlined in section 6.9.3.3) were not found, these results support the expected relationships among the health variables.

Self-Rated Health

Self-rated health was not significantly correlated with any of the personal characteristics, but was significantly correlated with all the other outcome variables except job satisfaction. These relationships can be explained as; those who report higher self-rated health are more likely to report lower levels of loneliness, psychological distress symptoms, and physical health symptoms. They are also more likely to report higher levels of life and dyadic satisfaction. Although the expected group differences (as outlined in section 6.9.3.3) were not found, these results support the expected relationships among the health variables.

9.5.2 Analyses Addressing Specific Hypotheses

Two-tailed t tests were used to examine differences in group means (between females and males, between those in heterosexual and those in same-gender relationships, and between those who are separated and those who are not) on personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables. These are presented in Tables 20 to 22. These analyses were undertaken in order to test hypotheses 5 to 8.

Differences Between Female and Male Partners at Home

There were two significant differences in personal characteristics between females and males. Females were older than males, $t(176) = 4.70, p < .001$, and had been in their relationships longer, $t(174.95) = 10.30, p < .001$. The only significant difference between males and females on the seven outcome variables was on life satisfaction, where females had higher levels than males, $t(176) = 2.38, p < .05$. This difference could be in terms of gender alone, rather than a gender difference associated with work-related separation. However, it was not possible to check this difference against the control group (national partners) as the N s were too small.

Table 20

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across gender for partners of international crew.

	Female (<i>n</i> = 98)		Male (<i>n</i> = 80)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	39.89	6.98	34.63	7.98	4.70***
Relationship length	3.65	1.11	2.15	.84	10.30***
Loneliness	36.52	10.35	39.19	9.93	1.74
Job satisfaction ^a	73.71	10.82	70.58	12.71	1.48
Life satisfaction	3.16	.86	3.47	.89	2.38*
Dyadic satisfaction	114.16	14.92	114.98	16.65	.34
Psychological distress	1.50	.11	1.47	.08	1.87
Physical health	4.16	1.89	3.91	1.56	.96
Self-rated health	1.53	.33	1.48	.29	1.08

^a female *n* = 52, male *n* = 73.

p* < .05. **p* < .001.

Differences Between Heterosexual and Same-Gender Partners at Home

There was only one significant difference between those in heterosexual and those in same-gender relationships, and that difference was on the personal characteristic variable, relationship length. Those in heterosexual relationships had been in their relationships longer than those in same-gender relationships, $t(176) = 2.43, p < .05$.

There were no significant differences between the two groups on any of the outcome variables. It was not possible to test partners of national crew (the control group) for differences between those in same-gender and those in heterosexual relationships as the *N*s were too small.

Differences Between Those Who Are Separated and Those Who Are Not

There was only one significant difference between those who are separated (international partners) and those who are not (national partners). Those who are not separated (national partners) reported higher levels of job satisfaction than those who are separated (international partners), $t(144) = 2.53, p < .05$.

Table 21
Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across relationship type for partners of international crew.

	Same-gender (<i>n</i> = 22)		Heterosexual (<i>n</i> = 156)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	36.27	7.75	37.71	7.90	.80
Relationship length	2.38	1.14	3.06	1.24	2.43*
Loneliness	38.91	11.10	37.55	10.11	.58
Job satisfaction ^a	73.68	11.57	71.59	12.11	.70
Life satisfaction	3.46	.95	3.28	.87	.93
Dyadic satisfaction	115.86	17.76	114.34	15.42	.43
Psychological distress	1.48	.10	1.49	.10	.34
Physical health	4.13	1.73	4.03	1.76	.24
Self-rated health	1.46	.24	1.51	.32	.71

^a same-gender *n* = 19, heterosexual *n* = 106.

**p* < .05.

Table 22
Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across crew partner's airline.

	International (<i>n</i> = 178)		National (<i>n</i> = 22)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	37.53	7.88	37.23	6.70	.17
Relationship length	2.98	1.23	2.88	1.31	.33
Loneliness	37.72	10.22	34.50	9.34	1.41
Job satisfaction ^a	71.89	12.01	80.20	12.49	2.53*
Life satisfaction	3.30	.88	2.97	.70	1.67
Dyadic satisfaction	114.53	15.68	117.23	15.88	.76
Psychological distress	1.49	.10	1.46	.07	1.27
Physical health	4.04	1.75	3.57	1.48	1.22
Self-rated health	1.50	.32	1.48	.31	.38

^a international *n* = 131, national *n* = 15.

**p* < .05.

This section has detailed results from both the correlation analyses and the *t* tests. The next section describes the multivariate analyses.

9.6 Regression Analyses

To examine the relationships found among the variables in the simple correlation analyses, multivariate regression analyses were run to control for the inter-relationships among variables and to assess higher order relationships. In the *t* tests partners of international crew and partners of national crew were separated to test the effects of work-related separation using a control group. In the following regression analyses both partners of international crew and partners of national crew were included, as separation (the dichotomous variable where partners of international crew = 0, and partners of national crew = 1) was one of the variables entered in the equation.

Hierarchical regression analyses were used to assess three blocks of variables on each of the six outcome variables. In the first block, the effects of separation and personal characteristic variables were estimated. Levels of educational qualifications were collapsed into three groups - no qualifications, school qualifications, and post-school qualifications. From these groups, two *dummy* dichotomous variables were created. In one, those with no qualifications were compared with those with school or post-school qualifications ("Education 1", where no qualifications = 0, and school and post-school qualifications = 1), and in the other, those with no qualifications or school qualifications were compared with those with post-school qualifications ("Education 2", where no qualifications and school qualifications = 0, and post-school qualifications = 1). Family composition was made into a dichotomous variable by grouping those with children together, and grouping those with no children together ("Children", where no children = 0, and children = 1). Employment status was also made into a dichotomous variable ("Employment", where not in paid employment = 1, and in paid employment = 2). Gender was dichotomous (where male = 1, and female = 2), relationship type was dichotomous (where same-gender = 1, and heterosexual = 2), and separation was dichotomous (where separated = 0, and not separated = 1). Other personal characteristic variables entered were age and relationship length. On the second step, the effect of loneliness was estimated after controlling for separation and personal characteristics. On the third step, the interaction of loneliness and separation was entered. To create the

product term ("Separation X Loneliness"), the scores on the variable "Loneliness" were centred (by subtracting the mean of the variable from each score) in order to eliminate nonessential correlation between the interaction term and its individual parts (the variables "Separation" and "Loneliness") (Jaccard et al., 1990). By entering the product term, the proposed moderating effect was tested (hypothesis 2). The proposed moderating effect suggests that loneliness moderates the relationship between separation and each of the six outcome variables. That is, if loneliness is low, there is a weak relationship between separation and the outcome variables. If loneliness is high, the relationship is stronger (this assumes a linear relationship). If the beta weight for the interaction term is significantly different from zero, then the estimated effect of separation on the outcome variable varies across levels of loneliness (Jaccard et al., 1990).

In the following six regression equations, the standardised beta coefficient for each variable is reported as well as the total variance explained by each step of each regression equation (R^2 and adjusted R^2). The added variance explained by each block of variables while controlling for previous blocks is also reported (R^2 change). The six regression equations have been divided into two groups - equations involving the three satisfaction variables, and equations involving the other three health measures.

9.6.1 The Relationship of Separation, Loneliness, and Satisfaction

In this subsection, results are presented of three hierarchical multiple regression analyses which determine if separation and level of loneliness significantly predict the level of job satisfaction, life satisfaction, and dyadic satisfaction (hypotheses 1 and 8). All three regression analyses also tested the hypothesis that loneliness would moderate the effect separation has on satisfaction (hypothesis 2).

Job Satisfaction

The results of this analysis are presented in Table 23. R was not significantly different from zero at any of the three steps, indicating that the study variables, including separation and loneliness, were not significant predictors of job satisfaction.

Table 23

Hierarchical multiple regression of personal characteristics and loneliness on job satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 146$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	.221***	.208*	.183*
Age	.165	.158	.157
Gender	.168	.151	.142
Education 1	.127	.105	.112
Education 2	-.107	-.095	-.096
Employment	.036	.020	.025
Relationship length	-.245*	-.244*	-.233
Children	.064	.064	.070
Relationship type	-.064	-.059	-.060
Loneliness		-.115	-.088
Separation X Loneliness			-.086
Multiple R	.33	.35	.36
Total R^2	.11	.12	.13
Adj R^2	.05	.06	.06
ΔR^2		.01	.01

* $p < .05$. *** $p < .001$.

Life Satisfaction

The results of this analysis are presented in Table 24. R was significantly different from zero at steps two and three but not at step one.

At the first step, separation and personal characteristics explained 2% of variance (adjusted R^2) in life satisfaction, $F(9,190) = 1.38$, $p = .20$, with no beta weight significantly different from zero.

Table 24

Hierarchical multiple regression of personal characteristics and loneliness on life satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 200$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	.116	.072	.082
Age	.109	.074	.076
Gender	.132	.065	.071
Education 1	-.028	-.091	-.093
Education 2	.006	.051	.050
Employment	.105	.046	.046
Relationship length	.006	-.008	-.015
Children	.012	.026	.022
Relationship type	.058	.036	.039
Loneliness		-.463***	-.475***
Separation X Loneliness			.041
Multiple R	.25	.51***	.51***
Total R^2	.06	.26	.26
Adj R^2	.02	.22	.22
ΔR^2		.20***	.00

*** $p < .001$.

At step two, with the addition of loneliness, total variance explained in life satisfaction increased to 22% (adjusted R^2), $F(10,189) = 6.73$, $p < .001$. Loneliness, which was significantly related to life satisfaction in the correlation analysis, and a significant predictor in this analysis ($Beta = -.463$), accounted for 20% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 22%, $F(10,188) = 6.13$, $p < .001$. The R^2 change after entering the interaction term was not significant. Loneliness maintained its significant relationship with life satisfaction. No personal characteristic variable was significantly related to job satisfaction in the correlation analyses, and none were significant predictors at any step in the multivariate analysis.

Dyadic Satisfaction

The results of this analysis are presented in Table 25. R was significantly different from zero at steps two and three but not at step one.

Table 25

Hierarchical multiple regression of personal characteristics and loneliness on dyadic satisfaction showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 200$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	.058	.020	.042
Age	-.017	-.048	-.042
Gender	-.021	-.079	-.068
Education 1	.065	.010	-.005
Education 2	.028	.068	-.065
Employment	-.010	-.062	-.062
Relationship length	.101	.090	.073
Children	-.085	-.073	-.082
Relationship type	.003	-.015	-.010
Loneliness		-.405***	-.430***
Separation X Loneliness			.088
Multiple R	.13	.41***	.42***
Total R^2	.02	.17	.18
Adj R^2	-.03	.13	.13
ΔR^2		.15***	.01

*** $p < .001$.

At the first step, separation and personal characteristics explained -3% of variance (adjusted R^2) in dyadic satisfaction, $F(9,190) = 0.38$, $p = .94$, with no beta weight significantly different from zero.

At step two, with the addition of loneliness, total variance explained in dyadic satisfaction increased to 13% (adjusted R^2), $F(10,189) = 3.91$, $p < .001$. Loneliness,

which was significantly associated with dyadic satisfaction in the correlation analysis, and a significant predictor in this analysis ($Beta = -.405$), accounted for 15% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 13%, $F(11,188) = 3.69$, $p < .001$. The R^2 change after entering the interaction term was not significant. Loneliness maintained its significant relationship with dyadic satisfaction. Neither separation nor any of the personal characteristic variables were significantly related to dyadic satisfaction in the correlation analyses and were not significant predictors at any step in the multivariate analysis.

9.6.2 The Relationship of Separation, Loneliness, and Health

In this subsection, results are presented of three hierarchical multiple regression analyses which determine if separation and level of loneliness significantly predict the level of psychological distress symptoms, physical health symptoms, and self-rated health (hypotheses 1 and 7). All three regression analyses also tested the hypothesis that loneliness would moderate the effect separation has on each of the three health variables (hypothesis 2).

Psychological Distress

The results of this analysis are presented in Table 26. R was significantly different from zero at steps two and three but not at step one.

At the first step, separation and personal characteristics explained 0% of variance (adjusted R^2) on the HSCL, $F(9,190) = 1.01$, $p = .44$, with no beta weight significantly different from zero.

Table 26

Hierarchical multiple regression of personal characteristics and loneliness on psychological distress showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 200$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.084	-.050	-.053
Age	-.069	-.042	-.043
Gender	.164	.216*	.214*
Education 1	-.071	-.022	-.022
Education 2	.093	-.057	.058
Employment	-.093	-.046	-.046
Relationship length	.015	.026	.028
Children	-.063	-.074	-.073
Relationship type	-.002	.014	.014
Loneliness		.360***	.363***
Separation X Loneliness			-.011
Multiple R	.21	.41***	.41***
Total R^2	.05	.17	.17
Adj R^2	.00	.12	.12
ΔR^2		.12***	.00

* $p < .05$. *** $p < .001$.

At step two, with the addition of loneliness, total variance explained on the HSCL increased to 12% (adjusted R^2), $F(10,189) = 3.80$, $p < .001$. Loneliness, which was significantly associated with the HSCL in the correlation analysis, and a significant predictor in this analysis ($Beta = .360$), accounted for 12% unique variance when controlling for separation and the personal characteristics. The added variance explained by loneliness while controlling for the first block of variables (R^2 change) was significant. Of the control variables, the beta weight for gender became significant (it was not related to the HSCL in the correlation analysis) possibly because of the effect loneliness has in removing or suppressing irrelevant variance in the relationship between gender and the HSCL (Tabachnick & Fidell, 1989). The relationship is such that females have higher levels of reporting psychological distress symptoms.

