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**THE PERSONAL HEALTH AND WELLBEING
OF ADULTS WHO WORK IN
EARLY CHILDHOOD EDUCATION
IN NEW ZEALAND**

**A thesis submitted in partial fulfilment of the requirements
for the degree of
Master of Arts
in Nursing
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New Zealand**

Belinda McGrath

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ABSTRACT

This research is a descriptive study of the personal health and wellbeing of early childhood workers in New Zealand and describes the health status, behaviours and concerns of adults working in three early childhood education settings. Situated within the concept of Workplace Health Promotion and the idea of healthy work settings, it supports the New Zealand government's strategy to improve workplace health and safety by providing base-line data on the health and wellbeing of early childhood workers. A review of the literature highlighted four main areas of concern for adults who work with young children: exposure to infectious diseases, occupational injuries, risks to pregnant childcare workers and work related stress.

A survey of 168 randomly selected participants was carried out in the Wellington area, 73 childcare teachers, 58 kindergarten teachers and 37 home-based educators. Ninety-two percent of respondents reported that they had good or excellent health. Significant differences were found between the groups for nutrition, days absent due to illness, accidental injuries, job-related stress and ergonomic aspects of their work. Kindergarten teachers exhibited the most areas of health concern and home-based educators the least. All groups reported an increase in various physical symptoms since working with children, in particular backaches, muscle strain and fatigue. One quarter of respondents experienced an illness related to their work with children during the last year, most commonly respiratory and gastrointestinal illnesses.

It is intended that the findings from this study will contribute towards the development and progress of workplace health promotion in early childhood education settings. The study alerts early childhood education employers of the need to assess influences on employee health such as workload and stress related issues, the provision of an ergonomically healthy work environment and adequate conditions of employment.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

According to the Ministry of Education (2004a) there are approximately 13,000 adults employed in early childhood education services in New Zealand. This figure represents a significant growth of early childhood workers over the last decade due to an increased demand in early childhood education providers (Ministry of Education, 2004a). The general focus of this research is on the occupational health and safety of early childhood workers. More specifically, the research aim was to describe the health status, health behaviours and health concerns of adults working in three different early childhood education settings, childcare centres, kindergartens and home-based care.

Occupational health and safety in early childhood education has not been widely researched but it has long been recognised that employees in this area are exposed to health and safety risks associated with this type of work (Calder, 1994). Exposure to infectious diseases, musculoskeletal strain, accidental injuries, risks during pregnancy and occupational stress are the most commonly identified health and safety issues for adults working in the early childhood sector (Robertson, 2003). Strategies to reduce health and safety risks to staff and children in order to provide a healthy work environment are an important aspect of quality early childhood education.

This chapter provides an introduction to the study and explains how it is situated within the concept of workplace health promotion. Links to the New Zealand government strategies about workplace health promotion are identified and discussed, as well as strategies relating to strengthening early childhood education. An overview of the different early childhood education settings used in

the study is provided as well as the relationship between occupational health and quality early childhood education.

Workplace Health Promotion

This study is positioned within the concept of workplace health promotion developed from the initial idea of 'health promotion', defined in the Ottawa charter as "the process of enabling people to increase control over and to improve their health" (World Health Organisation (WHO), 1998, para. 1). The idea of workplace health promotion has developed along with the recent approach of "settings for health", where the emphasis is on a healthy environment in which people spend their time such as schools, hospitals, cities and workplaces.

The New Zealand's governments most recent contribution to workplace health promotion occurred in June 2005 when it launched the 'Workplace Health and Safety Strategy for New Zealand to 2015' (Department of Labour, 2005). The main aim of this strategy is to improve New Zealand's workplace health and safety performance and to continue the development of high quality and productive workplaces. The strategy targets several priority areas relevant to the early childhood education industry, the most significant of these are: airborne substances, manual handling, slips, trips and falls, psychosocial work factors and small businesses (such as childcare centres).

One of the principles of the strategy is that of "participation": the idea of ensuring that all stakeholders are involved in workplace health and safety, including the employee and their family, the employer, community, industry groups and government agencies. This participatory approach is part of the emergence of a new world view of workplace health promotion that occurred in the 1990s (Chu & Dwyer, 2002; Ellis, 2001). In this view the nature of workplace health promotion is seen as an ecological system where relationships, interdependence and connectedness are fundamental. The focus has shifted from the individual, to a

system within which the individual works, socialises and resides. As suggested by Stokols, Pelletier and Fielding (1996), there may be "a paradigm shift away from individually oriented wellness programs toward broader formulations emphasizing the joint impact of physical and social work environment, job-person fit, and work policies on employee well-being" (p.137).

Workplace health promotion is seen as an integrative model and utilises the WHO's Global Healthy Work Approach (WHO, 1997) based on the following four principles; health promotion and disease prevention, occupational safety and hazard reduction, organisational development and human resource management. As well as improving health outcomes, this integrated approach has the potential to improve organisational outcomes such as improved work satisfaction, better productivity and a supportive social climate and workplace culture (Chu & Dwyer, 2002).

Healthy Work Organisations

Accompanying this idea of workplace health promotion and developed from the WHO's (1998, para.3) "settings for health" approach is the concept of healthy work organisations. This term appears in the organisational literature and refers to the idea "that worker wellbeing and organisational effectiveness can be fostered by a common set of job and organisational design characteristics" (Murphy & Cooper, 1999, p.1). In their review of healthy work organisations research, Wilson, Dejoy, Vanderberg, Richardson and McGrath (2004) found that several areas of workplace research are represented including: organisational development and systems, health promotion, climate/cultural factors and job stress. However, there was little evidence on the types of models and characteristics of healthy work organisations that are the most effective.

In order to test the effectiveness of using a model of healthy work organisation, Wilson et al. (2004) formed their own conceptual model based on six core components; organisational attributes, organisational climate, job design, job future, psychological work adjustment and employee health and wellbeing. Using

questionnaires, they surveyed employees in a retail organisation to determine the relationship between the constructs developed for their model. Results from their study showed very good support for their proposed healthy organisation model. They found that employee's perceptions of their organisation affected their perception of the organisation climate. This in turn impacted on the way people related to their job and how they viewed their future in the organisation. Ultimately this had an impact on their work adjustment and health and wellbeing.

One of the most significant findings from Wilson et al.'s (2004) research and several other studies is that the creation of a healthy work organisation is dependant on organisational action, commitment and leadership (Fassel, Monroy & Monroy, 2000; Lindstrom, Schrey, Ahonen & Kaleva , 2000). Core values and beliefs of the organisation are found to be reflected in policies and procedures at all organisational levels and interventions for a healthy work place need to foster participation of all employees.

The relationship between the organisational climate, and the health and wellbeing of employees is reflected in one of the outcomes stated in the New Zealand Workplace Strategy (Department of Labour, 2005) that is, to develop workplace preventive cultures: "a shared set of values, beliefs, attitudes and ways of behaving that supports the prevention of harm to people at work" (p.12). In this notion of a preventive culture, health and safety is built into the everyday environment, it is not seen as additional. How early childhood environments operate within this idea of a preventive culture is not widely known.

Organisational culture, and health and safety in childcare were the focus of one study of 240 childcare workers in Texas (Calabro et al., 2000). The authors assessed the worker's perceptions of five organisational climate determinants; structure, cohesiveness, work group compliance, risk avoidance and pressure (work demands and stressors) and found that the childcare workers generally had a favourable perception of the health and safety determinants of their work

environment. This finding was unexpected as they also found that there was a high incidence of illnesses (nearly 60% reported illness relating to the children) and trips, falls and back injuries (33%). One theory suggested by the authors to explain this discrepancy is that childcare workers may perceive that reducing their work-related illness is something beyond their control. Therefore, childcare workers change their perception of their work situation viewing minor illness and injuries as an inevitable part of the job and not amenable to health and safety measures. A limitation of this study was that the sample was non-random and participation was controlled by directors of childcare centres, this may have influenced the results. Further research in this area is required to determine if this perceptual issue is a common phenomenon among childcare workers.

Implementing Workplace Health Promotion

Strategies for the implementation of workplace health promotion vary and there is no one model that is applicable to all organisations or industries. However, commonly used approaches involve the participation of employers and employees to develop specific goals and objectives for the organisation (Chu & Dwyer, 2002; Ellis, 2001). Successful strategies require an integrated approach of individual directed measures in combination with the environmental, organisational, ergonomic and social factors. Through such tools as participatory needs assessments, staff concerns can be identified and workplace improvement strategies can be developed.

An assessment of current health problems and needs is often the initial step towards the setting of workplace health promotion goals. Health risk appraisal is a popular assessment tool to determine individual health risks and typically asks questions about self-reported health behaviours and personal health history (O'Donnell, 2002). The size and type of the organisation will have an influence on the types of approaches that can be used to gain this information. It is likely that smaller organisations (such as childcare centres) will rely on findings from population-based industries similar to their own. Conducting their own assessment

and surveys would be time consuming and involves areas of expertise that may not be available to the organisation.

Prior to the implementation of suitable and appropriate strategies for workplace health promotion, access to baseline data can provide valuable sources of information about individual wellbeing, common health issues and relevant related organisational characteristics. It is intended that this study will contribute to the baseline data and body of knowledge about the health of adults working in early childhood education in New Zealand. This knowledge will provide an initial starting point for the planning and development of Workplace Health Programmes and contribute to quality in early childhood education programmes.

Occupational Health and Quality Early Childhood Education

Quality early childhood education is the foundation for learning and educational achievement for young children. It contributes to the development of cognitive skills, as well as self-esteem and the reinforcement of social and cultural values (Ministry of Education, 2002). The findings of The Competent Children Project, a longitudinal study commissioned by the Ministry of Education (2004b) provided evidence of the concurrent, short-term and long-term impact of early childhood education experience. For example, the recent report of the children in the study now aged 12 years, shows that participation in quality early childhood education continued to be a contributing factor to the children's competency in mathematics and literacy.

Quality early childhood education is a priority for the current New Zealand Government who has made a commitment to strengthening early childhood education services and produced a 10 year strategic plan, "*Pathways to the Future: Ngā Huarahi Arataki*" (Ministry of Education, 2002).

The three core goals of the plan are to;

- increase participation in quality early childhood education services
- improve the quality of early childhood education services and
- promote collaborative relationships. (p.2)

A network of strategies has been developed by the Ministry of Education (2002) in order to achieve these goals. The researchers own interest is pertinent to the second goal that concerns the quality of early childhood education services and in particular how adult health and wellbeing is related to the quality of their workplace environment.

In their review of early childhood education literature, Smith, Grima, Gaffney and Powell (2000) discussed the issues related to quality in the New Zealand context of early childhood education and identified aspects of quality as either structural or processes. Process qualities are components that set the framework within which the quality learning processes occur. Structural qualities include adult – child ratios, group size, staff qualification and experience, wages and working conditions, staff stability and of particular relevance to this study, the health and safety aspects of the environment for both staff and children. Smith (1996), in her study on working in infant childcare centres in New Zealand, found that the working conditions of childcare staff was of crucial importance to the provision of a quality childcare environment. The health and safety of childcare teachers is of paramount importance if they are to be positive role-models and quality educators for young children.

Justification for the Study

Little is known about the current health issues for adults working in New Zealand early childhood education settings and no specific studies have been done in New Zealand to explore the health and wellbeing of this group. The only available New Zealand data on reported workplace related injuries is from the Accident

Compensation Corporation (2003) which shows that the range of injuries in adults is consistent with those found in overseas studies. Most information and knowledge has been based on overseas literature and research. The purpose of this study is two-fold; firstly it will provide base-line data on the health and wellbeing of early childhood workers, as described above, to assist in the development of workplace health programmes applicable to the New Zealand early childhood setting. This will also support the 'Workplace Health and Safety Strategy for New Zealand to 2015' (Department of Labour, 2005).

Secondly, findings will provide a valuable contribution to the New Zealand Government strategy to improve the quality of early childhood education services (Ministry of Education, 2002). One facet of this strategy is the intention to research early childhood teacher workforce issues and the retention of qualified teachers. Personal and workplace characteristics that contribute to workforce issues include the health, wellbeing and occupational safety of teachers. It has also been found that health factors such as emotional exhaustion are linked to turnover of staff in childcare (Manlove & Guzell, 1997). High staff turnover is significantly related to lower quality education, children need stable staff to build positive and trusting relationships with their caregivers, a vital aspect of social and emotional development (Smith et al., 2000).