At the third step, the interaction term did not contribute to total variance (adjusted R^2) which remained at 12%, $F(11,188) = 3.44$, $p < .001$. The R^2 change after entering the

interaction term was not significant. Gender and loneliness both maintained their significant relationships on the HSCL. Apart from gender, no other personal characteristic variable, including separation, was significantly related to the HSCL in the correlation analyses, and none were significant predictors at any step in the multivariate analysis.

Physical Health

The results of this analysis are presented in Table 27. R was not significantly different from zero at any step, indicating that the study variables, including separation and loneliness, were not significant predictors of physical health.

Self-Rated Health

The results of this analysis are presented in Table 28. R was not significantly different from zero at any step, indicating that the study variables, including separation and loneliness, were not significant predictors of self-rated health.

Table 27

Hierarchical multiple regression of personal characteristics and loneliness on physical health symptoms showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 200$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	-.081	-.061	-.065
Age	.005	.021	.020
Gender	.146	.177	.174
Education 1	-.055	-.026	-.025
Education 2	-.050	.029	.030
Employment	-.033	-.006	-.006
Relationship length	-.004	.002	.005
Children	-.148	-.154	-.152
Relationship type	.007	.016	.015
Loneliness		.214**	.220**
Separation X Loneliness			-.019
Multiple R	.16	.26	.26
Total R^2	.03	.07	.07
Adj R^2	-.02	.02	.01
ΔR^2		.04**	.00

** $p < .01$.

Table 28

Hierarchical multiple regression of personal characteristics and loneliness on self-rated health showing standardised regression coefficients (β), R , R^2 , adjusted R^2 (adj R^2), and R^2 change (ΔR^2) for partners ($N = 200$).

Predictor variables	β		
	Step 1	Step 2	Step 3
Personal characteristics			
Separation	.023	-.000	.012
Age	.114	.095	.098
Gender	-.036	-.071	-.065
Education 1	.036	.004	.001
Education 2	-.044	-.020	-.022
Employment	.118	.087	.088
Relationship length	-.080	-.087	-.095
Children	.006	.013	.008
Relationship type	-.039	-.050	-.047
Loneliness		-.240**	-.253***
Separation X Loneliness			.045
Multiple R	.18	.29	.30
Total R^2	.03	.09	.09
Adj R^2	-.01	.04	.03
ΔR^2		.05**	.00

** $p < .01$. *** $p < .001$.

The previous five sections have presented the results from the quantitative analyses of the partner study. The following section compares data from both the crew study and the partner study.

9.7 Comparisons Between Crew and Partners

In this section the data screening procedure is described and comparisons are made between international and national crew and their partners. These comparisons are between the international crew and their partners (those who are separated), and between national crew and their partners (those who are not separated).

9.7.1 Data Screening

The two data sets were combined and screened for missing values and normality of variable distributions.

Univariate distributions showed four variables which were moderately skewed. The PILL and the HSCL were both moderately positively skewed. These were both improved with square root transformations. The SWLS and self-rated health were both moderately negatively skewed. They were both improved with reflection and square root transformations. Checks for multivariate outliers produced no cases which met the use of the $p < .001$ criterion for Mahalanobis distances. All 509 cases were retained for further analyses. Job satisfaction had a large number of missing cases ($n = 54$, 10.61%) due to the number of partners who were not in paid employment. Where job satisfaction is used in analyses, the N is reported for each separate analysis. All other variables had less than 5% missing cases (Tabachnick & Fidell, 1989) and were retained. Missing cases were replaced with the mean for that variable. This was done to retain the remainder of the information from those cases.

The next subsection details the results from the comparisons.

9.7.2 Analyses

First, comparisons were made between international crew and international partners (comparing the travelling partner with the partner at home) to test hypotheses 3 and 4. Then comparisons were made between national crew and national partners (the control groups). This was to determine if the differences found between the international crew and their partners were as a result of the work-related separation, or if the differences found were as a result of some other factor, such as differences between those employed at Air New Zealand and those who are not. The means and standard deviations for international crew and their partners on personal characteristics, loneliness, and the six outcome variables are presented in Table 29, and for national crew and their partners, in Table 30.

Table 29

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across international crew/partners.

	Crew (<i>n</i> = 210)		Partners (<i>n</i> = 178)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	37.10	8.52	37.53	7.88	.52
Relationship length	10.12	7.95	10.40	7.99	.34
Loneliness	37.50	9.13	37.72	.22	.22
Job satisfaction ^a	62.62	10.16	71.89	12.01	7.61***
Life satisfaction	3.42	.93	3.30	.88	1.26
Dyadic satisfaction	112.68	16.28	114.52	15.68	1.13
Psychological distress	6.02	.73	5.57	.67	6.21***
Physical health	5.68	1.97	4.04	1.75	8.56***
Self-rated health	1.67	.34	1.50	.32	5.02***

^a partners *n* = 131.

****p* < .001.

There were no significant differences between international crew and their partners on age, relationship length or loneliness. The only significant difference between the groups in reported satisfaction levels was on job satisfaction, where international partners reported higher levels of satisfaction with their jobs than international crew, $t(336) = 7.61, p < .001$. As expected, international crew reported higher levels of psychological distress symptoms than their partners, $t(386) = 6.21, p < .001$, and higher levels of physical health symptoms, $t(386) = 8.56, p < .001$. International crew rated their health significantly higher than international partners, $t(386) = 5.02, p < .001$.

National crew and their partners were then compared. The results of the comparisons between national crew and their partners were similar to the results for the comparisons between international crew and their partners. There were no significant differences between national crew and national partners on age, relationship length, or loneliness. Job satisfaction was again reported as significantly higher for national partners than national crew, $t(78) = 5.69, p < .001$.

Table 30

Means and standard deviations for personal characteristics, loneliness, satisfaction, psychological distress, and physical health variables across national crew/partners.

	Crew (<i>n</i> = 65)		Partners (<i>n</i> = 22)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	36.38	6.00	37.23	6.70	.55
Relationship length	9.14	6.77	9.95	8.34	.46
Loneliness	36.62	9.68	34.50	9.34	.89
Job satisfaction ^a	60.74	11.82	80.20	12.49	5.69***
Life satisfaction	3.48	1.00	2.97	.70	2.21*
Dyadic satisfaction	110.17	18.27	117.14	15.89	1.59
Psychological distress	5.73	.74	5.38	.43	2.13**
Physical health	5.04	2.04	3.57	1.48	3.11**
Self-rated health	1.68	.36	1.48	.31	2.32*

^a partners *n* = 15.

p* < .05. *p* < .01. ****p* < .001.

In addition, for national crew and their partners, there was a significant difference between the groups on life satisfaction. National crew reported higher levels of life satisfaction than national partners, $t(85) = 2.21$, $p < .05$. National crew also reported higher levels of psychological distress symptoms, $t(63.53) = 2.13$, $p < .01$, higher levels of physical health symptoms, $t(85) = 3.11$, $p < .01$, and higher levels of self-rated health than national partners, $t(85) = 2.32$, $p < .05$.

This section has compared the travelling partner with the partner at home by comparing international crew with their partners. The following section addresses the analysis, sample description, and results from the qualitative part of the partner study.

Part B - Qualitative

9.8 Open-Ended Questions

The following subsections address the qualitative part of the survey used in the partner study. This section begins with a description of the analysis used, which is followed by an introduction to the respondents. Finally, the results are presented under each of the six individual questions.

9.8.1 Analysis

Content analysis was chosen as the most appropriate qualitative method of analysis for the six open-ended questions as it enabled the identification of ideas and patterns. (See section 8.7.1 for a full discussion of the analysis of open-ended questions.)

9.8.2 Sample Description

An instruction on the questionnaire asked that participants complete this section of the questionnaire if they were partners of international crew, or if they felt work-related separations affected their relationships. This allowed partners of national crew to participate if they felt that the times their crew partners left home early in the morning and returned home late at night, or the times over night the crew partners spent away as part of their work constituted separations from their partners. In addition, partners of national crew, where the crew partners had previously flown with the international airline, and who therefore had experiences of work-related separations, were able to respond. It was proposed that the few partners of national crew who completed this part of the questionnaire would not distort the trends reported by the partners of international crew because of the small numbers involved. Not all the open-ended questions were applicable to all participants, for example, the first question was directed at parents. Also some questions sought additional information to that already asked in the quantitative section of the questionnaire. Therefore, the response rate varied depending on whether the question was applicable and whether participants had anything further to add. The response rate does not in this case suggest a lack of salience or lack of interest, but could mean the questionnaire was comprehensive. (The number of respondents is recorded separately under the relevant question in the results subsection.)

9.8.3 Results

Although every individual response is a valid expression of the experience of work-related separation, not all responses can be recorded here. The results are therefore presented with the most common response for each separate question listed first, along with the number and percentage of respondents mentioning it. After the most common response has been presented, responses made by fewer people are listed, along with the number of people who responded similarly. With the small numbers (typical of qualitative data), percentages become meaningless and are not presented for the later, and less-often mentioned responses. Some direct quotations are provided to illustrate the response category, as suggested by Miles and Huberman (1994).

Question 1: *What do you think you can do to help your children cope with the tours of duty?* Eighty four of the possible 112 international and national partners who had children either of their own or of their partner completed this question (75.0%).

The most common response was to say they should be doing more with their children ($n = 36$, 42.9%). Some respondents wrote they should spend more time with the children while the absent parent was away ($n = 18$), while other respondents said they should make sure the children kept busy ($n = 6$). Another eight respondents stated they should plan interesting additional activities for the children when one parent was absent, and four respondents said they should visit their family and friends as special outings.

In contrast, 10 respondents said tours should be treated as normal which included keeping a regular routine.

Another common response was to try to keep the absent parent alive in their children's minds ($n = 33$, 39.3%). As one respondent wrote:

Keep mentioning Dad. They tend to tun[e] out that he even exists.

Techniques to do this included using an atlas or map, showing their children photos of the absent parent, and either making things or doing things for the absent parent to be given to them when they returned ($n = 24$). Another strategy that five respondents believed would help children "remember" the absent parent was contact and one

respondent suggested taking the children on a trip so they could see what their parent did when away.

Some additional responses included giving their children treats during the absence ($n = 3$), giving them extra reassurance that they are loved ($n = 4$), giving their children support ($n = 2$), and encouraging their children to talk about the difficulties of the separation ($n = 3$).

Five respondents believed they should make the children more independent and responsible so they could cope with the separations. As one respondent wrote:

Help them become responsible for themselves so they don't feel so dependent and therefore at the merci of the job.

Not all respondents had suggestions for helping their children cope with the work-related separations. One respondent didn't know what could be done, and one respondent wrote there was nothing to be done. Another five respondents said that as their children were older, it was no longer a problem. Three respondents wrote that work-related separations didn't pose a problem, therefore it was inappropriate to discuss "coping".

Question 2: *Is there anything you notice which is affected by the separations which has not been covered in this questionnaire?* Of the 200 partners who completed the questionnaire, 88 answered this question (44.0%).

There were two main areas which appeared to be important for the partners which had not been covered in the questionnaire. They were socialising, and the reuniting phase of the separation.

First, 11 respondents (12.5%) mentioned that socialising was difficult. When their partner was away they felt neither single, nor married, and friends didn't tend to invite them out.

Second, 12 respondents (13.6%) commented on the reuniting phase of the separation. They said this phase was particularly difficult, both in terms of handing back some of the responsibilities, and because of the mood in which their partner returned. As one respondent wrote:

His mind is still overseas for a couple of days after he returns. It's like a divided house until he settles to 'us' again. Also he's a pain for a couple of days. Tired, bad tempered.

Another respondent wrote:

I feel that the greatest areas of stress is undoubtedly first 48 on returning home. He has to fit back in to a family unit which has got along just fine without him: and he is trying to do this while recovering from the effects of jet lag, so his problem is two-fold. We have learnt to be very patient for 48 hours.

Some additional areas of concern which partners mentioned were; finding longer trips more difficult to cope with ($n = 3$), making decisions for the two of them or the family on their own ($n = 7$), tiredness, either of their partner ($n = 8$) or their own tiredness as they did not sleep well on their own ($n = 3$), jealousy of their partner's more glamorous life ($n = 6$), the changes in their children's behaviour, particularly if the children were very young or teenagers ($n = 4$), concern for the lack of bonding between their partner and the children ($n = 3$), concern that their own growing independence would cause the relationship to suffer ($n = 3$), and the absence of their partner on special family occasions such as birthdays ($n = 3$).

In contrast, some respondents said the work-related separations had a positive effect. Five respondents said they appreciated each other more because of the absences, one respondent had learnt patience, and two respondents wrote that they enjoyed being on their own. Two respondents said the work-related separations did not have an effect because they were not a problem.

Question 3: *What is the most difficult problem you face (if any) during the period of separation (e.g., loneliness, household maintenance, children)?* Of the 200 partners who completed the questionnaire, 165 (82.5%) answered this question.

By far the most common problem reported was loneliness ($n = 67$, 40.6%). In addition, four respondents said they missed the physical side of a relationship and seven respondents missed sharing the day-to-day experiences with their partner. The lack of companionship was a problem for 11 respondents and another 11 respondents found being excluded from a social life because they were temporarily single a problem.