The researchers own interest in this area emanates from 12 years of teaching health and wellbeing to tertiary students training to work in both centre based and home-based early childhood education. This teaching includes children's health and wellbeing, as well as education for early childhood students on how to minimise and manage risks of personal exposure to health hazards in their work environment, an important component of teacher training. The ability to maintain a high level of personal health and wellbeing is a critical aspect for work satisfaction and maintaining stamina in a physically and emotionally demanding job.

A comprehensive study of the health status, behaviour and concerns of adults in early childhood settings by Gratz and Claffey (1996) provided an excellent model for the development of further research in this area. It was decided that a similar study based on the same questionnaire, adapted for the New Zealand setting, could be used to determine the health and wellbeing of adults working in different early childhood settings in New Zealand. The following description provides an overview of the three settings that were chosen for the study.

New Zealand Early Childhood Education Settings

New Zealand has a diverse range of early childhood education settings to meet the education and care needs of most children, parents, families and whanau. Some of the groups based options include childcare centres, kindergartens, Kohanga Reo, Pacific Island centres, Montessori and Rudolph Steiner. Home-based options are family day care and nanny. Early childhood education is not compulsory for children in New Zealand however the majority of children attend some form of early childhood education at some stage during their preschool years. For the purposes of this research the parameters of the study were limited to three commonly used early childhood settings; kindergartens, childcare centres (education and care centres) and home-based services. Each of these settings provides its own style of early childhood education. They cater for the different needs of children and their families/whanau, with differing philosophies and varying methods of funding, organisation and management.

Education and Care Settings (childcare centres)

"Education and care centres provide either sessional, all day or flexible hours programmes for children from birth to school age" (Ministry of Education, 2002, p.5). They are commonly referred to as childcare centres. Private pre-schools are also included in this category. The term 'childcare teacher' is used within this context to describe any adult working in a childcare centre who has direct contact with the children. This may include qualified teachers and untrained staff. There

are numerous unqualified adults working in education and care centres, only 50% of childcare teachers have a Diploma of Teaching (Early Childhood Education(ECE)) or higher teaching qualification (Ministry of Education, 2004a). In 2002 only 6.5% of centres had all teachers qualified a situation which the government intends to change (Ministry of Education, 2002). The childcare centre industry is in the process of a phase-in period of increased funding and increased wages for qualified teachers (May, 2005). Those centres that meet an agreed quality criteria associated with staff qualifications will be funded at a higher rate. This process is supposed to be completed by 2008 and is the result of a long process to improve the working conditions and wages of childcare centre staff.

Childcare is a growth industry in New Zealand. A change in employment patterns for families in the last decade, particularly the rise in maternal employment, has increased the demand for childcare. Early childhood statistics released by the Ministry of Education (2004a) show that in the period of July 2000 to July 2003, there was an increase of 197 licensed childcare centres in New Zealand. This was the only type of early childhood service to show a significant increase. The minimum teacher:child ratio is 1:5 for under 2 years old and 1:10 for over 2 years old attending all day. In 2004 there were nearly 81,000 children enrolled in this service almost half of the total number of children attending licensed early childhood education providers (Ministry of Education, 2004a).

Many education and care centres are privately owned, or they may be part of another organisation such as a school, tertiary institute or government employment body. Several education and care centres are community owned and operated through trusts, community organisations and churches. Financial costs are usually met through private fees paid by the family and some government funding.

Kindergartens

The second type of early childhood setting used in the study was kindergartens. "Kindergartens generally operate sessional early childhood education for children

between the ages of three and five” (Ministry of Education, 2002, p.5). In 2004 approximately 45,000 children were enrolled in kindergartens (Ministry of Education, 2004a). The minimum teacher:child ratio for sessional kindergartens is 1:15. Adults who are employed as teachers in this setting must have the minimum qualification of a Diploma of Teaching (or equivalent) and are referred to in this study as kindergarten teachers. In 2002 kindergarten teachers received pay parity with secondary teachers which provided them with a substantial increase in salary (May, 2005).

Kindergartens are funded by a government grant which meets most of the running costs and salaries of the teachers and staff. Any shortfalls in funding are made up by voluntary family contributions and local fundraising. Each kindergarten is part of a local association and has a committee of parents who have some responsibility for the running of the kindergarten. As well as fundraising, parents are also involved in providing voluntary parent help at the sessions (Early Childhood Development, 2001).

Home-based Services

The third early childhood setting used was home-based services. “Home-based services comprise of a cluster (network) of home-based caregivers operating under the supervision of a co-ordinator” (Ministry of Education, 2002, p.5). Adults who work in this setting have a variety of titles such as, family day care providers or caregivers, home-based educators, nanny educators and nannies. For the purpose of this study they will all be referred to as home-based educators.

A survey of the characteristics of family day care providers found that they are usually female, in the thirty year old age group (Everiss, 1999). The educational level of family day care providers is usually less than that of childcare teachers however Everiss (1999) found that the majority of them have some form of early childhood training, usually a formal pre-entry course provided by the home-based scheme. Only 9% had no training at all and 11% had a Diploma of Teaching (Early

Childhood Education) or equivalent. It is not known what the qualifications of most nannies are, but specific New Zealand nanny qualifications are either a six month course at Level 3 or a one year course at Level 5. Remuneration and conditions of employment for family day care providers and nannies differ; nannies are employees and have employment rights as per the New Zealand Employment Relations Act 2000 (Department of Labour, 2004) which includes holiday and sick leave. Family day care providers are paid on a per hour per child basis, they have no provision for holidays or sick leave and it is only since April 2004 that they have been required to pay tax on their income.

Home-based education and care can take place either in the child's own home (usually by a nanny or nanny educator) or in the educator's home (usually a family day care provider) for an agreed number of hours per week. Many of the family day care providers also have their own children present. The minimum adult:child ratio for home-based care is 1:4 with a maximum of two children under two years (Education Review Office, 1998). Approximately 9,900 children were enrolled in this service in 2004 (Ministry of Education, 2004a). Many home-based educators are employed as part of a chartered home-based early childhood education service. As part of this service programme managers pay regular home-visits to the educator and supervise the education and care being provided to the children. Those families that join the chartered home-based services receive a small subsidy from the government for the cost of their childcare, but the majority of the costs are the parent and family responsibility (Early Childhood Development, 2001).

Summary

It is intended that this small scale study will begin to provide a documented representation of the health issues for adults working in the three early childhood education settings. The three groups of adults will be referred to collectively as early childhood workers or in individual groups as childcare teachers, kindergarten teachers and home-based educators. An investigation of the health and safety of

early childhood workers within the New Zealand setting will provide useful information to begin the exploration of workplace health promotion, and workforce and retention issues of early childhood teachers. Those working on the government strategies for improving the quality of early childhood education will have access to current knowledge of health issues of importance to teachers and have a basis to work from to build a healthy satisfied workforce.

It is anticipated that employers will be interested in the outcomes of this research and be able to utilise the findings in the development of workplace health promotion. Creating a healthy, safe workplace is not only a moral issue but also a requirement by legislation according to the Health and Safety in Employment Act 1992 (Department of Labour & Occupational Safety & Health Service, 2003). The effective identification of workplace hazards requires employers and employees to work co-operatively together to create a healthy workplace. Many of the illnesses and injuries occurring in the workplace are preventable and it requires a collaborative and integrative approach to address these issues alongside the creation of a positive organisational culture of health and safety in the workplace. This will also link to the New Zealand government strategy for workplace health and safety (Department of Labour, 2005) which aims for workplaces to develop a preventive culture in this area.

Organisations involved in the education and training of adults working in early childhood education will have current information about health issues relevant to the New Zealand setting on which to base their education programmes. Emphasis can be placed on those areas of wellbeing that carry the most risk and have the most relevance within New Zealand. Identified areas of concern on health and safety issues can be incorporated into professional development programmes for trained staff.

Outline of the Study Report

There are six chapters in the thesis. Chapter 2 reviews the literature and explores the current body of knowledge about the occupational health and safety issues of adults working in early childhood education. Common ideas and themes are explored within the context of childcare centres, kindergartens and home-based care.

The research method is explained in Chapter 3, this includes how the research was designed, the participants, the variables that were measured, ethical procedures and the statistical procedures that were used to analyse the data. Chapter 4 presents the results of the study, explains the statistical analysis and significances of the findings. Demographic and work setting characteristics are provided, followed by the collation of data in the three focal areas of the study; health status, health behaviours and health concerns. In Chapter 5 there is a comprehensive discussion of the findings, with links and comparisons to the literature. The limitations of the study are also outlined.

Chapter 6, the final chapter, draws together the conclusions of the study, the recommendations for further research and suggestions for future directions.

CHAPTER 2

LITERATURE REVIEW

Introduction

In this chapter the literature pertaining to the occupational health and safety of adults working in early childhood settings is reviewed. Literature relevant to the three early childhood settings referred to in this study (childcare centres, kindergarten or preschool and home-based) is explored. The literature tends to be dominated by studies of teachers working in childcare centres with very few relevant studies found within preschool or kindergarten settings. All the research found applicable to home-based care was conducted within the family day care environment, there was no research found that specifically related to nannying. This may be because nannying is an unregulated industry and has not been the focus of any significant research to date. New Zealand literature on occupational health in early childhood settings is scant, hence this review draws on many American and Australian studies. Despite the different cultural context of these countries in comparison to New Zealand, there are still sufficient similarities within the early childhood education environments to make these studies relevant and useful.

Adults working in early childhood education have numerous health and safety issues in their work environment. For the purposes of this literature review these issues have been divided into four common areas of concern identified in the literature; exposure to infectious diseases, types of occupational injuries, risks during pregnancy and work related stress. A discussion of each of these areas is now presented through a summary and evaluation of current literature and research in this field.

Exposure to Infectious Diseases

The epidemiology of infectious diseases and childcare is well documented in the literature, predominantly in relation to children's health. It is acknowledged that there is a higher incidence of childhood infections when children are together in a group setting, a fact that is of significant concern to many childcare teachers (Alkon & Boyce, 1999; Bedford, 2001). Specific infectious diseases found in childcare are; respiratory infections, gastro-intestinal infections, skin infections, scabies, headlice, meningitis, cytomegalovirus (CMV), chicken pox, conjunctivitis, rubella, giardia, tuberculosis and hepatitis A and B (Bradley, 2003; Calder, 1994; Dobbins et al., 1994; National Institute Child Health and Human Development (NICHD) Early Child Care Research Network, 2001; Osterholm, 1994).

According to Osterholm (1994) the spread of infectious disease in childcare occurs in four main patterns, the first of these potentially affects children, teachers and close family members, for example gastrointestinal and respiratory diseases. The second pattern is less common and arises when the adult contact has an infection which is unlikely to be apparent in the children, such as Hepatitis A. Infections seen in children but not usually in adults such as otitis media and some childhood viral illnesses, form the third pattern of occurrence. Lastly is the fourth pattern of infection which affects children to a mild degree, but may have serious consequences for adults such as adverse effects on the foetus or immunocompromised persons. As a consequence of working in an early childhood environment, adults are most likely to be affected by exposure to infectious diseases through the first and fourth patterns identified by Osterholm, therefore this section will focus mostly on diseases relevant to these patterns.

Respiratory and Gastrointestinal Infections

Of all the childhood infectious diseases, the most common type of infections to occur in early childhood settings are upper respiratory infections and gastrointestinal infections. Several studies have found that children who attend

childcare centres have a higher rate of these type of infections than those children who are at home in a family day care type of setting, or cared for by parents or relatives (Bradley, 2003; NICHD Early Child Care Research Network, 2001; Slack-Smith, Read & Stanley, 2002). There are however a number of factors that can influence the incidence of these infections amongst children such as the size of the group, length of time spent in childcare, age of the child's first attendance, hygiene and family size (Bradley, 2003; McCutcheon & Fitzgerald, 2001). In their study of respiratory and allergic illness experienced in children attending family day care homes and childcare centres, Slack-Smith et al. (2002) found that a family history of respiratory and atopic illness was the most important risk factor for all children although there was still a greater association for those children attending childcare centres. Large group care (greater than six children) was found to be a significant factor in the increased likelihood of a child having an infectious illness (Bradley, 2003).