At the end of the day it is quite lonely and would be good to just talk to another adult. Only 10 days a month at home & 20 days away - any social life together is nearly non-existent!!

The next most common problem was the pressure of constant 24-hour solo child rearing ($n = 19$), particularly if there were teenagers in the family.

Other difficulties reported included household maintenance ($n = 16$), problems with children, again especially if the children were teenagers ($n = 7$), sickness, both of their own and of their children ($n = 6$), making decisions on their own ($n = 7$), doing everything on their own ($n = 6$), and the frustration of coping on their own if something happened ($n = 6$).

The lack of time for themselves, and the subsequent loss of leisure activities, was an issue for 12 respondents. Five of the 12 respondents said this was because they were doing more things around the house while their partner was away, and four of the 12 respondents said they couldn't do their own thing because it was difficult to arrange child care.

Adjusting to different routines when the partner returned was difficult for three respondents and another three respondents felt they lost their independence when their partner returned home.

However, three respondents mentioned how much they enjoyed the separations as it gave them time alone and independence. Another two respondents said there were no problems with work-related separations.

Question 4: *What, if any, special things do you do for your partner (e.g., cook special meals, notes in suitcase/under pillow, buying presents)?* Partners who completed this question numbered 157, 78.5% of the total partners who completed the questionnaire.

Food featured in many of these responses. Almost half the respondents ($n = 75$, 47.8%) cooked special meals (their partner's favourite foods or healthy foods were often mentioned) for their travelling partner and an additional 10 respondents went out to dinner when the partner returned. Four respondents packed food parcels for their partners to take away with them and three respondents had baking ready for them when they returned home. As one respondent explained:

Make cakes and biscuits for the day of return. Cooking smells with my man reinforce 'home'.

Communication was also mentioned often. Respondents said they left notes for their partners, in their suitcase ($n = 30$), under the pillows ($n = 13$) and more generally around the home ($n = 28$). Other respondents said they communicated by fax ($n = 7$) or by telephone ($n = 4$). Two respondents gave their partners their photo to take with them when they were apart.

A substantial number of respondents made sure the transition back to home life was less difficult by ensuring the travelling partner came home to a tidy house ($n = 20$). In addition, two respondents made sure the ironing was up-to-date, two respondents had the paper work finished, three respondents ensured the lawns were mown, and one respondent had the car cleaned.

Time was made available by picking the travelling partner up from the airport ($n = 6$), and being home when they returned ($n = 6$). Time was set aside to listen to the trip news ($n = 11$). One respondent wrote:

Make sure I am available to spend time together as much as possible when he's home...meal and notes did not avoid the affair but more of my undivided attention would have - more of the lover and less of the mother!!!

The first night back home was said to be made easier by having no social activity planned ($n = 3$), delaying the recounting of problems which occurred in their absence until the next day ($n = 2$), ensuring there was quietness for sleeping ($n = 4$), keeping children away ($n = 4$), unpacking their partner's suitcase ($n = 1$), and leaving welcome home balloons and cards around the house ($n = 1$).

Other special things respondents wrote that they did for their partners included buying presents ($n = 47$), giving flowers or putting flowers in the house ($n = 26$), leaving cuddly toys on their partner's pillows ($n = 3$), massage ($n = 5$), and cuddles ($n = 6$).

Not all respondents said they did special things for their partners. Six respondents wrote that they did nothing, four respondents said they used to do special things but did nothing anymore, three respondents said they didn't bother as it was never noticed, and one respondent said that they didn't, but would do so from now on.

Question 5: *Is there anything in particular which you do to cope with the separations which has not been covered here?* Ninety four partners of the total 200 (47.0%) completed this question.

Most partners wrote that they tried to keep busy ($n = 64$, 68.1%). This busyness was seen as a way of coping as well as a positive outcome of the work-related separations. As one respondent wrote:

I just try and kept extremely busy. I'm most productive when he's away. That's the only positive thing about our separations.

Some of the 64 respondents used the time apart to pursue their own interests ($n = 10$), while other respondents wrote of a variety of activities they did to keep busy including

seeing friends ($n = 1$), reading ($n = 2$), and being active in the school community ($n = 1$). Many respondents said they worked hard physically ($n = 13$) to keep their minds off the separation from their partner. One of the benefits of keeping busy and doing extra activities meant they had more time to spend with their partner when they were together. As one respondent explained:

I keep letter writing, special household work or gardening or a book I've been wanting to read & get these out-of-the-way, so when he comes home (or has recovered!) we can do some things together.

Three respondents thought going on a tour of duty with their crew partner was a way of coping.

It is essential to travel occasionally (eg once a year) with him to the place he goes. Then when he returns from trips we can discuss it together eg 'Do you remember Jenny at reception, well she says Hi' or 'Do you remember where we had dinner that time, well the boys and I went there on nights and that waitress we met is still there' etc etc.

Not every respondent kept busy as a way of coping. One respondent reduced their working hours and one respondent went to bed early. Four respondents said they tried to switch off and one respondent tried not to think of their partner.

Two respondents said there was no problem with the work-related separations and three respondents said they enjoyed the separations.

Question 6: *If there was one thing you could share with others in your situation to cope with the separations, what would it be?* Of the 200 partners who completed the questionnaire, 142 (71.0%) answered this question.

This question provided the most individual responses although some advice was mentioned by several respondents. Having a life of your own with your own friends

and interests was the most common advice ($n = 27$, 19.0%). As one respondent wrote:

Have a life that is fulfilling & interesting that does not depend on your being part of a couple - Include your partner when they return but don't cease being part of the world whilst they are away.

Other common responses included keeping busy ($n = 18$) and being independent ($n = 16$). Advice was given to get support from family ($n = 14$), friends ($n = 7$), a support group ($n = 4$), or others in the same situation ($n = 3$). It was advised to make the most of the time spent together ($n = 14$), and to try and be positive ($n = 11$). Ten respondents advised good communication.

Additional Comments

Eleven respondents added additional information on the back of the open-ended question sheet.

Two respondents were concerned how the crew would cope in an emergency because of the extreme tiredness noticed in their partners. One respondent wrote:

I have noted on many occasions when my partner has returned from an international flight long haul the first 2-3 days she is like a walking zombie. She talks rubbish often. Sometimes breaks into tears and cannot explain why. I feel she shouldn't drive a motor vehicle but insiste she is OK. After 2 or 3 days rest things return to normal: but of coarse she is off for another tour of duty. How on earth these flight attendants are expected to handle an emergancy is beyond me, they just couldn't!

Two respondents wrote that it was easier to understand the constant separations if both partners in the relationship worked in the airline. Another two respondents stated how positive the work-related separations were to their relationship, which made them feel they were always on a honeymoon. In contrast, one respondent wrote that the work-related separations became more difficult as time went on. Another two respondents commented on how valuable the study was, and wished the researcher success. Other comments were individual and often directed at the airline, for example, requesting changes to the rostering system. Some comments were of a personal nature describing

particular difficulties they'd faced with the work-related separation, as in the case of a woman whose child had died while her partner had been on duty overseas.

This section has presented the results from the qualitative part of the partner study. In the next section there is a brief discussion of the results comparing the findings with previous research and comparing and contrasting results from both the quantitative and the qualitative analyses.

9.9 Discussion

In this section a summary of the findings from the partner study and the comparisons between crew and partners are presented. Findings are discussed in terms of the hypotheses and are compared with previous research findings when applicable. In the present partner study, hypotheses are discussed as they relate to the partners (partners at home and their control group). In Chapter 8 (section 8.8), most of the same hypotheses (those which were relevant) and some additional hypotheses relating to the comparisons between international pilots and cabin crew, were also discussed. Following the discussion of the findings from the partner study, a comparison is made between the quantitative findings and the qualitative open-ended responses. General limitations of the study and recommendations for future research, together with linkages between this study and both the qualitative study of Part 1 and the crew study are discussed in Chapter 10.

9.9.1 Summary of Findings: Part A - Quantitative

Hypothesis 1: Loneliness will be a significant predictor of all six outcome variables.

The results from section 9.6 partly support this hypothesis in that loneliness was a significant predictor of life and dyadic satisfaction, as well as psychological distress. Loneliness explained 20%, 15%, and 12% of the variance in the variables respectively. However, loneliness did not significantly predict job satisfaction or either of the two physical health variables.

Hypothesis 2: Loneliness will moderate the relationship between separation and all six outcome variables.

The results from section 9.6 did not support this hypothesis. Loneliness did not moderate the relationship between separation and any of the six outcome variables.

Hypothesis 3: The travelling partner (international crew) will report higher levels of physical health symptoms and psychological distress symptoms, and report lower self-rated health than the partner at home (international partner).

Hypothesis 3 was supported by the results in section 9.7.2. International crew (travelling partners) did report higher levels of psychological distress symptoms and physical health symptoms, as well as higher self-rated health than the international partners (partners at home). However, these results were not necessarily due to the work-related separations as comparisons between national crew and their partners produced similar results. Caution must be taken in the interpretation of the results involving national partners as the number was relatively small (22) and therefore raises issues of statistical power. One interpretation of the differences between crew and partners (both international and national) is the unique working conditions of crew (see Chapter 4) which have been shown to have an impact on health (Haugli et al., 1994).

Hypothesis 4: There will be no differences in loneliness or job, life, or dyadic satisfaction between travelling partners (international crew) and partners at home (international partners).

Hypothesis 4 was partly supported by the results in section 9.7.2. There were no differences between international crew (travelling partners) and their partners (partners at home) on loneliness, life satisfaction, or dyadic satisfaction. However, international crew (travelling partners) reported lower levels of job satisfaction than their partners (partners at home). Once again, this difference was not necessarily due to the work-related separations as comparisons between national crew and their partners produced similar results. One exception to this was that in addition, national crew also reported higher levels of life satisfaction than their partners. Once again, caution must be taken in the interpretation of the results involving national partners as the number of national partners was relatively small. The difference between crew and partners in job

satisfaction may be attributable to the current industrial situation at Air New Zealand (see Appendix A). One possible reason for the difference in life satisfaction between national crew and partners could be in terms of paid employment. Not all the partners were in paid employment and previous research has found that those not employed have lower levels of life satisfaction (Haw, 1982).

Hypothesis 5: There will be no differences in work-related separation effects between females and males for the partner at home (international partner).

The results from section 9.5.2 partly support this hypothesis. The only difference between females and males in terms of the seven outcome variables was in life satisfaction where males had higher levels than females. There were two differences between females and males in personal characteristics which may have affected this result. Females were older than males and had been in their relationship for a longer period of time. Previous research has generally found that age and gender are unrelated to life satisfaction although the results have been inconsistent (Arrindell et al., 1991). One possible reason for the difference in life satisfaction between international female partners at home and male international partners at home could be that many of the female partners were not in paid employment. Haw (1982) has found that those not employed have lower levels of life satisfaction. It was not possible to see if the differences were related to work-related separation or to gender itself by comparing the results with analyses of national partners because the number of national participants was too small.

Hypothesis 6: There will be no differences in work-related separation effects between those in heterosexual and those in same-gender relationships for the partner at home (international partner).

The results from section 9.5.2 support this hypothesis in that there were no differences between those in heterosexual and those in same-gender relationships in terms of the seven outcome variables. There was one difference in personal characteristics such that those in heterosexual relationships had been in their relationships for a longer period of time than those in same-gender relationships.

Hypothesis 7: *Those who are separated (international partners at home), will report higher levels of loneliness, psychological distress symptoms, and physical health symptoms, and report lower self-rated health than those who are not separated (national partners). Applying this to the multivariate analyses, separation will predict psychological distress symptoms, physical health symptoms, and self-rated health.*

The results from section 9.5.2 did not support this hypothesis. There were no differences between those who were separated and those who were not in terms of loneliness, psychological distress symptoms, physical health symptoms, and self-rated health. This finding was inconsistent with most previous research which has generally found that physical health symptoms are associated with work-related separations (Bermudes, 1973; Hill, 1949; McCubbin et al., 1975; Snyder, 1978). In contrast, one study which used a control group (Taylor et al., 1985) compared wives of offshore oil riggers with wives of oil riggers who worked onshore and found no significant differences between the groups in terms of physical health symptoms and mental health.

Separation was not a significant predictor of psychological distress symptoms, physical health symptoms, or self-rated health. One characteristic which was a significant predictor of psychological distress was gender such that females were more likely to report higher levels of psychological distress symptoms. This finding is consistent with previous research which has found that women generally report higher levels of psychological distress (Whisman & Jacobson, 1989).

Hypothesis 8: *Those who are separated (international partners at home), will report lower levels of job satisfaction, life satisfaction, and dyadic satisfaction than those who are not separated (national partners). Applying this to the multivariate analyses, separation will predict all three satisfaction variables.*

The results from section 9.5.2 partly support this hypothesis. Those who were not separated reported higher levels of job satisfaction than those who were separated. One possible interpretation for this may be that those who are separated have a greater conflict between work and family, particularly when their travelling partners are at

home. When the travelling partners are at home, partners who are in paid employment may wish to spend time with them but are unable to due to work commitments. This may lead to lower job satisfaction. The difference between the groups on job satisfaction may also simply be due to the nature of their jobs. There were no differences between the two groups on life or dyadic satisfaction. In addition, separation did not significantly predict job, life, or dyadic satisfaction.

The research goal: *To examine the relationships between personal, family, and employment characteristics, and the seven outcome variables in partners (international and national).*

The results in section 9.5.1 support results from previous studies in relation to the correlations between the seven health measures in the following ways. Loneliness was found to be negatively correlated with self-rated health (Lynch, 1976) and life (Shaver & Brennan, 1991) and dyadic satisfaction, and positively correlated with psychological distress symptoms (Shaver & Brennan, 1991) and physical health symptoms (Lynch, 1976). Job satisfaction was positively correlated with life satisfaction (Rain et al., 1991). Life satisfaction was positively correlated with dyadic satisfaction (Glenn & Weaver, 1981) as well as self-rated health (Arrindell et al., 1991). Life satisfaction was negatively correlated with psychological distress symptoms and physical health symptoms (Arrindell et al., 1991). Dyadic satisfaction was positively correlated with self-rated health (Marcenes & Sheiham, 1992) and negatively correlated with psychological distress symptoms, and physical health symptoms (Marcenes & Sheiham, 1992). Psychological distress symptoms was positively correlated with physical health symptoms (Brenner, 1979), and negatively correlated with self-rated health (Brenner, 1979). Physical health symptoms was negatively correlated with self-rated health. Contrary to expectations, one variable which did not correlate with other health variables apart from life satisfaction was job satisfaction. One possible interpretation for this is that partners who were employed both full- and part-time were included in the analyses involving job satisfaction. Perhaps for those employed part-time, job satisfaction does not impact on other aspects of their lives as much as those who are employed full-time. None of the expected group differences based on personal characteristics, as outlined in section 6.9.3.3 were found.

9.9.2 Summary of Findings: Part B - Qualitative

The open-ended questions provided additional information on the effects of work-related separation and coping strategies. This section was included to provide participants with the opportunity to share experiences of work-related separations which were not included in the questionnaire, and to identify common coping strategies (see section 6.9.1). While most of the respondents wrote of additional negative effects and described their coping strategies for the work-related separations, some partners explained that the work-related separations were not an issue for either themselves or their families. The responses of partners who did not perceive work-related separations to be a problem have been included under each relevant question.

In summary, the most common negative effect of work-related separation not covered in the main questionnaire which partners described was the limited opportunity for socialising. This finding was consistent with the findings of McCubbin et al. (1975) who found that partners of prisoners of war and soldiers missing in action reported difficulties in socialising without their soldier partners. Like the military partners in a study of Kohen (1984), partners wrote in the open-ended section that they felt neither single nor married when their travelling partners were away. The reunion was reported as being a particularly difficult period of the separations which is similar to the findings of past studies (Clark et al., 1985; Gerstel & Gross, 1984; McCubbin & Dahl, 1976). For some partners in the present study, the reunion period was difficult because of their reluctance in handing back some of the responsibilities (a finding similar to that of Bey & Lange, 1974) as well as the "bad tempered" mood in which some partners returned. Other negative effects partners described which were similar to findings from previous studies included their own growing independence (Gerstel & Gross, 1984) and the absence of their travelling partners on family occasions (Renshaw, 1976). Loneliness has been reported in several previous studies to be the most difficult problem of work-related separations (Decker, 1978; Duvall, 1945; McCubbin et al., 1975; Rosenfeld et al., 1973). In the present study, loneliness was also reported as being the most difficult problem with solo child rearing the second most commonly mentioned problem followed by household maintenance.

In terms of coping, partners were asked to describe strategies they used to cope with the separation, strategies they used to help their children cope with the separation, and advice on coping to others in a similar situation. The most common coping strategy partners claimed they used was keeping busy and being active while their travelling partners were away. In their advice to others in a similar situation, partners again said to keep busy. Keeping busy and having an active and meaningful life was a strategy Culbert and Renshaw (1972) found in wives of travelling businessmen. In addition, partners in the present study advised others to have a life of their own, to be independent, and to get support from family, friends, or a support group. Previous studies have identified coping strategies of independence in business executives' wives (Boss et al., 1979) and support from family members (Duvall, 1945; McCubbin et al., 1976) and from a group of others in a similar situation (Hunter, 1980, 1984; McCubbin & Dahl, 1976) in military wives and their families. Almost half the respondents said that they cooked special meals for their travelling partners when they were together. Many partners said they left notes for their partners or communicated by fax or telephone with their partners while they were away. Some partners said they ensured they were available for their partners when they returned and others said they made sure the house was tidy and household chores were up-to-date to make the reunion period less difficult. Some of the strategies partners said they used to help their children cope with the work-related separations were spending increased time with them and keeping the absent parent alive in their children's minds. Keeping the absent parent alive in children's minds is similar to the phenomenon of "psychological father presence" which Boss (1977, 1980b) described as both a successful coping strategy and a strategy which hindered coping, depending on its degree (see section 3.4.4). It was not possible to determine the degree to which psychological father presence existed in the families of the present study.

9.9.3 A Comparison Between the Quantitative and Qualitative Findings

Questions asked in the quantitative and qualitative sections were designed to assess different aspects of the effects of work-related separations. For example coping strategies were a focus in the qualitative section, and health was a focus in the quantitative section. However, the qualitative finding that loneliness was the most

difficult reported problem for partners at home reinforced the importance of loneliness which was found to be present in the quantitative findings. In addition, the qualitative section may have provided a clue for the presence of loneliness in partners at home. Partners at home not only mentioned that loneliness was a problem, but wrote of the difficulties in socialising when their travelling partners were away. This inability to socialise may be a contributing factor to their loneliness. Further comparisons between qualitative and quantitative findings from both Part 1 and Part 2 of the present study are discussed in Chapter 10.

9.10 Chapter Summary

In this chapter the results of the partner study, and the results comparing both the crew and their partners, have been presented. These results are from both the quantitative and the qualitative analyses. A discussion of the results comparing findings with previous research concluded this chapter. The final chapter follows, with a global discussion linking all the findings and results from the present study. Chapter 10 also includes a discussion on the limitations of the study, along with suggestions for further research.

Chapter 10

General Discussion

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10.1 Chapter Overview

In this final chapter linkages between the three studies of the present research, the qualitative study of Part 1 and the crew and partner studies of Part 2, are made. Results from each of the three studies have already been discussed separately and compared with previous research in earlier chapters (Chapters 6, 8, and 9) and are therefore not repeated in this chapter. Following a description of the linkages between the studies, limitations of the present study are considered and implications for both Air New Zealand and other industries where work-related separations are common are discussed. Finally future research directions and theoretical considerations are proposed.

10.2 Linkages Between Studies

In this section, linkages are made between the crew and the partner study (both international and national crew and their partners), and between Part 1 and Part 2 of the research. Common themes emerging from the studies as well as differences between the groups are highlighted.

10.2.1 Linkages Between the Crew Study and the Partner Study

One of the main similarities between crew and their partners was the prevalence of loneliness. In both the quantitative and the qualitative sections of the surveys, loneliness was a key factor. There was no significant difference between crew and partners in terms of the levels of loneliness reported. The only difference between groups was that male international crew reported higher levels of loneliness than female international crew. This may be because of the difference in activities between female and male international crew at stopovers. Some crew reported in the open-ended section of the questionnaires that females tended to shop more during the stopovers while males sat around or wandered about. In the regression analyses, loneliness was a predictor of all six outcome variables for crew and three of the outcome variables for partners (life and dyadic satisfaction and psychological distress). However, the amount of variance loneliness contributed was fairly small, particularly for some variables (2% for crew's physical health and 5% for crew's self-rated health and dyadic satisfaction). The total variance all variables in each equation (for both crew and their partners) contributed to the dependent variable was also fairly small indicating that there were other factors not included in the equation which were also contributors to the dependent variable. These

other factors could include additional aspects of mental health, for example, other types of satisfaction such as leisure satisfaction. In each equation, only personal characteristic variables, loneliness, and the interaction term were entered, as was appropriate to test the hypotheses of the present study. However, if other outcome variables, such as life satisfaction, were entered in the equation on, for example, job satisfaction, explained variance would have been higher. Loneliness contributed the greatest amount of variance for both crew and their partners in terms of life satisfaction (15% and 20% respectively).

Separation was a predictor of only one of the outcome variables for crew, and none of the outcome variables for partners. The one variable separation predicted was crew's psychological distress whereby international crew reported higher levels than national crew. In addition to separation predicting psychological distress in crew, the bivariate analyses found that those crew who were separated (international crew) were more likely to report higher levels of physical health symptoms than crew who were not separated (national crew), and partners who were separated (partners of international crew) were more likely to report lower levels of job satisfaction than partners who were not separated (partners of national crew). These relationships were not apparent when controlling for other personal characteristic variables in the regression analyses. In fact, the use of hierarchical multiple regression analysis (which controls for relationships between other variables), which is not common in studies of work-related separation, may explain some of the inconsistencies between the findings of the present study with findings from previous studies. That is, the fewer significant relationships between separation and outcome variables in the present study as compared with previous studies of work-related separation.

There was limited support for the spillover hypothesis in both the crew and the partner studies. In both studies, significant positive correlations were found between job and life satisfaction. However, when life satisfaction was splintered into the component dyadic satisfaction, there was no significant correlation between the work and nonwork domains in either the crew or the partner study. Significant positive correlations were found between life and dyadic satisfaction in both studies. This relationship was stronger in magnitude (although the same in terms of significance) than the relationship

between job and life satisfaction which is consistent with findings from previous studies on the work-family interface (Glenn & Weaver, 1981; Haavio-Mannila, 1971). The lack of correlation between job and dyadic satisfaction indicates that work and family life are segmented for both crew and their partners.

Other similarities between crew and their partners included the coping strategy of maintaining a "psychological father presence" in the family (Boss, 1980b). Both crew and their partners wrote of keeping the absent parent alive in their children's minds as a strategy for helping children cope with the work-related separations. Another common coping strategy both crew and their partners wrote of was activity. Keeping busy and being active was advised as a way for both themselves individually and for their children to cope with the work-related separations. In previous research on coping, activity during stressful periods has been found to help regulate emotional states because activity can discharge energy, provide a sense of mastery and control, and serve as a means of attention diversion (Gal & Lazarus, 1975). The reported increased activity level of female international crew during stopovers may explain the finding that female international crew are less lonely than male international crew. The increased activity level may be helping female international crew to regulate their feelings of loneliness. One other common coping strategy which both crew and their partners advised others to use, was to talk about the problems of work-related separations with those in a similar situation. In addition, partners advised others to talk about the difficulties with family and friends.

Both crew and their partners wrote of the difficulty in apportioning time between family members and between family and friends when the travelling partner was home. Advice was given in both studies to spend as much time with the partner as possible, which leaves little time for friends. Sharing time among family members was acknowledged by both crew and their partners to be more problematic. As one partner wrote:

My son is the centre of attention when spouse returns, this can hurt, but I understand.

10.2.2 Linkages Between Part 1 and Part 2

There were several factors of the work-related separations which emerged in both Part 1 and Part 2 of the present study. Crew in both Part 1 and Part 2 reported that loneliness and boredom were the major problems they associated with the work-related separations. For partners, loneliness was also the most difficult problem. An additional but related problem for partners was the difficulty in socialising. Partners claimed this was because of time constraints when their travelling partners were home, as well as their ambiguous position of being neither single nor married when their travelling partners were absent. Crew in Part 1 thought that their partners would be more lonely than they were, however, the statistical analyses in Part 2 comparing crew with partners on loneliness showed that there were no significant differences between the two groups.

Independence was another factor of the work-related separations which was reported in both Part 1 and the qualitative section of Part 2 of the present research. However, while independence was only ever mentioned as a positive factor by the participants in Part 1, crew and partners in Part 2 wrote of negative as well as positive aspects of independence. For example, as one crew member wrote when asked about difficult problems of the work-related separations:

Being too independent. Feeling/knowing we can live without each other. Being easily replaceable. I know he can live without me because he does live without me.

Partners said that losing their independence was one reason the reunion phase of the separations was so difficult. In addition to the negative aspects of independence cited in Part 2, independence was also said to be a successful coping strategy for work-related separations by both crew and partners for themselves and for their children.

Crew in both Part 1 and Part 2 reported their frustration at returning to an "unkempt" house. For partners, tidiness was also an issue. In the open-ended section of the partner study, partners claimed that one of the most difficult problems associated with the work-related separations was:

Maintaining the house to the level to which my partner expects.

Another partner wrote in a letter to the researcher that:

Another thing I've noticed they like to come home to tidy houses because they live in extremely nice hotels.

Some partners wrote that keeping the house tidy was one way to make the reunions less difficult.

Another similarity between the studies of Part 1 and Part 2 was the reporting of extreme tiredness. For crew, the tiredness was attributed to the job, while for partners, the tiredness was attributed to the work-related separations. Because of the work-related separations, partners claimed they were unable to sleep (some said they disliked sleeping alone, and others claimed they felt unsafe at night when they were alone), and that they had to carry the load of two people in terms of household chores and parenting, which contributed to their tiredness.

In Part 1 and in both studies of Part 2, the reunion period was cited as the most difficult period of the separation. However, the reasons for the reunion difficulties were different for crew and partners. Crew in both Part 1 and Part 2 said that the reunion phase was difficult because they were tired and "peopled out", while the partners said the reunion was difficult because of the grumpy mood in which their travelling partner returned as well as their own difficulties in handing over some of the responsibilities.

One similarity for crew in both Part 1 and Part 2 was the reporting of guilt. In both studies, crew spoke of the guilt they felt in leaving their families. This was consistent with findings from previous studies (Culbert & Renshaw, 1972; Renshaw, 1976). Guilt was one reason crew claimed they bought gifts for their partners and families.