This higher incidence of infectious illness among children attending an early childhood setting exposes adults working with young children, especially those working in large groups, to more infectious disease than many other occupational groups. Gratz and Claffey (1996) found that childcare teachers in group settings experience more illness than family day care providers, supporting the notion that exposure to a greater number of children increases the rate of adult infection. However, many of the respondents in the same study noted that although there was an increase of illness experienced during their first year of employment, illness decreased in subsequent years indicating an probable increase in immunity.

The age of the children the adult works with may be a significant factor in their risk of exposure to infectious disease. Findings from the NICHD study of Early Child Care (2001) showed that there was a higher incidence of upper respiratory and gastrointestinal infections in group care where children were less than two years old. Osterholm (1994) states that there is an increased risk of infection for childcare

teachers who work with younger children, probably as a result of closer contact during napkin changing procedures, nose wiping and teething babies.

Despite the raised prevalence of gastrointestinal infections in children in childcare settings, there is no documentation of the incidence among childcare teachers. Agents commonly transmitted through the faecal-oral route are hepatitis A, cryptosporidium, giardia, shigella, campylobacter, enteroviruses and rotovirus (Robertson, 2003). In particular pre-toilet trained children pose a risk for the transmission of enteric or faecal agents in childcare increasing the risk of infection and exposure to childcare teachers. One study which monitored the faecal contamination of four childcare centre environments with under two year olds, found that faecal contamination was common (Holaday, Waugh, Moudaddem, West & Harshman, 1995). The heaviest contamination was found on sink faucets and the hands of caregivers and children. There was no significant difference between the use of cloth or disposable napkins, the amount of faecal contamination between the centres in the study varied according to the quality of hygiene measures and hand-washing techniques used. Those centres which enforced strict hygiene routines had the lowest level of faecal contamination, adults changing napkins need to be properly trained and be aware of their own hand-washing techniques to reduce the risk of infection.

Blood-borne Infections

Blood-borne infections such as acquired immune deficiency syndrome (AIDS), human immunodeficiency virus (HIV), hepatitis B and C are of concern to those working with young children, mainly due to their severity and potential adverse outcomes (Robertson, 2003). The risk of transmission of these illnesses would appear to be quite low although research is scarce in this area of childcare work. One American study carried out serum testing of 360 childcare providers and found that antibody prevalence for hepatitis B core antigen was only 1.4% and for hepatitis C was 0.6% (Jackson et al., 1996). As the prevalence was so low, the researchers concluded that these diseases were not a significant health risk for this

occupational group. They suggested that the protection offered by the wide acceptance and uptake of the hepatitis B vaccines in the US would have contributed to this low risk. Many childcare teachers in Victoria, Australia believe they are at risk of exposure to hepatitis B and voluntarily choose to be immunised against this disease (Thomson, Kennedy & Thompson, 1998). Nearly 66% of childcare teachers surveyed in Victoria were vaccinated for hepatitis B compared to 11% for hepatitis C. It is not known how many early childhood workers in New Zealand are immunised against Hepatitis B and it may not be considered necessary for everyone. New Zealand is considered to be a country with a low endemic level of Hepatitis B compared to high endemic countries such as the Pacific Islands and most of Asia (Ministry of Health, 2002). The highest incidence of Hepatitis B in New Zealand has been among Asian, Pacific and Maori ethnic groups living in the North and East of the North Island. Inclusion of the Hepatitis B vaccine in the New Zealand immunisation programme for children has the potential lower the risk to all early childhood workers in this country as long as children are vaccinated.

Implications for Pregnant Early Childhood Workers

Some infections that occur in childcare settings may be unapparent or mild in children or adults, but may have serious consequences for the foetus. The most documented type of non-vaccine preventable infection in this group is cytomegalovirus (CMV), a highly infectious disease transmitted through bodily fluids, particularly saliva and urine (National Centre for Infectious Diseases, 2003). For those people who get CMV there are very often no symptoms although a few people may experience a mononucleosis type of illness. Although it causes no long term health problems for the infected person, it is one of the leading viral causes of birth defects in America. If a pregnant women contracts CMV for the first time during her pregnancy there is a potential risk that after birth, the infant may have CMV related complications such as, hearing loss, vision impairment and diminished mental capacity. The incidence of this primary infection occurring in

pregnant women is between one and three percent but of this group, only about one third of infants will be affected to some degree.

A review of CMV in childcare settings found that approximately one-half of all children had active CMV infections in which the virus could be recovered from their urine and saliva (Dobbins et al., 1994). Most of the children affected were 13 to 24 months of age with a rapid decline after that to 3 years of age when active transmission ended. High prevalence rates of CMV in childcare can be compared to much lower rates of seven to eight percent in children cared for in their own homes. It is thought that the high incidence of CMV in childcare is due to transmission within the environment, this is supported by the finding that those in the same childcare centre were affected with the same viral strain of CMV. It was found that 8% to 20% percent of childcare teachers became infected with CMV each year (Dobbins et al., 1994), serum testing for antibodies in one group of childcare teachers showed that 62% of them were seropositive to CMV (Jackson et al., 1996). The risk of being infected with CMV was increased for those working with children under 3 years of age.

Recommended steps to reduce the transmission of CMV from the child to the childcare teacher include careful hand-washing after napkin changing, not kissing children on the lips and not placing children's hands, fingers, toys and other saliva laden objects in their own mouths. Pregnant childcare teachers with no evidence of previous infection can reduce their risk further by working with children over 3 years of age.

Two other agents that have the potential to cause adverse foetal outcomes in childcare teachers are the varicella-zoster virus (chickenpox) and human parvovirus B19 (erythema infectiosum or fifth disease). Both of these diseases that are usually not severe in young children can cause serious consequences for adults and the foetus. Varicella-zoster occurs infrequently during adulthood and even less commonly during pregnancy (Gilbert, 1993). Risks to the foetus from

maternal infection are low but it has been found that varicella during the first two trimesters of pregnancy can occasionally be associated with congenital limb hypoplasia, dermatomal skin scarring, and damage to the eyes and central nervous system (Enders & Miller, 1994). Maternal infection late in pregnancy is associated with perinatal infection in 20% to 60% of cases.

The parvovirus B19, also reported to have adverse effects during pregnancy has the greatest risk to the foetus if contracted in the early weeks of gestation. A comparison of infection rates of pregnant women in the general population and nursery school teachers found that the nursery school teachers had a threefold increased risk of infection (Valeur-Jensen et al., 1999). Working with children under 7 years of age was found to be a risk factor in the study during epidemics of the disease.

There have been no specific studies done on the experience of pregnancy and working in childcare. It would be expected that pregnancy occurs frequently due to the predominantly female workforce. Gratz and Claffey (1996) found in their study of 446 early childhood professionals, that one quarter of their sample reported at least one pregnancy during their childcare employment. Getting pregnant was one of the most common reasons for leaving the job in a New Zealand study of childcare teachers (Smith, 1996).

Occupational Injuries

Working with young children is a physically demanding job, every day the early childhood worker is required to perform a variety of physical tasks. As Wortman (2001, p.50) describes "it requires constant interaction with active (sometimes hyperactive), spontaneous, impulsive, heavy (sometimes very heavy) children". International studies indicate that the most common type of injuries childcare teachers are at risk for is musculoskeletal injuries (Grant, Habes & Tepper, 1995; Gratz & Claffey, 1996; Owen, 1994).

The United States Bureau of Labour statistics (2003) show that for each year in the period 1997 to 2001, there was approximately one case of occupational injury for every 100 full-time childcare teachers that involved days away from work. In New Zealand, the Accident Compensation Corporation (ACC) data of ACC claims shows that during the period of January 2000 to May 2003, there were 183 new claims and 76 ongoing claims by adults who had accidents in the pre-school sector (ACC, 2003). An analysis of the five most common injury sites for new claims showed that the back and spine were the most commonly affected sites (61%) followed by the shoulders (23%), knees (21%), ankle (18%) and neck (12%). Of the five most common accident causes for entitlement claims to ACC (2003), lifting/carrying and strain were the most frequently occurring cause (40%). These were followed by loss of balance/personal control (19%), slipping or skidding (10%), tripping (9%) and work property characteristics (8%).

Overseas studies on childcare teachers have found similar types of musculoskeletal injuries in adults working with young children. Gratz and Claffey (1996) found that 8% of childcare teachers and 6% of family day care providers in their study reported an unintentional injury in the past year. The most common types of injuries reported included back and shoulder injuries, this is similar to the injury claims made to ACC in New Zealand. Pain or discomfort in at least one of the following areas were reported by 78% of employees in one preschool; the neck/shoulder, back, hand/arm or lower extremity, however the very small sample of 21 participants is a real limitation of this study (Grant et al., 1995). Teachers also reported sprained ankles from tripping on toys and equipment (Gratz & Claffey, 1996), falls or trips on the job during a six month period were reported by 21.5% of a group of 240 childcare teachers in the United States (Calabro et al., 2000).

Low back pain is a common phenomenon among a wide range of occupational groups, McBride, Begg, Herbison and Buckingham (2004), found that of the 970 people aged 26 years in their New Zealand survey, just over half had experienced

back pain during the last year. They found that there was no clear link between occupation and risk, yet occupational factors were important. There is strong evidence that low back pain is related to work related lifting and forceful movements and awkward body postures, however they suggest that psychological and social elements may also be related. The New Zealand Health Survey (Ministry of Health, 2003) also found that one in three adults over 45 years are affected by back problems. With the high incidence of back problems among both the younger and older age groups in the general population, it is not conclusive that those working with young children are more at risk than any other group. However, they are more likely to be involved in at risk work related activities, such as incorrect lifting, frequent lifting of children, sitting unsupported on the floor, forceful movements and awkward postures (Gratz, Claffey, King & Scheuer, 2002).

Ergonomic Demands of Childcare

Ergonomics of childcare work is about addressing the way in which the physical demands of the job are met by the workers, it involves applying ergonomic principles to childcare work so that the workplace is safe and healthy (Wortman, 2001). To assess the physical and ergonomic demands of caring for young children, interviews, observations and worksite analyses of childcare teachers have been conducted (Grant et al., 1995; Gratz et al., 2002; Owen, 1994). Information such as the frequency of performing physical tasks, the types of body movements involved, the work space and equipment used were all central aspects of these job analyses. All the studies found that childcare teachers were required to do frequent lifting, bending, stooping, squatting, reaching and carrying of loads. Repeated frequent movements that place strain on the body have the potential to cause injury, this can be exacerbated by incorrect lifting, awkward body postures and movements, stretching and reaching.

One contributing factor to musculoskeletal injuries is the workplace environment and lack of appropriate furniture for adults. Workplace analysis of childcare settings has found that much of the furniture and equipment that is designed for use by

children is a contributing factor to awkward working postures (Grant et al., 1995; Owen, 1994; Vary et al., 1996). The heights and positions of cots, changing tables, chairs and tables require childcare teachers to stoop, bend, lift and squat many times a day. Sitting in child sized chairs places strain on the knee ligaments when rising from that position, as well as an unequal distribution of weight over the buttocks and thighs when sitting (Gratz et al., 2002).

A higher prevalence of back, neck and shoulder pain has been associated with working with a younger age group of children, usually less than three years of age (Grant et al., 1995; Ono et al., 2002). There are more examples of physically stressful activities recorded in staff working with the younger age group, particularly with those children less than 18 months of age. Length of employment was also found to be significantly associated with the increased incidence of muskulo-skeletal pain, as well as factors such as high physical workload, long working hours, job demand-support imbalance and the cumulative influence of workloads (Ono et al., 2002).

Occupational Stress

Occupational stress has received a lot of attention since the early 1990s and has emerged as a serious occupational health issue, internationally there has been an increase in the number of stress-related illness compensation claims (Ellis, 2001). Consequently, in many countries there have been legislation changes to the employer's responsibility for the reduction of workplace stress for employees. In the New Zealand Health and Safety in Employment Act 1992 and the amendments made to it in 2002, employers are required to create a healthy and safe workplace and reduce any potential risks to physical and mental health, including stress (Department of Labour & Occupational Safety and Health Service (OSH), 2003). To achieve this, employers and employees must work together to ensure that there are systems in place to manage and identify hazards in the workplace that may contribute to stress.