One similar coping strategy which emerged from both Part 1 and Part 2 was contact. Contact was kept by both crew and their partners through telephone calls, faxes, and by leaving notes for each other. Crew were the ones who usually initiated telephone contact because of the difficulty partners at home had in locating them, and arrangements were often made between the couple to be available at a predetermined time. When one partner was not available when contact was initiated, both crew and partners reported frustration and suspicion of their partners' fidelity.

In the interviews of Part 1, crew told the researcher that many of their past relationships had ended because former partners had had other relationships. This was also reported

by a crew member in the open-ended section of the questionnaire. The crew member wrote:

Work related separations have ruined my trust in past partners & make it difficult for me to trust completely my present partner even though I'm sure he is faithful, I have been stung so often in the past.

Extra-marital relationships of partners was an unexpected finding. This was because of the existing stereotype of the glamorous and promiscuous nature of flight crew (the travelling partners) rather than the partner at home. In addition, the structure of the study prevented a complete picture of the extent of extra-marital relationships for either crew or partners. This was because only those individuals in a current relationship were eligible to take part in the study. It is reasonable to assume that those couples in a current relationship were either not engaging in extra-marital relationships, or had extra-marital relationships of which their partners were unaware and were not concerned with any extra-marital relationships of their partners. Therefore, the participants in the present research would be unlikely to report infidelity of their partners.

The major difference between the studies of Part 1 and Part 2 was the apparent inconsistency of the magnitude of the effects of work-related separations on individuals and their relationships. All crew interviewed in Part 1 said that the work-related separations had some effect, either positive or negative, on themselves individually and on their relationships. However, the statistical analyses of Part 2 found few differences between those who were separated and those who were not. Apparent contradictions between findings from different research methods do not necessarily reflect genuine inconsistencies but may in fact be reconciled by underlying factors (Jones, 1985). In this case, there may be two separate groups of people who experience work-related separations differently who, when combined in statistical analyses, dilute any effects of work-related separation. From the observations of the researcher and the interviews which comprised Part 1 of the present study, there were two distinct groups of flight crew - those who enjoyed the separations from their partners ("honeymoon couples") and those for whom the separations were difficult. Honeymoon couples said they thrived on the separations and did not know how their relationships would last if they were together with their partners continuously. For them, there was no lasting "reunion", but rather a break between separations. It would be interesting to study this

group when the flight crew partner retired, or when work-related separations were no longer part of their lives (i.e., when they left their employment with Air New Zealand International). Personality differences may provide some clue as to the differences between those who enjoy the separations and those who do not. Very few studies on work-related separation have examined personality variables. Jupp and Mayne (1992) found that none of the personality variables they measured (psychoticism, neuroticism, and extraversion-introversion) moderated the separation distress of the 36 female flight attendants in their study. However, other personality variables, such as external or internal locus of control (choice, and a related sense of control, was a theme which emerged from Part 1 of the present study) may moderate the effects of work-related separation and would be worthwhile to consider in future research.

In this section, linkages between the three studies of Part 1 and Part 2 have been presented. The following section discusses potential limitations of the present study.

10.3 General Limitations

When summarising findings for each individual study, limitations associated with the specific findings were discussed (see the discussion sections of Chapters 6, 8, and 9). This section provides a discussion of more general limitations of the study as a whole. These limitations include the low response rate, the cross-sectional nature of the study, the use of a self-report questionnaire, the selection of measures, the variables not included in the study, and the use of multiple statistical comparisons.

Although the actual size of the population (those flight crew with partners) was unknown, the low response rate in this study raises questions about the generalisability of the results. It is possible that some crew and partners did not respond to the questionnaire because they felt the work-related separations were too difficult to write about, or conversely, they did not think work-related separations were an issue and were therefore not prepared to spend time in completing the questionnaire. If so, the results from the present study may not be representative of the flight crew at Air New Zealand or of their partners. Another problem which applies to the partner study is that those partners who received a questionnaire from their flight crew partner may be in a different kind of relationship from those partners who did not receive a questionnaire.

It is possible that crew in unhappy relationships were not willing to give their partner a questionnaire for a number of reasons including the fear that their partners may respond in a negative way which crew may have considered would reflect on them. This possible factor concerning distribution to the partners may also contribute to an unrepresentative sample. It is also possible that there may be other unknown variables which were responsible for differences between those who completed the questionnaires and those who did not. In addition, those who responded may vary in different ways on the variables which were measured from those who did not respond. In defence of the representative nature of the samples in the present study, crew who did respond were similar on personal and work-related characteristics to the total population of Air New Zealand flight crew. The low response rate was not a problem related to the present study only, as other questionnaires distributed to flight crew at Air New Zealand traditionally have a low response rate (F. Blackwood, personal communication, May, 1995).

Related to the response rate and the generalisability of the findings to other crew at Air New Zealand and their partners is the possibility of a "rosy" sample because of the eligibility criterion where only those in a current relationship were eligible to participate. Previous research has found that married individuals (including those in relationships similar to a marriage) have higher levels of mental health, life satisfaction, and physical health, and lower levels of loneliness (Perlman & Rook, 1987). Those crew no longer in a current relationship may have had adverse experiences of work-related separation which contributed to the termination of their relationships. As the samples in the present study consisted of those whose relationships have survived, findings of work-related separation effects on relationships may be underestimated.

Another limitation of the present study is that it is cross-sectional in nature and therefore causal inferences cannot be made on the basis of these results alone. Longitudinal research on work-related separations is suggested particularly as mental and physical health symptoms are generally progressive in nature.

Other limitations of the present study concern measurement issues. By using a multimethod approach, many potential measurement issues are avoided by balancing the

weaknesses of one method with the strengths of another (Jick, 1979). However, one measurement issue which warrants mentioning is the use of a self-report questionnaire (in addition to the self-report nature of interviews) as self-report data is vulnerable to bias and distortion. Attempts were not made to support flight crew's and their partners' responses with reports from secondary sources, such as medical records for data on physical and mental health. Therefore, because of the subjective self-assessment of both flight crew and their partners, conclusions regarding the effects of work-related separations on individuals and their relationships must be tentative.

Another measurement issue is the selection of the measures themselves. Once the constructs were chosen for the second part of the study from the findings of Part 1 as well as the literature review, measures were selected. Measures were chosen based on previous research in the field as well as practical considerations such as the availability of the measure, and the space allocation within the questionnaire. While all the measures chosen are widely used and have acceptable psychometric properties (see Chapter 7), there are issues of concern regarding the UCLA Loneliness Scale. The problem with the measurement of loneliness and the UCLA Loneliness Scale concerns the construct of loneliness itself. Research on loneliness is relatively new (Shaver & Brennan, 1991). The emotion, loneliness, has no agreed-upon behavioural manifestations and the structure of loneliness is currently being debated (Shaver & Brennan, 1991). Some researchers argue that loneliness is unidimensional while others suggest that it is multidimensional. The argument for multidimensionality was first proposed by Weiss (1973), who divided loneliness into emotional isolation (the type of loneliness felt in the absence of an attachment relationship) and social isolation (the type of loneliness felt in the absence of a social network). However, towards the end of his life, Weiss (1987) concluded that the dimension of loneliness regarding social isolation was faulty. He proposed that the loneliness of social isolation should not be considered a construct or a dimension, but rather a syndrome which should be identified rather than defined. The UCLA Loneliness Scale measures loneliness as a unidimensional emotional response and the internal reliability of the scale in the present study suggested unidimensionality. However, it is possible that loneliness may not be unidimensional and that the UCLA Loneliness Scale fails to accurately measure the construct of loneliness.

The present study attempted to include a range of variables which were relevant to both the participants themselves and to the field of work-related separation. These variables included measures of both physical and mental health as well as a number of personal characteristics including work and family characteristics. However, there are other variables which may be outcomes of work-related separation or may impact on the relationship between work-related separation and its effects on the individual and their relationship which were not included in the present study. These variables include personality characteristics such as external or internal locus of control (see section 10.2.2) which warrant inclusion in future research.

One other concern of the present study is the use of multiple statistical comparisons. By using multiple statistical comparisons, the possibility of finding statistically significant relationships which may have occurred by chance, is increased. The issue of multiple statistical comparisons and the appropriate response to their use, is the topic of much debate (e.g., Rothman, 1986; Saville, 1990). In the present study, both nonsignificant and significant results have been presented, as suggested by Rothman (1986), in order that readers interpret the p values for the significant findings themselves. In addition, no adjustment was made to the significance criterion or the calculated p value when multiple statistical comparisons were performed, as suggested by Saville (1990).

There are limitations regarding the generalisability of findings from Air New Zealand flight crew to other populations where separations are a feature of their work. This is because of the unique working conditions of flight crew (see Chapter 4). For example, the frequent reporting of tiredness may relate to the job itself which may in turn impact on the experiences of work-related separation. This was in fact, found to be the case in the reported difficulties associated with the reunion phase of the separations.

In this section general limitations of the present study have been discussed. The next section examines the implications of the findings of the present study for both individuals and organisations where work-related separations are common.

10.4 Implications

Work-related separations do appear to have negative effects for some individuals and their relationships. These negative effects can include physical health effects as well as simply missing the spouse or intimate partner. For example, a crew member wrote in the open-ended section of the questionnaire that one difficult problem of the work-related separations was:

Maintaining a focus on my daily activities & motivation for tasks at hand, I find myself thinking of my partner wishing we were together.

It has been found that employees who are absorbed in personal problems can become distracted from their task, which may contribute to an accident (Alkov et al., 1982). The problems associated with work-related separations should therefore not be taken lightly by the aviation industry or any industry where work-related separations are part of employment.

A key factor of the work-related separations which emerged from the present study is the issue of loneliness. Loneliness could be addressed by both the individual and the organisation of any industry where work-related separations are a feature of employment. While it is acknowledged that loneliness is not synonymous with social isolation (Peplau & Perlman, 1979), and that social involvement is not always helpful (Rosenfeld et al., 1973), some individuals may benefit from increased social interaction. Air New Zealand, and other organisations where work-related separations are a factor of employment, could facilitate increased social interaction by encouraging a team building approach. In the aviation industry, a team building approach could be engendered by adapting the rostering system to allow groups of flight crew to work together for longer periods of time. In addition, specific activities during the briefing sessions (before crew leave on a tour of duty) or during the stopovers could be arranged. These activities could be short ice-breaker games (particularly during the briefing sessions), or could be activities such as organised tours or outings which crew may choose to participate in during the stopovers. By providing the opportunity for crew to mix with each other, some crew may feel less lonely. Activities could also relieve the boredom crew report they feel during a stopover. Another way in which organisations could help to counter the isolation employees feel from their place of employment (and for some crew in the present research, their country), could be to produce a regular newsletter of current

events or items of news regarding their organisation. In this way, employees maintain some form of contact with their employer.

In the present study, one source of dissatisfaction for crew was their inability to join sports clubs or teams because of the amount of time they spent away. To address this issue, the organisation could help by coordinating a social sports team or sporting tournament (or indeed a tournament other than sport-related, such as a chess tournament), for either the crew only, or for the crew and their partners, with flexible membership depending on employees availability. A round robin tennis tournament is one example which could work well with a flexible membership system.

One coping strategy both crew and their partners recommended was the sharing of problems with others in a similar situation. The organisation could arrange sessions to address potential problems of work-related separations and to discuss possible solutions during training periods of new crew. Partners could also be encouraged to attend. Culbert and Renshaw (1972) found group sessions involving both travelling partners and their partners at home increased both partners' abilities to cope with travel stressors. This they attributed to the couples developing empathy for each other's pressures, and in jointly engaging in personal planning leading to reducing the stressors of the work-related separations.

Findings from the present study have implications not only for the organisation, but also for the individual. Participants of the present study made recommendations to others in a similar situation including keeping busy and active, developing independence, and talking with others about any problems they may experience (with friends, family, and others in a similar situation). These strategies can be utilised by the individual, without assistance from their organisation.

In this section implications for individuals and organisations regarding work-related separations have been examined. The next section proposes directions for future research in the field of work-related separations.

10.5 Research Directions and Theoretical Considerations

The present study has highlighted three methodological issues which need to be considered in future studies of work-related separation. They are the use of different research methods, the need for a control group, and the use of more sophisticated statistical analyses.

Findings from the qualitative and quantitative research methods in the present study emphasise the advantages of using more than one research method. In Part 1 of this research, most of the flight crew interviewed claimed work-related separations had a negative effect on both themselves and their relationship. However, the quantitative results did not substantiate these claims. It would not be wise to conclude from the apparent inconsistencies in the findings that there are no effects of work-related separation in relation to the outcome variables measured. Rather, the inconsistencies suggest that there may be other factors which have not been measured or which mask any results using statistical analyses. One possible factor is personality variables as discussed earlier in this chapter.

Another methodological issue which the present study highlights is the importance of a control group. The findings of the present study, which showed very few differences in physical and mental health variables between those who were separated and those who were not, suggest that the previously reported effects of work-related separations have been exaggerated. Very few studies on work-related separations in the past have used a control group, but have made conclusions based on the results from a single group. One previous study on oil riggers' wives which did use a control group (Taylor et al., 1985) came to a similar conclusion of exaggerated claims as the present study.

Using more sophisticated techniques in analyses is another consideration for researchers in the field of work-related separation. In the present study, when other personal characteristic variables were controlled for, separation ceased to be significantly related to some outcome variables including physical health symptoms (see section 8.8.1).