Stress is a loosely used term and can be defined in many ways. The definition of workplace stress as adopted by OSH is:

Workplace stress is the result of the interaction between a person and their work environment. For the person it is the awareness of not being able to cope with the demands of their work environment, with an associated negative emotional response. (Dept. of Labour & OSH, 2003, p.4)

A high level of workplace stress is reported to potentially have adverse effects on personal health and wellbeing and contribute to the development of stress related illness such as hypertension, coronary heart disease, mental illness and alcoholism (Ellis, 2001).

The International Labour Organisation (ILO) conceptualises occupational stress in a model that has four parts: organisational stressors, stress mediators, individual stress responses and organisational impacts (Ellis, 2001). This model is a useful framework to discuss the implications of occupational stress on the health status, behaviours and concerns of early childhood workers within each of the three settings in this study.

Organisational Stressors in Early Childhood Settings

Organisational stressors, often referred to when discussing health concerns and stress management, include two main aspects. The first of these is work organisation factors such as job insecurity, workload, work scheduling, job content and the social and physical work environment. Job stressors the second aspect, includes issues of management, for example a person's role, support from management, job skills, ongoing development and learning opportunities and relationships with supervisors.

Organisational stressors found in childcare centres included child behaviour and guidance issues, conflict or poor communications between staff and/or supervisor (Stremmel, Benson & Powell, 1993), parent related demands, low pay and long

hours (Curbrow, Spratt, Ugaretti, McDonnell & Breckler, 2000), low status, lack of relievers, unpaid overtime, limited resources (Caulfield & Kataoka-Yahiro, 2001) and differing philosophies, work ethics, skills and training between teachers and directors (Gratz & Claffey, 1996). In Smith's (1996) study of childcare teachers in New Zealand infant childcare centres, staff were asked what they liked least about their work. The most common response was the tiredness and stress associated with the job. Of those staff who left their job during the study, 33% left for reasons such as conflict with the supervisor or other staff, unhappiness with the pay or stress/burnout. Of the respondents in Gratz and Claffey's study, 95% indicated their jobs were stressful, directors in particular had high levels of stress.

Recently, noise levels were studied in eight New Zealand early childhood centres (McLaren, 2003). Exposure to noise levels that exceed the recommended safe dose can contribute to stress and in the long term auditory impairment. McLaren found that out of the ten staff members he monitored, three were exposed to more than the permitted level of daily noise dose. This is of concern to the health and wellbeing of these workers if the noise levels were to continue at the same level for long periods.

Few studies were found specifically on preschool or kindergarten teachers and stress. The most useful and relevant study found was carried out in Queensland, Australia (Kelly & Berthelsen, 1995). As the preschool education system in Australia is similar to that in New Zealand, the findings from this study provide useful information for this review. The phenomenon of stress was studied in eight pre-school teachers who used reflective journaling to record their experiences of stress. Thematic analysis was used to determine the teachers' main sources of stress. Kelly and Berthelsen found that the most common stressors in the preschool teachers jobs were: time pressures, the difficulties of meeting and responding to individual children's needs (including those with special needs), keeping up with non-teaching tasks, maintaining the early childhood philosophy

and practice, personal needs, parent's issues, interpersonal relationships and the attitudes and perceptions about early childhood programmes in society.

Kelly and Berthelsen (1995) ascertained from the participant's descriptions, that a preschool teacher's job is complex and demanding. Organisational demands were described and communicated across all the themes. For this group of teachers organisational demands and changes in the education system had left them with a reduced sense of control over their work practices. They reported extensive demands from external sources such as meetings, inservice and professional development, report writing and administration tasks. Many of these tasks were performed out of normal hours. There was also extra pressure from non-teaching tasks such as purchasing equipment and material, secretarial work, cleaning, liason with students and report writing.

Family day care providers also report some degree of stress in their job although to a lesser degree than childcare teachers. Twenty-nine percent of family day care providers in Gratz and Claffey's (1996) study reported their work was stressful or very stressful compared to 35% of childcare teachers. In a comparison of stress experienced between employed mothers working outside the home, non-employed mothers and mothers working as family day care providers, the family day care providers reported the highest stress scores (Atkinson, 1992). One main source of stress cited in this study was communication issues with parents such as, conflict over financial matters, time schedules and parents lack of respect for provider's' rights and policies. Other sources of stress for family day care providers include: working in isolation from other adults, no breaks or time to oneself, parental demands, long hours, low pay and increased noise (Curbrow et al., 2000; Gratz & Claffey, 1996; Nelson, 1990).

Stress Mediators

The second part of the ILO model (Ellis, 2001) is stress mediators, these are individual and organisational characteristics that act as a buffer against stress. It is

important to recognise that this part of the model is essential to the whole understanding of occupational stress, however as this aspect of stress has not been explored in this study it will be mentioned only briefly. Individual characteristics are personality traits such as an individual's level of neuroticism and anxiety, coping strategies and personal experiences, these have a significant influence in the experience of stress as well as personal financial status, family and social support (O'Driscoll & Brough, 2003).

Research about stress in the early childhood environment has tended to focus on organisational stressors rather than stress mediators so there is less known about this aspect specific to this setting. The most studied stress mediator found in childcare settings relates to communication. Positive and regular communication between staff and directors was found to have a big influence on job satisfaction and job stress (Stremmel et al., 1993). Discussions at staff meetings regarding issues of child guidance and staff development were found to be associated with higher job satisfaction and acted as a buffer for emotional exhaustion. Positive staff relationships and communications are difficult to maintain if there is a high staff turnover. Carter and Pelo (2002) believe that many of these issues are related to the leadership which exists within the programme and the organisational climate that is created and maintained. It seems that building strong and positive staff communication and dealing effectively with conflicts are a vital part of creating an emotionally healthy workplace and preventing stress.

Curbrow et al. (2000) found that family day care providers reported a higher level of control over their job than childcare teachers and that job control was positively associated with lower job stress. They were able to set their own rules and regulations with the parents and build their business around their own needs.

Individual Stress Responses

Individual stress responses are the third aspect of the model (Ellis, 2001). Reviews of the literature on occupational stress have found that occupational stress

contributes to negative health outcomes and stress related illnesses for individuals (Grimshaw, 1999; O'Driscoll & Brough, 2003). Acute responses to stress include depression, anxiety, job dissatisfaction, heart rate and blood pressure changes, sleep problems and substance abuse. Prolonged stress may lead to long term illness such as hypertension, heart disease, musculoskeletal problems, alcoholism and mental illness (O'Driscoll & Brough, 2003).

Physical symptoms of stress for those working with children have received little attention, only one study was found that investigated these physical effects in early childhood settings (Gratz & Claffey, 1996). This study found a significant increase in stress related symptoms since working in childcare for directors, child care workers and family day care providers. Perceived changes in the frequency of stomach acid, backaches, fatigue, headaches and muscle strain were reported. Primary, intermediate and secondary teachers have reported similar symptoms associated with stress such as being unable to sleep, lack of energy, headaches, back problems, hay-fever, bronchitis and asthma (Whitehead & Ryba, 1995). Stress also affected these teacher's family relationships because of feelings of guilt and resentment at their situation, short-tempered behaviour and self pitying.

Behavioural responses to stress include adverse coping mechanisms such as increased alcohol and drug consumption, smoking, sedentary lifestyle, increased rate of absenteeism, family difficulties and isolation and solitude (Vezina & St-Arnaud, 1995). In her review of the literature Grimshaw (1999) found that people commonly turn to tobacco as a means of dealing with stressful situations and heavy smoking was found to be more prevalent in employees who reported high job strain. Little is known about tobacco and alcohol use among early childhood workers, in Gratz and Claffey's (1996) study the majority of respondents were non-smokers (88%) and alcohol use was reported at low levels.

Organisational Impact

The final phase of the ILO conceptualisation of stress at work is the impact on the organisation as a whole, for example the worker's health, turnover rates, injuries, productivity and organisational effectiveness. Job burnout, job turnover and job satisfaction are considered to be commonly used indicators to assess the occupational health of individuals and organisations (Curbrow et al., 2000).

A model of job burnout proposed by Maslach and Jackson (1986) and adopted by many researchers identified three components of burnout; emotional exhaustion, depersonalisation (which refers to a negative or cynical attitude towards one's work or recipients of the work) and a reduced sense of competency or personal accomplishment. The issue of 'burnout' in early childhood teachers is often linked to occupational stress and staff turnover, yet there seems to be little recent evidence of how extensive the problem of burnout is and the burnout-turnover connection is not clear (Manlove, 1993). Predictors of burnout are complex. Organisational and job demands coupled with psychological factors such as a neurotic personality type have been found to be correlated with job burnout in childcare (Manlove, 1993). However in a study of teacher burnout across several sectors including preschools, the relationship of psychological factors to job burnout was consistently reported to be greater than factors within the work setting (Thompson & Williams, 1995).

Stremmel et al. (1993) assessed the emotional exhaustion of 544 directors, teachers and assistant teachers in childcare. They found that while 37% of them reported feeling emotionally drained a few times a week or more, only 10% were characterised as experiencing high levels of emotional exhaustion. Lower emotional exhaustion levels for assistant teachers and directors in particular, were related to stress mediators such as regular communication at staff meetings about issues of child guidance and staff development.

Occupational instability and job turnover is of concern in childcare as it is reported in the United States that the rate of turnover exceeds that of other teacher settings (Whitebook & Bellum, 1999). Overseas studies report that reasons for turnover in childcare are lower wages, low stability of trained co-workers, changes in directors and working with untrained staff (Whitebook & Sakai, 2003). Whilst Whitebook and Sakai did not study the direct relationship between occupational health and turnover, an assumption could be made that the factors that led to job turnover and instability may have also created some degree of occupational stress. In infant childcare centres in New Zealand it has been reported that the turnover for staff was 29%, lower than rates compared to in American studies (Smith, 1996).

A review of turnover of family day care providers in the United States, reported that turnover rates are also high (Deery-Schmitt & Todd, 1995). There are many reasons for turnover for people working in family day care but Nelson (1990) found there was no relationship found between high levels of stress and high turnover. In fact many who left the occupation reported a high degree of satisfaction with the job.

Conclusion

Childcare teachers work in an environment that carries potential risks to their own health and safety. This review has explored the most important areas of occupational health concerning early childhood workers, infectious diseases, implications for pregnancy, occupational injuries and work-related stress. These areas are also highlighted in the New Zealand Government strategy (Department of Labour, 2005) which has developed priority goals aimed at the improvement of health and safety in the workplace.

According to the literature exposure to infectious diseases is a real occupational risk for adults working with young children due to the high prevalence of childhood diseases in their workplace. Childcare and kindergarten teachers are at higher risk of exposure to infection than home-based educators due to the fact that they work

with larger groups of children. Pregnant workers are also at risk from certain infections that may adversely affect the foetus, this is more likely for those who work with children under 3 years of age.

The physical and ergonomic demands of the job make occupational injuries such as musculoskeletal strain more likely than in more sedentary occupations. While few studies have been carried out in this area, those that have been published appear to support the statistics reported by ACC (2003) and the United States Bureau of Labour Statistics (2003). Research also shows that childcare work can be mentally and emotionally exhausting and stressful for some people. This review has described job related stressors and the potential personal and organisational outcomes of stress. These are related to worker's health concerns, behaviours and health status.

Little is known about the health issues for New Zealand early childhood workers as no New Zealand published studies were found addressing this issue. Until such investigation is done, the health status of early childhood workers in New Zealand will continue to be aligned with international studies. It is with this in mind that the researcher has instigated this study. The design and method of the study is detailed in the next chapter.

CHAPTER 3

RESEARCH METHOD

Introduction

This chapter presents the research aims and objectives and then explains the research design. A description of the research participants follows with a detailed outline of the process undertaken to choose the final sample. The materials and variables of the questionnaire are discussed and described including the modifications made to the original questionnaire designed by Gratz and Claffey (1996). Finally the method of data analysis is presented as well as the ethical concerns that were considered before the study commenced.

Research Question

This study addresses the following question, "What are the personal health issues for early childhood workers within three different early childhood settings?"