Another factor which researchers in future studies may care to consider is the testing of more complex multivariate models and theories, and research on a longitudinal basis.

Longitudinal research is rare in the work-related separation literature, and it is still unclear if short-term repeated work-related separations have a negative (as suggested by Riggs, 1990) or a long-term beneficial (as suggested by Douvan & Pleck, 1978) effect on a marriage or intimate relationship. With the lack of research models and theories in the field of work-related separation, Vormbrock (1993) urges researchers to address this issue. The theory proposed in the present study of the moderating relationship of loneliness was not supported. However, loneliness was found to have direct main effects in the quantitative analyses and to be a concern to crew and their partners in the qualitative analyses. Loneliness could be examined in relationship to other variables, such as personality variables, or examined in other multivariate models including both moderating and mediating processes. Work-related separations and their effects on the individual and their relationship could also be examined using existing theories of relationships. These theories include the social exchange theory where "individuals try to maximise their rewards in their marriage, and should be least depressed when rewards outweigh costs" (Whisman & Jacobson, 1989, p. 178) and equity theory which proposes that "when individuals are participating in an inequitable relationship, they will become increasingly distressed and depressed" (Whisman & Jacobson, 1989, p. 178). Another possible avenue for research on the effects of work-related separation on the relationship or family is in relation to the family type. One model of family typography, the Circumplex Model (Olson, McCubbin, Barnes, Muxen, Larsen, & Wilson, 1989), proposes that stressors which the family experience can be affected by the family type. The Circumplex Model has three main components which define the family typography; family cohesion, family adaptability, and communication. Family cohesion is defined as "the emotional bonding that family members have toward one another" (Olson et al., 1989, p. 48) and family adaptability is defined "as the ability of a marital or family system to change its power structure, role relationships and relationship rules in response to situational and developmental stress" (Olson et al., 1989, p. 48). For optimum coping resources, a balance is needed along the dimensions of family adaptability and family cohesion. The third dimension in the Circumplex Model is the facilitating dimension of communication. Positive communication skills are needed to enable movement on the dimensions of cohesion and adaptability. In relation to work-related separation, all three dimensions of the Circumplex Model may influence the effect the separations have on the relationship. For example, in a rigidly enmeshed family (low on the dimension

adaptability and high on the dimension cohesion), separations may be more problematic than for a flexibly connected family (balanced on both dimensions). Communication may help the family cope with the work-related separations (as suggested in the present study's findings on the degree of contact flight crew and their partners kept).

In this section future research directions have been proposed. In conclusion to this thesis, the following section summarises the findings and implications of the present study.

10.6 Conclusion

The present study addressed five primary research aims. The first of these was the study of both the travelling partner and the partner at home. Findings from the research showed that both travelling partners and partners at home reported some effects of work-related separations on themselves and their relationships. In particular, loneliness was an important factor relating to the separations for both groups and there was no difference in levels of loneliness between travelling partners and partners at home (international crew and international partners), or between those who were separated (international crew and their partners) and those who were not (national crew and their partners). International crew reported higher levels of psychological distress symptoms, physical health symptoms, self-rated health, and lower levels of job satisfaction than their partners. However, it is difficult to conclude whether the differences between international crew and their partners were a factor of the work-related separations, or a factor of the working environment itself as similar differences were also found between national crew and their partners. Another research aim was the study of both genders as the travelling partners and the partners at home. Gender differences were found between international female and male crew in that females were more likely to report higher levels of psychological distress symptoms and physical health symptoms, and lower levels of self-rated health and loneliness. For partners of international crew, females reported higher levels of life satisfaction. Once again, it is difficult to conclude whether this differences is a factor of gender alone, or a factor relating to the work-related separations. A third research aim was the study of same-gender relationships with regard to work-related separations. No difference was found between those in same-gender relationships and those in heterosexual relationships in terms of the

measured outcome variables for either international crew or their partners. In addition to these three research aims, the present study addressed methodological concerns including the use of a control group and the use of both qualitative and quantitative research methods. When comparing results from those who were separated (the international crew and the international partners) with those who were not separated (the national crew and the national partners), few differences were found. The fewer differences than predicted highlighted the importance of using a control group and led the researcher to conclude that the reported effects of work-related separations in previous studies have been exaggerated. The use of both qualitative and quantitative research methods was valuable for several reasons. The qualitative method allowed a more in-depth examination into issues of work-related separation and contributed towards the design of the survey and a proposed theory of work-related separation. The quantitative method allowed the theory and hypotheses to be tested and provided an interesting comparison with the qualitative findings. The comparison highlighted differences between the findings of both studies where, in the qualitative parts of the research, most participants claimed that work-related separations had negative effects on themselves and their relationships while, in the quantitative parts of the research, these claims were largely unsubstantiated. However, the apparent inconsistencies may not necessarily reflect genuine inconsistencies but may be due to measurement issues such as the possibility of variables, such as personality variables, masking any effect in the statistical analyses (see section 10.2.2).

Effects of work-related separations are not to be underestimated as they may contribute to health and safety issues in the workplace. The findings from the present study have implications for the aviation industry and provide suggestions for intervention. For example, the aviation employer could consider running group training sessions for both international crew and their partners addressing the issues of work-related separations. They could also provide a regular newsletter, organise social or sporting events with flexible membership systems, and engender a team building approach in their workplace.

Proposed research directions for the future include the continued use of a control group, more sophisticated analyses, the use of a combination of research methods, longitudinal studies, and the formation and testing of theories relating to work-related separations.

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Appendix A: Industrial Relations Issues

The present study involved crew from the largest New Zealand airline, Air New Zealand. Some of the industrial issues currently affecting the working conditions of Air New Zealand flight crew are briefly outlined in this Appendix and are reviewed from the wider context of the changes taking place in industrial relations in New Zealand. Following this, there is a brief description of the working conditions at Air New Zealand, as they relate to work-related separations.

Industrial Issues

In the last five years, the industrial climate of Air New Zealand has been tense. In 1990, the pilots' union, *The New Zealand Air Line Pilots' Association* (ALPA), splintered into two groups due to a conflict over a newly introduced aircraft type. A small group was officially formed called *The Air New Zealand Pilots' Society* which was able to negotiate its own terms of employment. The cabin crew union, *Flight Attendants and Related Services (NZ) Association* (FARSA), also split in two. In 1991, a small group of senior cabin crew left FARSA and formed their own representative group, *Pegasus*, in order that it negotiate their own working contracts.

This situation of discord was within the wider context of industrial change in New Zealand. Workplaces in New Zealand have traditionally been highly unionised. Up until 1991, joining a union was compulsory in many workplaces and employees often had no choice as to which union they subscribed. The Employment Contracts Act, 1991 was introduced to allow greater freedom for employers and employees to negotiate working conditions without necessarily involving unions (Birch, 1990). This meant employees could choose whether or not to join an existing union, or to form their own representative group. Under the Act, all employment contracts had to be renegotiated. The new contracts were sometimes less favourable to the employee than the previous ones, with the balance of power shifting towards the employer (Harbridge, 1993). ALPA and FARSA have both made submissions to the Labour Committee reviewing the Act on the effect they believe the Act has made within their work environment (The Labour Committee, 1993). FARSA submitted that the Act had given more benefits to employers than employees. For cabin crew at Air New Zealand, the new contract increased working hours which meant more frequent work-related separations. Although some crew have reported they were more tired and had more health problems following the new contract, there has been no noticeable pattern of increase in sick leave (A.

Warren, personal communication, June, 1994). These increased working hours have now dropped slightly for cabin crew (A. Warren, personal communication, November, 1995). ALPA, in their submission to the Labour Committee, stated that some aspects of the Act were not favourable to their members. They cited an example of the disparity in the balance of power between employers and employees in the strike and lockout provisions of the Act (The Labour Committee, 1993).

Another nation-wide factor affecting the industrial climate at Air New Zealand is the move away from state owned enterprises. The New Zealand Government has recently sold some of its state owned enterprises, of which Air New Zealand was one. Air New Zealand was sold in 1989 and is now privately owned and commercially run, competing in the wider, and increasingly competitive, aviation market. The new commercial orientation of the company may affect the organisational climate.

Because of these changes in the industrial situation, the potential for suspicion and distrust between flight crew, employee representative groups, and management is sometimes high, and in some cases does exist (A. Warren, personal communication, June, 1994). There is tension also between the various employee representative groups, which has caused friction and unhappy relationships among crew who work together but belong to different groups (A. Warren, personal communication, June, 1994).

Working Conditions Specific to Air New Zealand

Because of the geographical isolation of New Zealand, crew working on international flights are required to spend repeated and substantial periods of time away from home (up to two weeks). Both management and employee representative groups are aware of the possible effects work-related separations may have on the crew and their partners, although work-related separations have not been studied formally within their organisation. One way Air New Zealand has tried to counter the effects of work-related separation on relationships has been to run the rostering system, "Spouse Alert". This system allows couples who are both international cabin crew members the option of working together on tours of duty. When returning from an international tour of duty, crew are rostered time at home, calculated according to various aspects of the just completed tour of duty (such as total time away and flight hours). Every crew member is, in addition to their rostered shifts, on call for three to four weeks at a time, at least once a year.



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Appendix B: Interview Introductory Letter

3 April 1994

International Tour of Duty Effects on Flight Crew and Families Research

Volunteers are being sought for inclusion in a study investigating the effects of repeated, short-term separations associated with the International Tour of Duties on both Air New Zealand personnel and their families. This research is being undertaken by independent researchers from the Psychology Department, Massey University. Researchers include Associate Professor Nigel Long and PhD student, Rachel Ward.

Details of the research are provided in the attached information sheet. Please read through this carefully and if you are willing to participate in the study, complete the consent form.

Please do not hesitate to contact either of the researchers if you have any queries about the research. You may wish to contact us at the above address, fax us at (06) 350 5673, or phone Associate Professor Nigel Long on (06) 35 69099 extn 5229 or Rachel Ward on (06) 35 69099 extn 4146.

Your assistance with this research would be greatly appreciated.

RACHEL WARD

NIGEL LONG



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Appendix C: Interview Information Sheet

International Tour of Duty Effects Research INFORMATION SHEET

Researchers from the Psychology Department, Massey University are conducting research on the effects of repeated, short-term separations associated with International Tour of Duties on both flight crew personnel and their families. Researchers include Associate Professor Nigel Long and PhD student, Rachel Ward.

WHAT THE PRESENT STUDY IS ABOUT

The present study will investigate the effects of International Tour of Duties on partner satisfaction, coping strategies and the physical and mental health of flight deck and cabin crew and their partners. To do this, the research will be in two parts. *For those on this Tour of Duty*, you will be asked a number of questions about your experience of the separation associated with a Tour of Duty. The second part of the research will be a questionnaire, distributed to all Air New Zealand flight crew personnel. *Those personnel on this Tour of Duty who are interviewed are requested NOT to fill in the questionnaire.*

ELIGIBILITY

You are eligible to take part in the study if your job involves International Tour of Duties and *if you have a partner and/or children usually living with you*. A partner includes any person regardless of gender, who is living with you in a domestic arrangement similar to a marriage.

WHAT YOU WILL BE ASKED TO DO ON THIS TOUR OF DUTY

For those who feel comfortable, you will be asked to take part in an interview with Rachel Ward. If you are interviewed you will not be expected to answer any questions that you do not feel comfortable with. Less formal conversations are another way of gathering data and all personnel on this Tour of Duty are encouraged to talk about their experiences of the separation with Rachel.

YOUR RIGHTS AS A PARTICIPANT:

All participants:

- * have the right to contact the researchers at any time during the research to discuss any aspects of the study.
- * have the right to refuse to answer any question, or withdraw from the study at any time.
- * provide information on the understanding that it is completely in confidence to the researchers, to be used only for the purposes of the research. It will not be possible to identify individuals in any reports of the results.
- * have the right to receive information about the results of the study on its completion.

(April International Tour of Duty)

Appendix D: Consent Form

CONSENT FORM

Interview

If you are willing to be interviewed on this International Tour of Duty please complete this consent form.

I have read the information sheet and understand the details of the study. During the interview I will be able to ask questions at any time and decline to answer any particular questions I do not feel comfortable with. I also understand that I am free to withdraw from the study at any time. I agree to provide the researchers with information on the understanding that it is completely confidential, will not be used for any other purpose, and I will not be identified in any reports from the study.

Signed: _____

Name: _____

Contact Address: _____

Phone: _____

Date: _____

Appendix E: Interview Guide

Personal characteristics:	name, age (date of birth), gender, education, ethnicity
Family characteristics:	marital status, length of relationship, same-gender or heterosexual, partners (age, occupation, education, ethnicity), blended family?, family life cycle (ages, gender of children), usual living arrangements
Job characteristics:	position, income, length of employment, estimate total number of international tours, estimate total amount of time spent away
Prompts:	Family functioning, physical health, mental health, coping

Other questions:

Is there a problem with work-related separations?

What is the best thing about being an international crew member?

What is most difficult about being an international crew member?

(concrete problems, feelings, conflicts)

Do you cope as well as others - same/better/worse?

What do you do to help with the separation?

Do you notice any changes in self? partner? children? health? behaviour?

Do you buy gifts for partner/family?

Contact - how often/what kind?

Family activities/patterns and life before/during/after tour - special rituals?

Do you notice any changes throughout the tour?

- are any times more difficult than others?

Does anyone else fill the empty role? Away? At home? Who makes the arrangements?