Research Aim and Objectives

The aim of this study was to describe and compare the health status, behaviours and concerns of adults working in three early childhood education settings. To achieve this aim the objectives were:

1. To conduct a descriptive survey of kindergarten teachers, childcare centre teachers and home-based educators using a questionnaire developed by Gratz and Claffey (1996) which was adapted for the New Zealand setting.
2. To document and describe relevant health issues for adults working in three types of early childhood education settings.
3. To analyse and compare the findings between each group.

Research Design

This research study was based on the occupational health research of early childhood professionals carried out by Gratz and Claffey (1996). While the principal aims and intent of the current study were similar, it was not directly replicated. The three groups of participants used for the study were different from those used in the United States and were chosen as they were more relevant for the New Zealand early childhood education setting. However, the same survey tool used by Gratz and Claffey was used with minor modifications.

The original study used a postal questionnaire that was sent out to a sample of adults working in early childhood education. The project directors at the University of Wisconsin – Milwaukee, designed the original questionnaire. It was based on current literature at the time, their experience in early childhood education and surveys of teacher health that related to stress (Gratz & Claffey, 1996). Three main areas of investigation were included in the questionnaire:

- Health status: Self rating of present general health, work absences, self assessment of overall health since working with young children, comparison of symptoms prior to and since working in childcare, unintentional injuries, weight and pregnancies.
- Health behaviours: Working when ill, use of alcohol and tobacco, self-assessment of nutrition, frequency and types of physical exercise activities and medical check-ups
- Health concerns: Assessment of stress levels when working with children, adults; ergonomics (e.g. moving heavy furniture/equipment, use of child-sized furniture, floor sitting, back strain/problems) (p.248).

Before the questionnaire was administered for this study it needed to be modified for the New Zealand setting and any new items included that were apparent as a result of more recent research. Two variations of the questionnaire were

developed, one for childcare centres and kindergartens, and one for home-based early childhood education settings. Each variation included minor wording changes so that the questions were relevant to each of the settings (Appendix A and B). These modifications are described in more detail in the material and variables section.

Population

Adults working in three different types of early childhood education settings in the Wellington region provided the population for this research. These were home-based services, kindergartens and childcare centres. Kindergartens and childcare centres were chosen because they are the largest providers of centre based licensed early childhood services. Of all the New Zealand children enrolled in licensed early childhood education services, 77% attend these two types of service (Ministry of Education, 2004a). Other early childhood settings such as Playcentres and Kohanga Reo were excluded from the study as they have a much smaller proportion of enrolments and not all of them are licensed. Licensed centres were preferred as they have to adhere to certain government regulations and receive a higher level of funding than unlicensed centres. Exclusion of these types of settings and those centres with a roll of less than 15 children reduced the number of independent variables that may influence the findings of the study. Home-based early childhood education providers were included to provide a comparison between home and each of the centre based settings. This group included both family day care providers and nannies.

Sample

The total population for the study was all adults working in one of three early childhood education settings as outlined above. For the purposes of this study the survey population was taken from the Wellington regional area in New Zealand. A stratified sample was used in order to obtain a sample from each of the target groups.

Sample size

The exact number of adults employed in the three early childhood groups in the geographical area included in the study was not known. Estimates could only be based on the number of providers and the enrolments at each service. From the database of early childhood services provided by the Ministry of Education (2003) it was thought that there were approximately 227 kindergarten teachers and 618 childcare centre teachers. Home-based statistical information is particularly difficult to ascertain as Ministry of Education figures are supplied for Programme Co-ordinators of each home-based service, rather than the actual numbers of home-based educators. Following discussions with the home-based services accessed for the research, it was established that between them they had 270 home-based educators employed. However, as not all home-based services in the region were utilised in the study, this figure is only representative of a small proportion of the whole group.

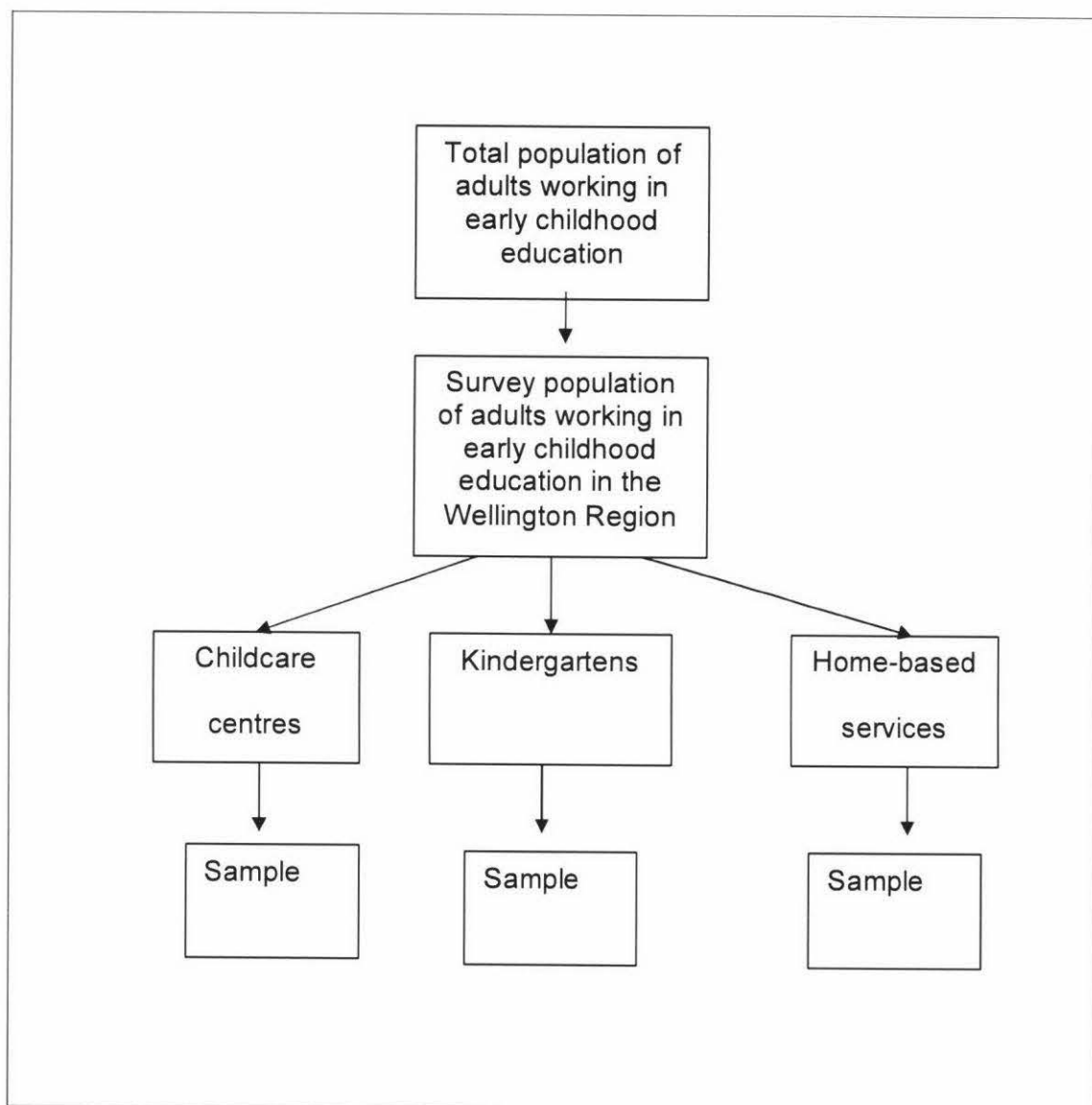
Advice was sought about the sample size from a statistician at the Statistics Research and Consulting Centre, Massey University. It was concluded that the sample size of 250 people was adequate for the purposes of the research, also taking into account the financial, administrative and time constraints. As the childcare centres employed the largest group of adults the sample size of 105 was determined, with the sizes of 70 and 75 for kindergartens and home-based services respectively.

Sampling technique

A stratified sampling technique was used to produce the sample. This technique enabled the researcher to ensure that appropriate numbers of people from each category of early childhood education were included (Buckingham & Saunders, 2004). The survey population was divided into three groups based on their work setting.

To carry out this procedure the sampling frame was first obtained from a database of all early childhood education providers in New Zealand held by the Ministry of Education (2003) on an Excel spreadsheet. This database provided detailed information such as; the type of early childhood setting, address, contact details and the number of children enrolled. It did not however state how many adults worked in each place. From this original database a new database that would form the sampling frame was developed. There were several steps in this process:

- Step 1: All early childhood education providers not in the Wellington region were excluded.
- Step 2: All early childhood education providers other than kindergartens, education and care centres and home-based were excluded.
- Step 3: All those providers who had a roll of less than 15 children were excluded.
- Step 4: Based on the roll and the required minimum teacher:child ratios, an estimate of the number of full-time equivalent staff employed at the centre was made and entered in a new column.
- Step 5: The information from each of the three types of settings was saved onto individual spreadsheets.
- Step 6: The three spreadsheets provided three strata; kindergartens, childcare centres and home-based services (Figure 1). From these lists the final sample for each group was chosen.

Figure 1: Sampling frame

Childcare centre teachers sample

There were 159 childcare centres and an estimated total of 618 full-time equivalent teachers in the region studied. The number of teachers at each centre was worked out on the number of enrolments and current recommended teacher:child ratios. As ratios depended on the age of the children enrolled and their ages were unknown, the number of full-time equivalent teachers could only be an estimate. This also did not allow for the number of part-time staff who were also employed in childcare centres.

The childcare centres were arranged in alphabetical order and each centre was duplicated on the list according to the estimated number of teachers working at the centre. A systematic sampling technique was used and every sixth teacher on the list was chosen. A total number of 103 teachers formed the final sample for this group, each of them came from a different centre. As the names of the teachers were not known, a questionnaire pack and letter was sent to the supervisor asking him/her to give the package to one member of staff chosen at random (Appendix C).

Kindergarten teachers sample

There were 81 kindergartens in the region, which is a total of 227 full-time equivalent teachers. Each kindergarten was estimated to have a typical fulltime equivalent teaching staff of three teachers. A sample of 71 kindergarten teachers was chosen, one from each kindergarten. Permission to carry out the survey was obtained from the Kindergarten Associations (Appendix D). The Head Teacher from each of the kindergartens in the sample was sent the questionnaire pack with instructions to pass it on to one teacher chosen at random from the staff (Appendix E).

Home-based educators sample

Three home-based organisations in the region were approached and asked to assist with access to the participants for the survey. As the educator's names and contact details were confidential to the organisation, distribution of the

questionnaires was reliant on the organisation being willing to participate and post them out (Appendix F).

The number of educators chosen from each of the three home-based groups was relative to the size of each organisation, the smaller an organisation was, the less participants. Each of the three groups was asked to distribute a selected number of questionnaires, choosing their participants at random. They were asked to put their educators in alphabetical order and then select every *n*th one according to how many questionnaires they were given. Of a total of 270 home-based educators 74 were selected for the sample.

Survey Procedure

A total of 250 questionnaire packages were made up, they each contained an information letter, copy of the questionnaire, post paid return envelope and an entry form for the book voucher draw (explained below). Also included in the packages to the childcare centres and kindergartens was a letter to the supervisor of the childcare centres (Appendix C) and head teachers of the kindergartens (Appendix E). This letter explained the purpose of the research and asked them to choose a staff member at random to give the questionnaire package to. Questionnaire packages were given directly to home-based Programme Coordinators or Managers to distribute randomly to their employees and educators. Prior to the postage of the questionnaires and to show their support for the study, the managers of two organisations placed an article in their newsletter and emailed information to teachers and educators about the impending survey.

All the packages were delivered within a one week period and the participants had a two week time frame in which to send back the completed questionnaire. Each participant was invited to enter a draw to receive one of ten book vouchers by returning the entry form with their questionnaire. An independent administrator

opened the envelopes and separated the entry forms from the questionnaire when the questionnaire was returned.

The questionnaires were not coded, however it was known whether the respondent worked in a childcare centre, kindergarten or home-based care from the response to the first question. Reminder cards were sent out to the participants three weeks after the issue of the questionnaire to attempt to increase the response rate.