Are there any difficulties in your relationship? - do sexual relationships change

- before, during, after, in terms of quality, quantity?

What most worried about for self? partner?

How do you run physical household? social activities? contacts?

Am I raising issues that you have not thought about before?

Don't fill in main questionnaire to avoid possible bias



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Appendix F: Questionnaire Introductory Letter^a

9 September 1994

TO ALL NATIONAL AND INTERNATIONAL AIR CREW

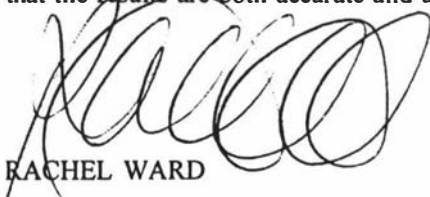
Work-related Separation Effects on Air Crew and Partners Research

Air New Zealand air crew and their partners are invited to participate in an independent study investigating the effects of repeated short-term, work-related separations associated with tours of duty (on both Air New Zealand personnel and their partners). ***Both national and international air crews are encouraged to participate.*** This research is being undertaken by independent researchers from the Psychology Department, Massey University. Researchers include PhD student, Rachel Ward and Associate Professor Nigel Long. The questionnaires will be kept at Massey University and only these researchers will have access to any information you provide for the study. Your name and responses will be held in complete confidence and individuals will not be identifiable in any reports of the survey, or made available to anyone else.

Details of the research are provided in the attached information sheet. Please read through this carefully. ***If you have a partner usually living with you*** (a partner includes any person regardless of gender, who is living with you through marriage or in a domestic arrangement similar to a marriage) and you are willing to participate in the study, please complete the enclosed consent form and questionnaire and return it in the envelope provided. The questionnaire should take approximately 30 minutes to answer. Please complete it as soon as you are able. Could you please pass the second questionnaire and information material (the ones with some coloured paper) along with one small and one large envelope on to your partner. Even if you do not wish to participate, your partner may be willing. It is preferable but not necessary that both of you take part in the study. ***If your partner is also an Air New Zealand air crew member*** could you both fill out the Air New Zealand personnel white questionnaire - do not use the partner forms. ***If you do not have a partner usually living with you*** or are unwilling to participate, please dispose of this material thoughtfully. Please do not return it unanswered.

If you have any queries about the research, do not hesitate to contact either of the researchers mentioned above. You may wish to contact us at the above address, Fax us at (06) 350 5673, or phone Rachel Ward on (06) 356 9099 extn 4146 or Associate Professor Nigel Long on (06) 356 9099 extn 5229.

Your assistance with this research would be greatly appreciated. Your participation ensures that the results are both accurate and useful.


RACHEL WARD

^aA similar introductory letter was given to the partners, the only difference being minor wording changes.



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Appendix G: Questionnaire Information Sheet^a

Work-related Separation Effects Research

INFORMATION SHEET

Independent researchers from the Psychology Department, Massey University are conducting research on the effects of repeated short-term, work-related separations on both air crew personnel and their partners. Researchers include PhD student, Rachel Ward and Associate Professor Nigel Long.

WHAT IS THE PRESENT STUDY ABOUT?

The present study will investigate the effects of tours of duty on a number of areas including satisfaction with your relationship and the health of flight deck and cabin crew and their partners. International air crew will be compared with national air crew to see if there are any differences. It appears from past research that separations from partners due to work commitments may have an effect on health and marital quality. This research aims to explore some of the complexities of the relationship between family and work. Besides a questionnaire, in-depth interviews with a small group of international air crew have already been undertaken and a few partners will be asked if they wish to be interviewed later in the year.

ELIGIBILITY

You are eligible to take part in the study *if you have a partner usually living with you*. A partner includes any person regardless of gender, who is living with you through marriage or in a domestic arrangement similar to a marriage.

WHAT YOU WILL BE ASKED TO DO

You will be asked to complete a questionnaire which should take about 30 minutes of your time. The questionnaire asks you for personal information including details about your health, coping strategies and your level of satisfaction in a variety of areas.

YOUR RIGHTS AS A PARTICIPANT:

All participants:

- * have the right to contact the researchers at any time during the research to discuss any aspects of the study.
- * have the right to refuse to answer any question, or withdraw from the study at any time.
- * provide information on the understanding that it is completely in confidence to the researchers, to be used only for the purposes of the research. It will not be possible to identify individuals in any reports of the results.
- * have the right to receive information about the results of the study on its completion.

^aA similar information sheet was given to the partners, the only difference being minor wording changes.

Appendix H: Complete Crew Questionnaire



Work-related Separation Effects Research

Please read the following instructions carefully.

Please remember that all the information that you give us is *confidential* and will only be used for the purpose of this study. Individuals will not be identifiable in any report of this survey.

You should not write your name on this questionnaire. We have put a code number on the first page to provide an identification. The consent form is also coded and will be detached and stored separately from the questionnaire. It is only included for ethical and administrative purposes.

This questionnaire should take about 20 minutes to complete. Please do this at the earliest convenient time for you after receiving the questionnaire.

Please try to answer *all* the questions and be careful not to miss any pages. It is important that you give your own answers to the questions. Therefore, we would ask that you do not discuss the questions with others *including your partner*.

When you have finished please return the questionnaire in the postage paid envelope provided.

--	--	--	--	--

CONSENT FORM

I have read the information sheet about this study and understand the details of the study. I understand that I may ask questions at any time and decline to answer any particular questions in the questionnaire. I also understand that I am free to withdraw from the study at any time. I agree to provide the researchers with information on the understanding that it is completely confidential, and I will not be identified in any reports from the study.

Signed: _____

Name: _____

Contact Address: _____

Phone: _____

Date: _____

If your partner is also an Air New Zealand air crew member and is also completing a questionnaire, please write their name and/or code number here. (The code number appears in the top right hand corner of this page.)

Name: _____

Code number: _____

This page is included for ethical and administrative purposes only and will be detached from the questionnaire and kept separately so that no-one can be identified.

--	--	--	--	--

First we would like some general background information.
Remember that the information which you give us is *confidential*.
Please circle the number for the answer that is best for you, tick the appropriate box, or give details in the spaces provided.

How old are you? _____ years

--	--

What is your sex?

Male ☐ Female ☐

--

What ethnic group do you identify most with?

- New Zealander of Maori descent 1
- New Zealander of European descent 2
- New Zealander of Pacific Island descent 3
- Other, please specify _____ 4

--

Which part of the airline do you work for?

International ☐ National ☐

--

What is your current position with Air New Zealand?

- Captain 1
- First Officer 2
- Second Officer 3
- Pilot with ground/management duties 4
- In-Flight Services Director 5
- Flight Attendant 3 6
- Flight Attendant 2 7
- Flight Attendant 1 8
- Cabin crew with ground/management duties 9

--

Are you employed: full-time? ☐ temporary? ☐

--

If you are flight deck, please indicate which fleet you are in:

- 747-400 1
- 747-200 2
- 767 3
- 737 4

--

Total length of employment with Air New Zealand _____ years

--	--

Length of employment in your current position _____ years

--	--

What is your highest educational qualification?

- No school qualification 1
- School certificate passes 2
- School qualifications, University
entrance and above 3
- Trade certificate, Professional
certificate or diploma 4
- University degree or diploma 5

☐

Is your partner employed?

- No, not in paid employment 1
- Employed part-time 2
- Employed full-time 3

☐

Is your partner also an Air New Zealand air crew member?

Yes ☐ No ☐

☐

If yes, does your partner fly:

International? ☐ National? ☐

☐

Is your partner:

Flight deck? ☐ Cabin crew? ☐

☐

Do you choose to travel together (spouse alert)?

Yes ☐ No ☐

☐

We would like some general background information about you and your family. Please circle the number for the answer which is best for you, tick the appropriate box, or give details in the spaces provided.

How long have you been in your **current** relationship or marriage?

_____ years

Are you presently in a relationship with someone of the:

same sex? ☐ opposite sex? ☐

☐

How many children do you have? _____

Coughing	0	1	2	3	4	<input type="checkbox"/>
Out of breath	0	1	2	3	4	<input type="checkbox"/>
Swollen ankles	0	1	2	3	4	<input type="checkbox"/>
Chest pains	0	1	2	3	4	<input type="checkbox"/>
Racing heart	0	1	2	3	4	<input type="checkbox"/>
Cold hands or feet even in hot weather	0	1	2	3	4	<input type="checkbox"/>
Leg cramps	0	1	2	3	4	<input type="checkbox"/>
Insomnia or sleep problems	0	1	2	3	4	<input type="checkbox"/>
Toothaches	0	1	2	3	4	<input type="checkbox"/>
Upset stomach	0	1	2	3	4	<input type="checkbox"/>
Indigestion	0	1	2	3	4	<input type="checkbox"/>
Heartburn	0	1	2	3	4	<input type="checkbox"/>
Severe pains or cramps in stomach	0	1	2	3	4	<input type="checkbox"/>
Diarrhoea	0	1	2	3	4	<input type="checkbox"/>
Constipation	0	1	2	3	4	<input type="checkbox"/>
Haemorrhoids	0	1	2	3	4	<input type="checkbox"/>
Swollen joints	0	1	2	3	4	<input type="checkbox"/>
Stiff muscles	0	1	2	3	4	<input type="checkbox"/>
Back pains	0	1	2	3	4	<input type="checkbox"/>
Sensitive or tender skin	0	1	2	3	4	<input type="checkbox"/>
Face flushes	0	1	2	3	4	<input type="checkbox"/>
Severe itching	0	1	2	3	4	<input type="checkbox"/>
Skin breaks out in rash	0	1	2	3	4	<input type="checkbox"/>
Acne or pimples on face	0	1	2	3	4	<input type="checkbox"/>
Acne or pimples other than face	0	1	2	3	4	<input type="checkbox"/>
Boils	0	1	2	3	4	<input type="checkbox"/>

0 ----- 1 ----- 2 ----- 3 ----- 4
not at a little moderately quite a extremely
all bit

Sweat even in cold weather	0	1	2	3	4	<input type="text"/>
Strong reactions to insect bites	0	1	2	3	4	<input type="text"/>
Headaches	0	1	2	3	4	<input type="text"/>
Sensation of pressure in head	0	1	2	3	4	<input type="text"/>
Hot flushes	0	1	2	3	4	<input type="text"/>
Dizziness	0	1	2	3	4	<input type="text"/>
Feel faint	0	1	2	3	4	<input type="text"/>
Chills	0	1	2	3	4	<input type="text"/>
Numbness or tingling in any part of body	0	1	2	3	4	<input type="text"/>
Twitching of eyelid	0	1	2	3	4	<input type="text"/>
Twitching other than eyelid	0	1	2	3	4	<input type="text"/>
Hands tremble or shake	0	1	2	3	4	<input type="text"/>
Stiff joints	0	1	2	3	4	<input type="text"/>
Sore muscles	0	1	2	3	4	<input type="text"/>
Sore throat	0	1	2	3	4	<input type="text"/>
Sunburn	0	1	2	3	4	<input type="text"/>
Nausea	0	1	2	3	4	<input type="text"/>

Compared to **the person in excellent health**, how would you rate your health at the present time?

7

Terrible	1
Very poor	2
Poor	3
Fair	4
Good	5
Very good	6
Excellent	7

How have you have felt during the last month including today?

For each statement indicate how distressing you have found these things over this time by circling the number from the following scale that best indicates how you have felt.

1 = not at all
2 = a little
3 = quite a bit
4 = extremely

Difficulty in speaking when you are excited 1 2 3 4

☐

Trouble remembering things 1 2 3 4

☐

Worried about sloppiness or carelessness 1 2 3 4

☐

Blaming yourself for things 1 2 3 4

☐

Pains in the lower part of your back 1 2 3 4

☐

Feeling lonely 1 2 3 4

☐

Feeling blue 1 2 3 4

☐

Your feelings being easily hurt 1 2 3 4

☐

Feeling others do not understand you or are unsympathetic . . . 1 2 3 4

☐

Feeling that people are unfriendly or dislike you 1 2 3 4

☐

Having to do things very slowly in order to be
sure you are doing them right 1 2 3 4

☐

Feeling inferior to others 1 2 3 4

☐

Soreness of your muscles 1 2 3 4

☐

Having to check and double check what you do 1 2 3 4

☐

Hot or cold spells 1 2 3 4

☐

Your mind going blank 1 2 3 4

☐

Numbness or tingling in parts of your body 1 2 3 4

☐

A lump in your throat 1 2 3 4

☐

Trouble concentrating 1 2 3 4

☐

Weakness in parts of your body 1 2 3 4

☐

Heavy feelings in your arms and legs 1 2 3 4

☐

The next set of questions is about your current relationship. Most people have disagreements in their relationships. Please indicate the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

How much do you and your partner agree over the following?

0	1	2	3	4	5	
always disagree	almost always disagree	frequently disagree	occasionally disagree	almost always agree	always agree	
Handling family finances				0 1 2 3 4 5		<input type="checkbox"/>
Matters of recreation				0 1 2 3 4 5		<input type="checkbox"/>
Religious matters				0 1 2 3 4 5		<input type="checkbox"/>
Demonstration of affection				0 1 2 3 4 5		<input type="checkbox"/>
Friends				0 1 2 3 4 5		<input type="checkbox"/>
Sex relations				0 1 2 3 4 5		<input type="checkbox"/>
Conventionality (correct or proper behaviour)				0 1 2 3 4 5		<input type="checkbox"/>
Philosophy of life				0 1 2 3 4 5		<input type="checkbox"/>
Ways of dealing with parents or in-laws				0 1 2 3 4 5		<input type="checkbox"/>
Aims, goals, and things believed important				0 1 2 3 4 5		<input type="checkbox"/>
Amount of time spent together				0 1 2 3 4 5		<input type="checkbox"/>
Making major decisions				0 1 2 3 4 5		<input type="checkbox"/>
Household tasks				0 1 2 3 4 5		<input type="checkbox"/>
Leisure time interests and activities				0 1 2 3 4 5		<input type="checkbox"/>
Career decisions				0 1 2 3 4 5		<input type="checkbox"/>

How often would you say the following events occur between you and your partner?