Materials and Variables

The questionnaire was obtained from Professor Renee Gratz of the University of Wisconsin – Milwaukee. She was contacted by email and following a discussion about the intent and purpose of doing the research in New Zealand, she gave her permission for the questionnaire to be used for the current research (Appendix G). In their study, Gratz and Claffey (1996) had developed three variations of the questionnaire, each one made relevant to the three groups they had studied, centre teachers, centre directors and family day care providers. The content of each of their questionnaires was the same except for minor wording modifications to suit each group. Dr Gratz sent a hard copy of each of the three questionnaires to the researcher.

Modification of the questionnaires was made for the purposes of this research study in the New Zealand setting and two variations of the questionnaire were developed, one version suitable for both kindergartens and childcare centres and one version for the home-based setting. Each version of the final questionnaire contained 36 open and closed-ended questions. It was designed to take about 15 to 20 minutes to complete. The questionnaires were pre-tested by five volunteers from all three settings. They were asked to provide feedback on the formatting, language and comprehensibility of the questions as well as the relevance of choices for the forced answer questions. Minor adjustments were made according

to their feedback but overall they found the questionnaire easy to interpret and were able to answer it within the timeframe specified.

The questionnaire was comprised of five main types of variables. These were demographic, contextual, health status, health behaviours and health concerns.

Demographic Variables

Three demographic variables were asked for in the questionnaire, age, gender and early childhood qualification. Two variables, marital status and race included in Gratz and Claffey's (1996) questionnaire, were removed for this study as it was decided there was no research basis in this study for their inclusion.

Educational background

Respondents were asked to identify any early childhood qualifications they held from the given options. The qualification options were changed from the American qualifications in the original questionnaire to New Zealand early childhood qualifications. These ranged from; no early childhood qualification, certificates, diplomas, degrees, post graduate degrees and overseas qualifications. Respondents were able to tick all those that applied and were also given the opportunity in an open-ended question to explain any qualification they held that was not in the options.

Health Status Variables

Eleven health status variables were designed for respondents to rate their own health in a variety of areas.

Overall health rating

Respondents were asked to rate their overall health at the current time on a continuum. Options they had to choose from were "excellent, good, fair and poor".

Days missed from work due to illness

Respondents were asked to record the number of days during the last year they were absent from work or unable to care for children in their home.

Extended Illness

This item was to find out if the respondent had been absent from work or unable to care for children in their home for more than 10 days due to illness over the last two years. They were asked to indicate first whether this had occurred by ticking "yes" or "no" and then asked to explain the reasons for any long term absence.

Sickness frequency

Respondents were asked to identify whether the frequency of illness they experienced had changed since working with children. Possible responses were "more often, less often or the same".

Accidental injury

The respondents were asked about accidental injuries at work, whether they had experienced any and if so they were asked to give an explanation of the injury.

Symptoms frequency

This category was an extension of sickness frequency but aimed at more specific symptoms that are commonly associated with types of illness or health complaints related to working with children. The main purpose of this question was to compare the frequency of symptoms from before working with children to since working with children. Twelve symptoms were listed, these were: "indigestion, backache, cold symptoms, cold sweats, constipation, diarrhoea, general fatigue, headache, lass of voice, muscle strain, sore throat and ringing in ears". "Acid in stomach" was altered from the original Gratz and Claffey (1996) questionnaire to indigestion in order to use a term more familiar to New Zealanders. Due to recent New Zealand research about high noise levels in early childhood centres, an additional symptom, ringing in ears, was included on the list (McLaren, 2003). Respondents were asked to

indicate whether they experienced the symptoms on the following scale; “never, one to two times per year, one to two times per month or once a week or more” for two categories, both “before and since working with children”.

Weight

Weight is commonly regarded as an indicator of health status as there is evidence that obesity or extremely low weight leads to long term health problems (Ministry of Health, 1999). Respondents were asked to make their own judgement and tick whether they were “underweight, overweight, obese or about the right weight”. Gratz and Claffey's (1996) questionnaire also asked the respondents to state by how many pounds they were over or under weight, this was deleted for the current study as it was not considered to be essential information.

Health conditions

In this category several health conditions were listed that are often associated with stress and lifestyle factors. These were “anaemia, arthritis, asthma, colitis, gastritis, heart disease, insomnia, kidney or bladder trouble, stomach ulcer, lung or breathing problems and high blood pressure” (Gratz & Claffey, 1996). Respondents had to tick yes if they were diagnosed with any of the conditions and then indicate whether the diagnosis occurred since working with children.

Pregnancy

This question asked respondents to indicate whether they had been pregnant since working with young children and if so the number of pregnancies. They were also asked to explain if any unusual health problems had occurred during pregnancy.

Symptoms experienced

Fifteen symptoms were listed and respondents were asked to indicate whether they experienced any of the symptoms during the last year. The scale used for their response was never, rarely, sometimes and often. Although it is not known how these symptoms were originally derived for Gratz and Claffey's (1996)

research, they are indicative of physical symptoms of stress (Grimshaw, 1999). The symptoms listed were: "coughing or heavy chest colds, difficulty in getting up in the morning, feeling completely worn out at the end of the day, feeling heart pounding or racing, feeling fidgety, nervous or tense, having trouble getting to sleep, leg cramps, pains in back or spine, poor appetite, spells of dizziness, stiffness, swelling or aching in joints or muscles, stomach pains, swollen ankles, tightness or heaviness in chest and trouble breathing or shortness of breath".

Illness related to working with children

This question was included to ask respondents if they had experienced any illness in the last year related to their work with children. It required a yes or no response and then an explanation of the illness. This question was added to the original questionnaire to find out about any other illnesses experienced that had not been covered previously.

Health Behaviour Variables

Health behaviours may influence and effect health status. Six health behaviour variables were used for the questionnaire.

Medical check-ups

Respondents were asked whether they had yearly health checks and to respond with a simple "yes" or "no".

Working when ill

This question determined whether respondents worked when they were ill and the reasons for this. Choices they were given were "can't afford loss of income, no paid sick leave, no relievers, not ill enough to stay at home (not ill enough to stop working for home-based care), work responsibility" and an open question to add any other reasons not listed. Respondents could tick all those that applied.

Smoking and alcohol intake

Respondents were asked to indicate if they smoked cigarettes and drank alcohol. If their response was yes they were asked to state how many cigarettes per day and how many drinks per week.

Nutrition and exercise

A self-rating scale of "excellent, good, fair and poor" determined the respondent's personal nutrition status. Frequency of involvement in physical activity for at least 30 minutes per week was recorded as "never, once, twice and three or more times".

Health Concerns Variables

Six variables were used to determine health concerns related to stress and ergonomics. The final question was open-ended and it gave respondents the opportunity to share any health concerns or make suggestions about health issues related to working with children.

Stress

Respondents were asked to rate how stressful they felt their work was. The scale used was "very stressful, stressful, slightly stressful and not stressful". They were also asked to indicate what factors caused them the most stress in their work. These factors were "child behaviour and guidance issues, relationships with other adults (adults were substituted with "parents" for home-based), work hours, number of children, salary", and an open ended question of other where respondents could write other stress factors not listed. This was changed from the original questionnaire in which working with adults was the only stress factor asked about. Common stress factors for the current study were identified from research studies about stressors in the home-based and centre based environments (Curbrow et al., 2000; Gratz & Claffey, 1996; Stremmel et al., 1993).

Ergonomics

Several questions were asked to determine the types of ergonomic risks and behaviours adults working in this environment are exposed to each day. Respondents were asked to answer with a “yes” or “no” if there was adult sized furniture in the area they worked with children and if they regularly sat on child sized furniture. They were then required to rate on the following scale how often they sat on the floor, “never/rarely, once/twice a day and most of the day”. The last question in this section asked them if they were regularly involved in moving heavy furniture or equipment, this required a “yes” or “no” response and an explanation if they answered yes.

Work Setting Characteristics

Several questions were included to establish the context in which the respondents worked and their own employment history in early childhood education.

Number of children

Respondents were asked the total number of children that attend the centre/kindergarten of home in which they work as well as the group size they usually work with.

Group ratio

The group ratio is the number of adults to children. Respondents ticked the ratio that existed in their group.

Age groups worked with

Several age groups were stated for respondents to choose from. In two separate questions they were asked to tick all the age groups they currently worked with and those they previously had worked with. The choice of age groups were; “0 to 6 months, 7 to 18 months, 19 months to 2 years, 2 to 3 years, 3 to 5 years and other”.

Employment experience

Respondents were asked to state how long they has been at their current position and the total number of years they had been in the early childhood profession.

Current work hours

The number of hours worked per day and per week was asked.

Data Analysis

Before statistical analysis of the data was commenced all the responses were classified and each variable was given a code which was recorded in a code-book. Fixed nominal responses were automatically assigned a code and numerical data was left in its raw form. Responses for open-ended questions were examined, classified into several categories and coded. A code was also assigned to missing data. Once this process was completed a code-book was produced which had a description of the following; the question, the valid codes for each question, the label for each code, the column number of the excel spreadsheet in which the variable was located and missing data codes. Using the completed code-book the data were entered into an excel spreadsheet. The data were then cleaned and checked for coding errors to ensure that the data entered was legitimate and correct.

Descriptive and inferential statistical procedures were used to analyse the data. Under the guidance and recommendation from the statistician data analysis was performed using Minitab Statistical Software. The data for each participant group was summarised using basic descriptive statistics which included measures of central tendency (mean, median and mode), variation (variance and standard deviation) and frequency distributions. In order to compare the significant relationships and differences between the groups for each question cross tabulation chi-square analyses and analyses of variance (ANOVAs) were used.

Reliability and Validity

Reliability and validity are two important aspects that need to be considered when conducting research. To be reliable and valid the research tools need to be consistent and an accurate reflection of the concepts that are being measured (LoBiondo-Wood, 2005). It was important that the questionnaire was reliable so that the same result can be obtained on repeated occasions (de Vaus, 2002). One way of achieving this is to have a well developed questionnaire with clear wording, layout and ease of understanding for the respondent. As part of this development of reliability the questionnaire was pre-tested before it was administered to the survey participants. The pre-test was carried out with a total of five volunteers each representative of a different early childhood group, childcare, kindergarten and home-based. Each volunteer was given a copy of the questionnaire to look through, complete and critique. The volunteers were asked for feedback on such points as clarity of wording, interpretation of the questions, whether the range of responses alternatives were sufficient, the relevance of the questions and if any important items had been excluded. The length of the questionnaire and the time taken to complete it was also checked so it could be completed within the expected time of 15 – 20 minutes. This would also reduce the risk of non-response to questions and a poor response rate to the survey.

The reliability of the questionnaire had already been tested to some degree as most of the questions included were already used in the research by Gratz and Claffey (1996). The authors did not state any problems with the reliability of their questions, however changes in the setting could potentially influence the reliability, thus it was important to ensure that the questionnaire was relevant for New Zealand. Correct and consistent coding of responses to questionnaires is another source of reliability (de Vaus, 2002). The researcher developed the codes for the questionnaire and was the only person involved in the coding of the responses. This ensured that the questions were coded correctly and consistently.

A questionnaire is valid if it measures the concepts it has been designed to measure and is a suitable method achieving this (de Vaus, 2002). This research could be used as an initial study to determine the validity of the questionnaire should it be administered to a larger group in the future. A criterion validity approach was one way that validity was assessed in the study. In this approach the researcher compares the answers from the questionnaire with similar existing measures from other groups, a high correlation between the new and established measures indicates validity. Gratz and Claffey's (1996) research was used frequently to compare findings as well as the New Zealand Health Survey (2003), ACC data and other relevant literature.

Comparison with anecdotal evidence about adult health may also provide some construct validity to the research. For example, the researcher has had many informal discussions with groups of childcare teachers who have raised concerns about workplace stress and musculoskeletal injuries. If findings from this study support this anecdotal evidence this would provide further validation.

Ethical Considerations

Ethical approval for the study was gained from the Massey University Human Ethics Committee in order to comply with the Code of Ethical Conduct for Research involving human participants. It was also required to meet the requirements for early childhood education organisations of whom their employees were to be involved in the research. Ethical considerations for the survey focussed on six principles of ethical responsibilities.

Voluntary Participation

Participation and completion of the survey was entirely voluntary for the recipient of each questionnaire. The letter invited people to participate in the study and it was up to each individual to complete or not complete the questionnaire as they so wished. Information was also given to them about the length of time it would take to

complete the questionnaire so they knew what level of commitment they needed to make.

Informed Consent

The letter provided the potential participants with the purpose of the survey and an explanation of the likely benefits of the study (Appendix H). The types of people who would possibly be interested in the findings were identified. It was explained that staff from kindergartens, childcare centres and home-based educators were chosen and selected through liaison and approval with their management organisation. By completing and sending back the questionnaire they would be giving their consent to participate. Contact details of the researcher and supervisor were provided should any participant require further information. It was expected that all potential recipients would be proficient in English and be able to understand the information sent to them.

Risk of Harm

It was considered that the risk of harm to the participants would be minimal. However, it was thought that the survey might raise issues for discussion amongst the participants and colleagues, particularly if there were negative aspects in relation to health. No action could be taken on this as all the participants and workplaces could not be identified. In the information letter participants were advised to contact their doctor or nurse if they had health concerns as a result of filling out the questionnaire.

Anonymity and Confidentiality

All the participants in the study were completely anonymous to the researcher. No unique identifier such as the participant's name or their place of work was used in the questionnaire. The only identifying information that could be gained from the questionnaire was the setting in which they worked e.g. home, childcare centre or kindergarten. Participants had the opportunity to enter a book voucher draw when they returned their completed questionnaire. This was entirely voluntary. To enter the draw they needed to provide their name and address on the red entry form provided with the questionnaire. Their book vouchers would be posted to them at

this address if they were successful in the draw. On return of the questionnaires a survey administrator separated the questionnaires from the entry forms before they were passed on to the researcher. This ensured that the anonymity of the participants was maintained. This process was explained to participants in the information letter.

Privacy

The questionnaires were stored in a locked cabinet and only accessed by the researcher and supervisor. The privacy of the participants and their organisations were protected by their anonymity. When the five year storage period has been reached, it will be the researcher's supervisor who will be responsible for the destruction of the raw data.

Treaty of Waitangi and Cultural Issues

The research study did not directly impact on Māori. Māori may have been involved as participants but the emphasis of the research was on the early childhood setting and ethnicity was not taken into consideration. Early childhood education involves many ethnic groups, there were no specific ethnic groups targeted for the study. To ensure that the questionnaire was suitable for Māori participants it was pre-tested by a Māori staff member.

Summary

This chapter has presented the research question, aim, objectives and the design of the study using a questionnaire. The results of the data are detailed in the next chapter.

CHAPTER 4

RESULTS

Introduction

As described in Chapter 3, the principle aim of this study was to describe and compare the health status, behaviours and concerns of adults working in three early childhood education settings: childcare centres, kindergartens and home-based care. This chapter presents the results of the study following analysis of the data and comments on statistically significant findings where $p < 0.05$. Results from the descriptive and inferential statistical procedures used to analyse the data will be presented for each of the three groups within four areas of interest; the demographic and work-setting characteristics, health status, health behaviors and health concerns. Where possible, comparisons of the findings have been made to similar studies as well as national figures from the New Zealand Health Survey (Ministry of Health, 2003) which is a useful source of data and information regarding the personal health and wellbeing of New Zealanders.

The first section of this chapter includes information relating to the demographic and work characteristics of the respondents, this includes gender, age, qualifications and employment history of the respondents. This is followed by a description of the findings of the respondents' health status such as, personal illness, presence of health symptoms, accidental injuries and pregnancy health issues. The next section on health behaviours reveals how the respondents reported their own smoking and alcohol intake, as well as their own weight status and general nutrition intake. The last part describes health concerns such as, stress related issues and the ergonomic demands of the job. This chapter culminates with a synopsis of health concerns and positive health related factors raised by the respondents in the final open-ended question of the questionnaire. Firstly, the response rates from each group will be presented.

Response Rates

From the 250 questionnaires that were sent out 168 were returned. This was an overall response rate of 67%. The response rates for each group are presented in Table 1 which shows that the highest response rate was from kindergarten teachers. The lowest rate was from home-based educators of whom only half returned their completed questionnaire. All the respondents worked in a different place of employment. This rate is considered to be high for a mail survey, according to Goyder (1987, cited in Maxim, 1999) the mean response rate for mail surveys is 58%, other reports suggest that rates of 10% to 50% are common for mail surveys (Neuman, 2000).

Demographics

Basic descriptive analysis was used to summarise the demographic data collected. Table 1 shows the demographic information of the 168 respondents. Nearly all of the respondents were female, childcare centres was the only group that included male respondents of which there were three. Ages ranged from the youngest of 19 years (home-based) to the oldest of 63 years (childcare) (Table 1). ANOVAs showed that there were statistically significant differences in the mean age of all three groups, home-based educators tended to be much younger than both childcare and kindergarten teachers with the lowest mean age of 34 years. Kindergarten teachers had the highest mean age of 44 years.

The home-based respondents were asked if they worked in their own home (family day care) or their employer's home (nanny). Seventy-three percent of the home-based educator respondents worked in their own home.

Employment History

The employment history in Table 1 shows that there were no statistically significant differences between the groups for the years they had been in their current

position. However the medians show that half of the childcare teachers had been in their position for less than two years compared to four years or less for the other two groups.

There was a significant difference in the number of years the respondents had been working in early childhood education (Table 1). Those that had worked the most years were the kindergarten teachers, followed closely by childcare teachers. Home-based educators had less than half of this number of years of experience, 50% of them had worked for less than 5 years in this field. The range of time respondents reported working in early childhood education ranged from a few months to as many as 40 years. More than 10% childcare teachers and 5% of kindergarten teachers had worked for 25 years or more, whereas only one home-based educator reported working for more than this period of time.

Table 1: Demographic characteristics of respondents

	Childcare teachers	Kindergarten teachers	Home based educators	Total
Sample size (n)	73	58	37	168
Response rate	70%	82%	50%	67%
Female	96%	100%	100%	98%
Age ^a (Years)				
<i>M (SD)</i>	42 (11.97)	44 (9.76)	34 (9.74)	
Median	41	46	33	
Range	20 - 63	24 - 59	19 - 58	
Employment history				
<i>Years in current position</i>				
<i>M (SD)</i>	3.9 (4.49)	5.6 (4.34)	5.8 (5.54)	
Median	2	4	4	
Range	< 1 - 20	< 1 - 18	< 1 - 26	
<i>Years in early childhood ^b</i>				
<i>M (SD)</i>	13.3 (8.92)	15.1 (7.4)	7.5 (5.9)	
Median	12	14.5	6	
Range	< 1 - 40	2.8 - 32	< 1 - 28	

^a $F = 9.33, df = 2, p = 0.00$, ^b $F = 10.53, df = 2, p = 0.00$

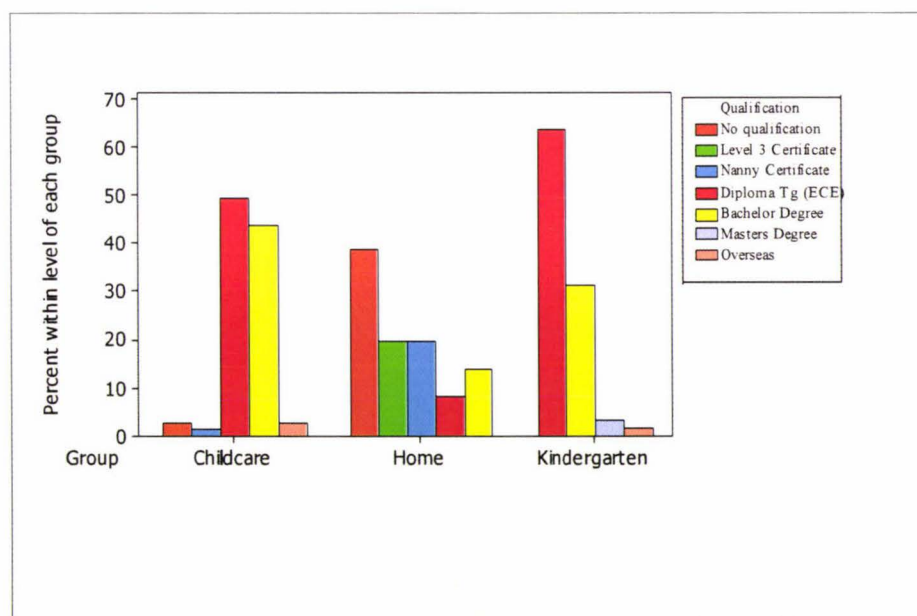
Early Childhood Qualification

Figure 2 shows the early childhood qualifications held by the respondents. Most respondents (76%) working in childcare or a kindergarten had a Diploma of Teaching (ECE) or higher. There were no unqualified kindergarten teachers. Childcare teachers had a higher percentage of teachers with a degree (45%) than

kindergarten teachers (31%). Two kindergarten teachers had Masters Degrees. There were statistically significant differences between these qualifications and that of home-based educators ($\chi^2 = 105.935$, $df = 8$, $p = 0.00$). Many home based educators had no formal early childhood qualification (39%) although 6 respondents in this group indicated they had some initial training through their home-based employer. Forty percent of home-based educators held either a Level 3 Early Childhood Education or Level 5 Nanny Certificate and 22% had a Diploma of Teaching (ECE) or a Degree.

These qualifications of childcare and kindergarten teachers are not representative of the New Zealand early childhood population. Compared to the Ministry of Education (2004a) data on qualifications held by teaching staff in licensed early childhood centres, more kindergarten teachers have a Bachelor's degree or a Diploma of Teaching than in those working in childcare.

Figure 2 : Early childhood qualifications held



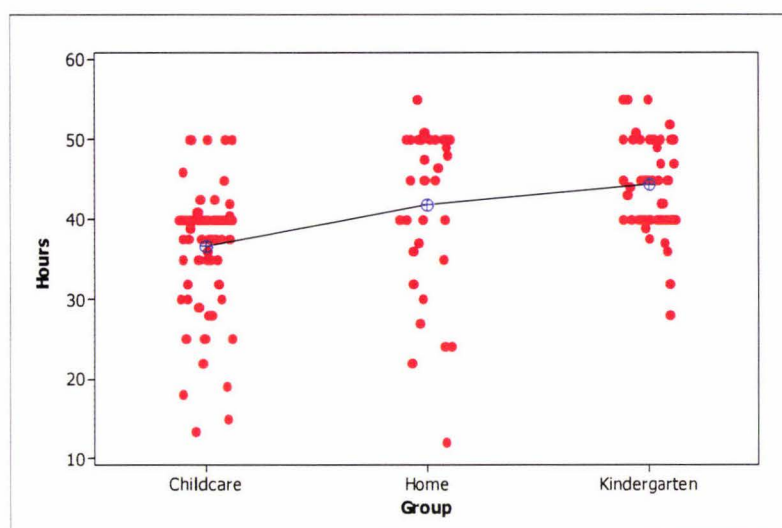
Work Setting Characteristics

This next section is related to the respondent's current work situation such as the number of hours worked each week as well as information about the children they work with. Statistics about the teacher:child ratios, the children's ages and the group sizes they work with are presented for each of the early childhood settings in the study.

Working Hours

The respondents were asked about the number of hours they worked each day and each week. When they reported their weekly hours, many of the respondents, in particular the kindergarten teachers, gave a range of typical working hours rather than a specific number. For the purposes of the data collection the middle value they gave within the range was used. Kindergarten teachers also frequently indicated that they often worked more than the number of hours each week they specified, this data was not recorded.

There were statistically significant differences in the number of hours each group worked per week. Calculation of the mean hours worked per week showed that kindergarten teachers worked the most hours ($M = 44.5$, $SD = 5.77$, range 28 - 55), childcare teachers worked the least ($M = 36.7$, $SD = 7.89$, range 13.5 - 50) and home-based educators were in-between ($M = 41.8$, $SD = 10.53$, range 12 - 55). Figure 3 shows a plot of the hours worked each week reported by the respondents in each group. Each red dot indicates one respondent, sites on the graph where the dots are joined indicates several responses. The blue circles show the mean hours worked each week for each group.

Figure 3: Hours worked each week

$$F = 15.87, df = 2, p = 0.00$$

Differences in the number of hours worked in the week may be due to a higher number of childcare teachers working part-time (less than thirty hours per week). Kindergarten teachers were less likely to work part-time than the other two groups (childcare, 21%; kindergarten, 2%; home-based, 15%). A tally of the maximum hours per week worked by each group showed that kindergarten teachers and home-based educators regularly worked over forty hours per week (kindergarten, 60%; childcare, 18%; home-based, 59%). Just over 10% of kindergarten teachers and 6% of home-based educators indicated they worked over 50 hours per week.