0	1	2	3	4	5	
all the time	most of the time	more often than not	occasionally	rarely	never	
How often do you discuss or have you considered divorce, separation, or terminating your relationship?				0 1 2 3 4 5		<input type="checkbox"/>
How often do you or your mate leave the house after a fight?				0 1 2 3 4 5		<input type="checkbox"/>
In general, how often do you think that things between you and your partner are going well?				0 1 2 3 4 5		<input type="checkbox"/>
Do you confide in your mate?				0 1 2 3 4 5		<input type="checkbox"/>
Do you ever regret that you married or lived together?				0 1 2 3 4 5		<input type="checkbox"/>

How often do you and your partner quarrel? 0 1 2 3 4 5

☐

How often do you and your mate "get on each other's nerves"? 0 1 2 3 4 5

☐

How often do you kiss your partner?

0 ----- 1 ----- 2 ----- 3 ----- 4
never rarely occasionally almost every day every day

☐

Do you and your partner engage in outside interests together?

0 ----- 1 ----- 2 ----- 3 ----- 4
none very few of some of most of all of them
of them them them them

☐

How often would you say the following events occur between you and your partner?

0 ----- 1 ----- 2 ----- 3 ----- 4 ----- 5
never less than once / twice once / twice once a more
once a month a month a week day often

Have a stimulating exchange of ideas 0 1 2 3 4 5

☐

Laugh together 0 1 2 3 4 5

☐

Calmly discuss something 0 1 2 3 4 5

☐

Work together on a project 0 1 2 3 4 5

☐

These are some things about which couples sometimes agree and disagree. Indicate if either item below caused differences of opinions or were problems in your relationship during the past few weeks.

Being too tired for sex Yes No

☐

Not showing love Yes No

☐

The following scale represents degrees of happiness in your relationship. The middle point "happy" represents the degree of happiness in most relationships. Please **circle the number** which best describes the degree of happiness, all things considered, in your relationship.

0 ----- 1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6
extremely fairly a little happy very extremely perfect
unhappy unhappy unhappy happy happy happy

☐

Which of the following statements best describes how you feel about the future of your relationship? Please **circle the number** on the left which corresponds to the statement you have chosen.

- 5 I want desperately for my relationship to succeed, and *would go to almost any length* to see that it does.
- 4 I want very much for my relationship to succeed, and *will do all I can* to see that it does.
- 3 I want very much for my relationship to succeed, and *will do my fair share* to see that it does.
- 2 It would be nice if my relationship succeeded, but *I can't do much more than I am doing now* to help it succeed.
- 1 It would be nice if it succeeded, but I *refuse to do any more than I am doing now* to keep the relationship going.
- 0 My relationship can never succeed, and *there is no more that I can do* to keep the relationship going.

The following questions ask about work-related matters. Circle the number from the following scale that best indicates how satisfied you are about aspects of your present job.

- 1 = very dissatisfied
2 = dissatisfied
3 = neither satisfied not dissatisfied
4 = satisfied
5 = very satisfied

On my present job, this is how I feel about:

- | | | | | | |
|---|---|---|---|---|---|
| Being able to keep busy all the time | 1 | 2 | 3 | 4 | 5 |
| The chance to work alone on the job | 1 | 2 | 3 | 4 | 5 |
| The chance to do different things from time to time | 1 | 2 | 3 | 4 | 5 |
| The chance to be "somebody" in the community | 1 | 2 | 3 | 4 | 5 |
| The way my supervisor handles his/her workers | 1 | 2 | 3 | 4 | 5 |
| The competence of my supervisor in making decisions | 1 | 2 | 3 | 4 | 5 |
| Being able to do things that don't go against my conscience | 1 | 2 | 3 | 4 | 5 |
| The way my job provides for steady employment | 1 | 2 | 3 | 4 | 5 |
| The chance to do things for other people | 1 | 2 | 3 | 4 | 5 |

The chance to tell people what to do	1 2 3 4 5	<input type="checkbox"/>
The chance to do something that makes use of my abilities	1 2 3 4 5	<input type="checkbox"/>
The way company policies are put into practice	1 2 3 4 5	<input type="checkbox"/>
The pay and the amount of work I do	1 2 3 4 5	<input type="checkbox"/>
The chances for advancement on this job	1 2 3 4 5	<input type="checkbox"/>
The freedom to use my own judgement	1 2 3 4 5	<input type="checkbox"/>
The chance to try my own methods of doing the job	1 2 3 4 5	<input type="checkbox"/>
The working conditions	1 2 3 4 5	<input type="checkbox"/>
The way my co-workers get along with each other	1 2 3 4 5	<input type="checkbox"/>
The praise I get for doing a good job	1 2 3 4 5	<input type="checkbox"/>
The feeling of accomplishment I get from the job	1 2 3 4 5	<input type="checkbox"/>

The next set of questions ask you about your life in general. Indicate your agreement or disagreement with each item by circling the appropriate number that corresponds with the scale.

1 = strongly disagree
 2 = disagree
 3 = slightly disagree
 4 = neither agree nor disagree
 5 = slightly agree
 6 = agree
 7 = strongly agree

In most ways my life is close to my ideal	0 1 2 3 4 5	<input type="checkbox"/>
The conditions of my life are excellent	0 1 2 3 4 5	<input type="checkbox"/>
I am satisfied with my life	0 1 2 3 4 5	<input type="checkbox"/>
So far I have gotten the important things I want in life	0 1 2 3 4 5	<input type="checkbox"/>
If I could live my life over, I would change almost nothing	0 1 2 3 4 5	<input type="checkbox"/>

The next set of questions ask you how you feel about your life. Indicate how often you feel the way described in each of the following statements. For each statement circle the number from the following scale that best indicates how you feel.

1 = never
2 = rarely
3 = sometimes
4 = often

I feel in tune with the people around me	1 2 3 4	<input type="checkbox"/>
I lack companionship	1 2 3 4	<input type="checkbox"/>
There is no one I can turn to	1 2 3 4	<input type="checkbox"/>
I do not feel alone	1 2 3 4	<input type="checkbox"/>
I feel part of a group of friends	1 2 3 4	<input type="checkbox"/>
I have a lot in common with the people around me	1 2 3 4	<input type="checkbox"/>
I am no longer close to anyone	1 2 3 4	<input type="checkbox"/>
My interests and ideas are not shared by those around me	1 2 3 4	<input type="checkbox"/>
I am an outgoing person	1 2 3 4	<input type="checkbox"/>
There are people I feel close to	1 2 3 4	<input type="checkbox"/>
I feel left out	1 2 3 4	<input type="checkbox"/>
My social relationships are superficial	1 2 3 4	<input type="checkbox"/>
No one really knows me well	1 2 3 4	<input type="checkbox"/>
I feel isolated from others	1 2 3 4	<input type="checkbox"/>
I can find companionship when I want it	1 2 3 4	<input type="checkbox"/>
There are people who really understand me	1 2 3 4	<input type="checkbox"/>
I am unhappy being so withdrawn	1 2 3 4	<input type="checkbox"/>
People are around me but not with me	1 2 3 4	<input type="checkbox"/>
There are people I can talk to	1 2 3 4	<input type="checkbox"/>
There are people I can turn to	1 2 3 4	<input type="checkbox"/>

If you are an international air crew member, or feel you are also affected by work-related separations please continue with the remaining few questions. Thank you to all other air crew members for your time and effort in completing this questionnaire. Please read the comments at the bottom of the final page.

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What do you think you can do to help your children cope with the tours of duty?

Listed below are some general questions.

Is there anything you notice which is affected by the separations which has not been covered in this questionnaire?

What is the most difficult problem you face (if any) during the period of separation (e.g., loneliness, household maintenance, children)?

What, if any, special things do you do for your partner (e.g., cook special meals, notes in suitcase/under pillow, buying presents)?

Is there anything in particular which you do to cope with the separations which has not been covered here?

If there was one thing you could share with others in your situation to cope with the separations, what would it be?

TO ALL PARTICIPANTS

**Please check that you have answered all the questions
and that you have completed the consent form.**

**Thank you very much for your time and effort
in completing the questionnaire.**

If you would like a summary of the results from this study, please self address the small envelope provided and send it back with your questionnaire in the large freepost envelope *as soon as possible*.

IN CONFIDENCE

Appendix I: Partners' Biographic Questions

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First we would like some general background information.
Remember that the information which you give us is *confidential*.
Please circle the number for the answer that is best for you, tick
the appropriate box, or give details in the spaces provided.

How old are you? _____ years

--	--

What is your sex?

Male ☐ Female ☐

--

What ethnic group do you identify most with?

- New Zealander of Maori descent 1
New Zealander of European descent 2
New Zealander of Pacific Island descent 3
Other, please specify _____ 4

--

What is your current employment status?

- Not in paid employment 1
Employed part-time 2
Employed full-time 3

--

What is your highest educational qualification?

- No school qualification 1
School certificate passes 2
School qualifications, University
entrance and above 3
Trade certificate, Professional
certificate or diploma 4
University degree or diploma 5

--

We would like some general background information about you and your family. Please circle the number for the answer which is best for you, tick the appropriate box, or give details in the spaces provided.

How long have you been in your **current** relationship or marriage?

_____ years

--	--

Are you presently in a relationship with someone of the:

same sex? ☐ opposite sex? ☐

--

How many children do you have? _____

--	--

To determine which family life cycle you are in, please **circle the number** which describes your family.

- 1 Do you and your partner live without children and neither of you have any children?
- 2 Do you and your partner live without children but you have children living elsewhere?
- 3 Do you and your partner live with children where the eldest child is between 0 and 5 years?
- 4 Do you and your partner live with children where the eldest child is between 6 and 12 years?
- 5 Do you and your partner live with children where the eldest child is between 13 and 18 years?
- 6 Do you and your partner have adult children (19 years +) of whom some are still living with you?
- 7 Do you and your partner have adult children (19 years +) but whom are all away from home?

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DEPARTMENT OF
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Appendix J: Crew Reminder Letter

FOR YOU AND YOUR FAMILY

Over the past three years I have been working with cabin crew and flight crew to examine the effects that constant travelling away from home has on you, your partner and children.

This study is INDEPENDENT - I do not work for Air New Zealand but am employed by Massey University Department of Psychology as I complete my doctorate. Your employee representative groups are extremely supportive of this study.

The aim of the study is to discover what effect, if any, work-related separations have and to identify positive coping strategies which you, as a group, are using. The results are of interest to many occupational groups internationally who, as part of their work, repeatedly work away from home.

The questionnaires are only seen by myself and will be destroyed as soon as the study is completed. No individual can be identified. You, your employee representative group and management will all receive a copy of the results.

To take part in this family study you need to be currently in a relationship with someone of the same or opposite sex. I would like to hear from you even if you don't think the work-related separations are affecting your relationship - your coping strategies may be particularly successful! It would be great to get some responses from crew who chose to fly together (spouse alert) even though you are not technically separated.

By now you may have received a copy of the questionnaire through an Inflight Service Director or in your file. If you **have** received a questionnaire but do not have a partner or do not wish to participate, please return the complete package to a marked box (Massey University Relationship Surveys) on the Inflight Services Admin. desk. If you **haven't** received a copy but would like to participate, you may get a copy from the marked box on the Inflight Services Admin. desk or you can contact me at Massey University fax 06 350 5673 or phone 06 356 9099 ext 4146 or 06 354 4709 (home) and I will send you a questionnaire.

THANK YOU to those who have already completed the questionnaire.

If you have not yet had the opportunity, I would be grateful if you would take some time to participate - THIS STUDY IS DESIGNED TO HELP YOU.

All questionnaires must be returned by 15 May.

Rachel Ward

Appendix K: Reliability Coefficients

Means (*M*), standard deviations (*SD*), and reliability coefficients (r^{α}) for all measures.

	Air New Zealand crew				Partners				All respondents			
	<i>M</i>	<i>SD</i>	<i>N</i>	r^{α}	<i>M</i>	<i>SD</i>	<i>N</i>	r^{α}	<i>M</i>	<i>SD</i>	<i>N</i>	r^{α}
UCLA	36.90	9.33	308	.91	37.36	10.15	200	.92	37.07	9.65	509	.92
MSQ	61.85	10.90	308	.89	72.75	12.28	146	.91	65.39	12.42	452	.91
SWLS	23.56	6.61	308	.89	24.59	5.87	200	.87	23.97	6.33	509	.88
DAS	113.12	16.62	308	.93	114.83	15.69	200	.93	113.79	16.25	509	.93
PILL	36.10	23.60	308	.92	18.91	16.16	200	.92	29.35	22.57	509	.93
SRH ^b	5.03	1.18	308		5.65	.97	200		5.27	1.14	509	
HSCL-21	36.27	9.19	308	.89	31.22	7.70	200	.89	34.30	8.98	509	.90

^a standardised alphas. ^b self-rated health.