There were also significant differences in the hours worked per day ($F = 14.58, df = 2, p = 0.00$). Respondents were asked how many hours they worked on a typical day. An analysis of the mean hours worked showed that home-based educators worked the longest day of the three groups at 8.9 hours per day ($SD = 1.49$, range 5 – 10.5). Kindergarten teachers also reported a long day of 8.7 hours ($SD = 1.03$, range 6 – 12) while childcare teachers worked the shortest day of 7.7 hours ($SD = 1.19$, range 4.5 – 10). This data was calculated on the daily hours given, as not all respondents worked five days a week these hours cannot be directly compared to the weekly hours worked.

Number of Children Enrolled

Kindergarten teachers reported the highest number of children on their roll with a mean of 73 children, compared to childcare centres with a mean of 35 children (Table 2). Home-based educators had the lowest number of children with a mean of 3.6 children attending in total. Enrolments only indicate the number of children registered to attend that service, the numbers of children present at any one time is a better indication of the group size adults are working with.

Group Size

Respondents were also asked about the group size they worked with (Table 2). Home-based educators worked with the smallest groups which ranged from 2 to 4 children. Kindergarten teachers worked with the largest groups of children, 57% of teachers worked with 42 or more children in the group. Childcare teachers worked with group sizes that ranged from 4 to 45 children with 50% of teachers working in a group size that ranged from 13 to 25 children.

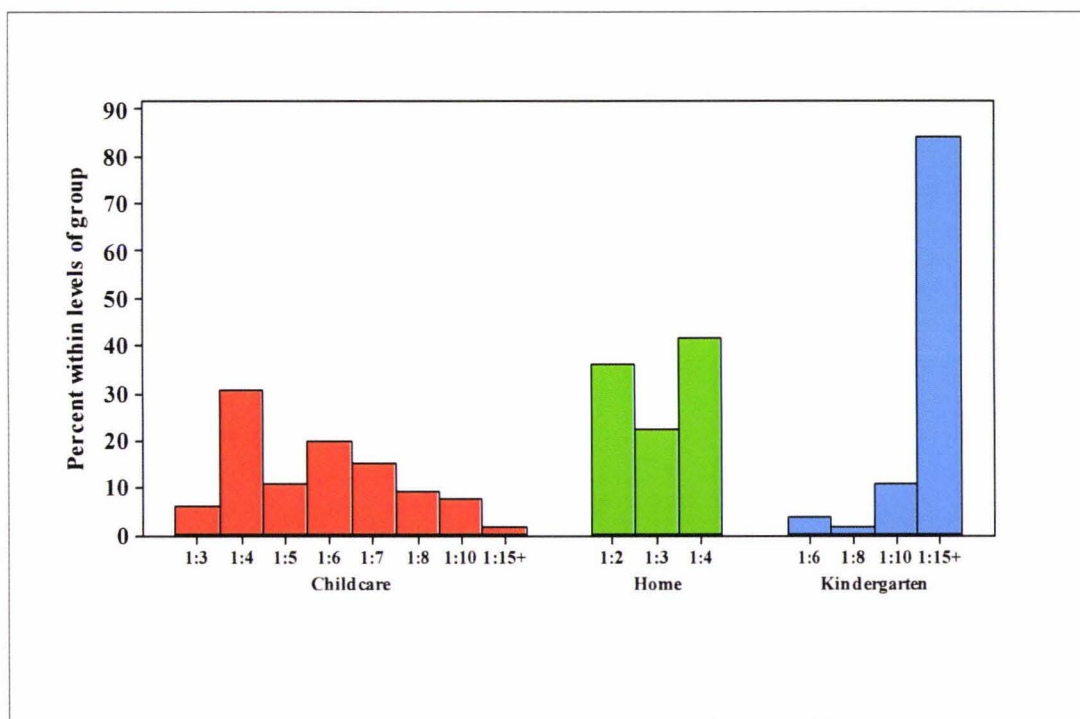
Table 2: Number of children worked with

	Childcare teachers	Kindergarten teachers	Home based educators
Number of children enrolled			
<i>M (SD)</i>	35.33 (19.47)	73.74 (16.80)	3.64 (1.64)
Range	11 - 125	25 - 120	2 - 7
Group size			
<i>M (SD)</i>	20.42 (8.38)	38.76 (6.48)	3.08 (.86)
Range	4 - 45	25 - 45	2 - 4

Teacher:Child Ratios

Teacher:child ratios varied significantly between the three groups as shown in Figure 3 ($\chi^2 = 208.554$, $df = 16$, $p = 0.00$). The majority of kindergarten teachers (84%) usually worked with teacher:child ratios of 1:15 or higher. Teacher:child ratios for childcare teachers ranged from 1:2 to 1:15, although 75% of childcare teachers worked within the 1:4 and 1:7 range. Home-based educators had the highest adult:child ratio, they all reported ratios that ranged between 1:2 and 1:4.

Figure 4 : Comparison of Teacher:Child Ratios



Age Groups

Respondents were asked which age groups they worked with, many reported working with several age groups so these were all included in the analysis. Statistically significant differences existed for all groups as shown in Table 3. All the kindergarten teachers worked with children over 2 years old whereas childcare teachers and home-based educators worked with children across all age ranges. The majority of school aged children were cared for in the home setting.

Table 3: Age Groups of children worked with

Age Groups	Childcare teachers (%)	Kindergarten teachers (%)	Home based educators (%)
0 - 6 months ^a	22	0	17
7 - 18 months ^b	51	0	64
19 months-2 years ^c	56	0	42
2 - 3 years ^d	79	28	72
3 - 5 years ^e	78	100	56
6 years and over	6	0	11

^a $\chi = 14.06, df = 2, p = 0.001$, ^b $\chi = 51.96, df = 2, p = 0.000$, ^c $\chi = 46.09, df = 2, p = 0.001$

^d $\chi = 38.04, df = 2, p = 0.001$, ^e $\chi = 29.00, df = 2, p = 0.001$

Respondents were also asked which age groups (as above) they had worked with previously. All groups had worked with all ages; however there were statistically significant differences between the groups for most age groups. No significant difference was noted for the age group of 2 to 3 years for which 65% of respondents said they had previously worked with this age. Nearly three quarters of the home-based educators had previously worked with children under the age of two years. This compared to about half of childcare teachers and one third of kindergarten teachers. Nearly all kindergarten teachers (94%) reported previously working with 3 to 5 year olds as well as many childcare teachers (86%) who had

also worked with this age group. Less than half (47%) of home-based educators said they had previously worked with this older age group.

Health Status

Ten areas of personal health and wellbeing were explored to gather information about the respondent's health status. These were; personal health rating, medical checkups, working and illness, accidental injuries, symptoms frequency changes since working with children, health conditions, health symptoms, illnesses related to working with children, weight and pregnancy.

Health Rating

Respondents were asked to rate their health on a scale from excellent to poor. There were similar results across all three groups, most of the respondents rated themselves as having good or excellent health (92%, childcare; 93%, kindergarten; 92%, home-based). No significant differences in health rating were found between the groups. Only 8% of all respondents said their health was poor or fair. This result is very similar to the New Zealand Health Survey which found that nine out of ten adults rated their health as good, very good or excellent (Ministry of Health, 2003).

Medical Checkups

Nearly half of all the respondents said they had regular doctor's checks. Of the home-based educators, 52% reported they had regular checks, compared to childcare teachers (45%) and kindergarten teachers (42%).

Absence due to Illness

ANOVAs on the number of days absent or unable to care for children due to illness during the last year showed that there were statistically significant differences between the three groups (Table 4). Kindergarten teachers averaged the highest number of days absent due to illness, home-based educators had the lowest

number of days where they were unable to care for children in their home. Only 10 % of all respondents said they had an extended period of absence due to illness in the last year. Kindergarten teachers had the highest rate of extended absence, whereas the other two groups were similar. The most common reasons for absence were surgery (58%), illness (23%) and injuries (17%).

Frequency of Illness

Respondents were asked a question about the frequency of illness and how it had changed from before working with children to since working with children (Table 4). They were asked if they got sick more often, less often or about the same. There were no significant differences between the groups about the frequency of sickness. Slightly more than half (54%) reported they felt sick about the same. Overall, 36% of the respondents said they got sick more often. Kindergarten teachers were less likely to report they got sick less often, compared to home-based educators and childcare teachers.

Table 4: Work and illness

	Childcare teachers	Kindergarten teachers	Home based
Days absent in the last year due to illness ^a			
<i>M (SD)</i>	4.81 (4.38)	5.52 (8.63)	1.571(2.40)
Range	0 - 20	0 - 60	0 - 10
Extended periods of illness	8%	15.5%	8%
Sickness frequency			
Sick more often	39%	37%	31%
Sick less often	11%	2%	17%
Sick about the same	49%	61%	53%

^a $F = 5.11, df = 2, p = 0.007$

Accidental Injuries

The survey asked if the respondents had experienced any accidental injury on the job within the last year and if so they were asked to explain the injury. Their responses for the injury sites and explanation of cause were grouped together using similar categories to those adopted by ACC (2003) for reporting workplace accidents and injuries. Sites of injury were organized into the following categories: neck/face, finger/thumb/hand, shoulder/elbow/arm, ankle/foot/knee and back. Explanation of the cause was grouped as follows: slipping/skidding/tripping, struck by handheld tool /implement or object coming loose, struck by a person, lifting/carrying/straining, work properties and unknown.

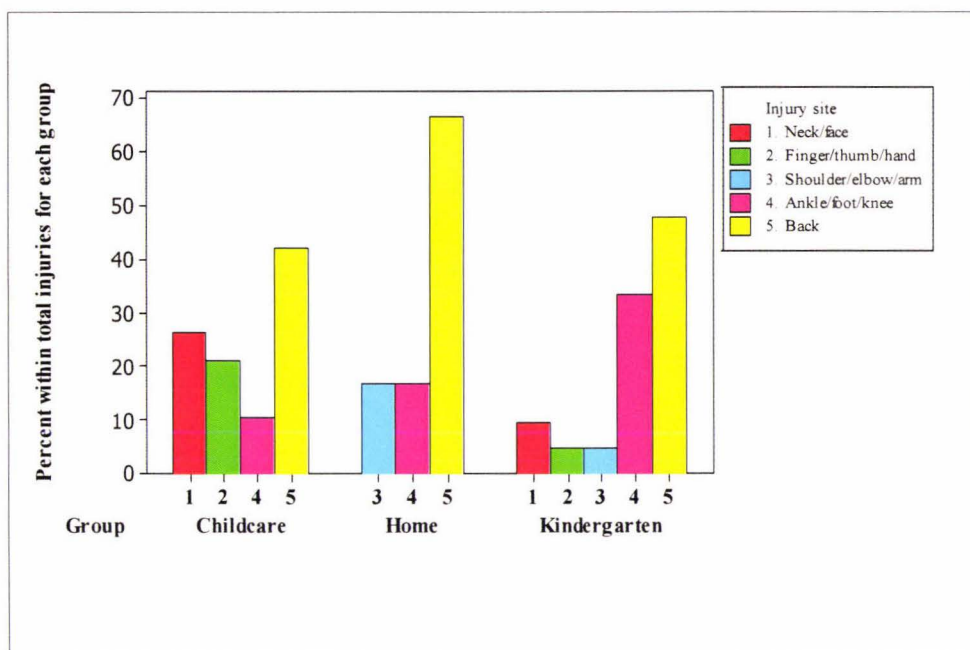
Overall 29% of respondents reported an injury on the job during the last year (Table 5). Chi square analysis showed there were significant differences in the rate of injury between the groups ($\chi^2 = 8.610$, $df = 2$, $p = 0.014$). Kindergarten teachers reported the highest number of accidental injuries (41%), followed by childcare teachers (28%), then the least by home-based educators (13%). Only 5% of all respondents reported experiencing more than one injury.

Table 5: Accidental injuries

	Childcare teachers	Kindergarten teachers	Home based educators
Number of people who reported an injury	20	24	5
Percentage of those injured within each group	28%	41%	13%

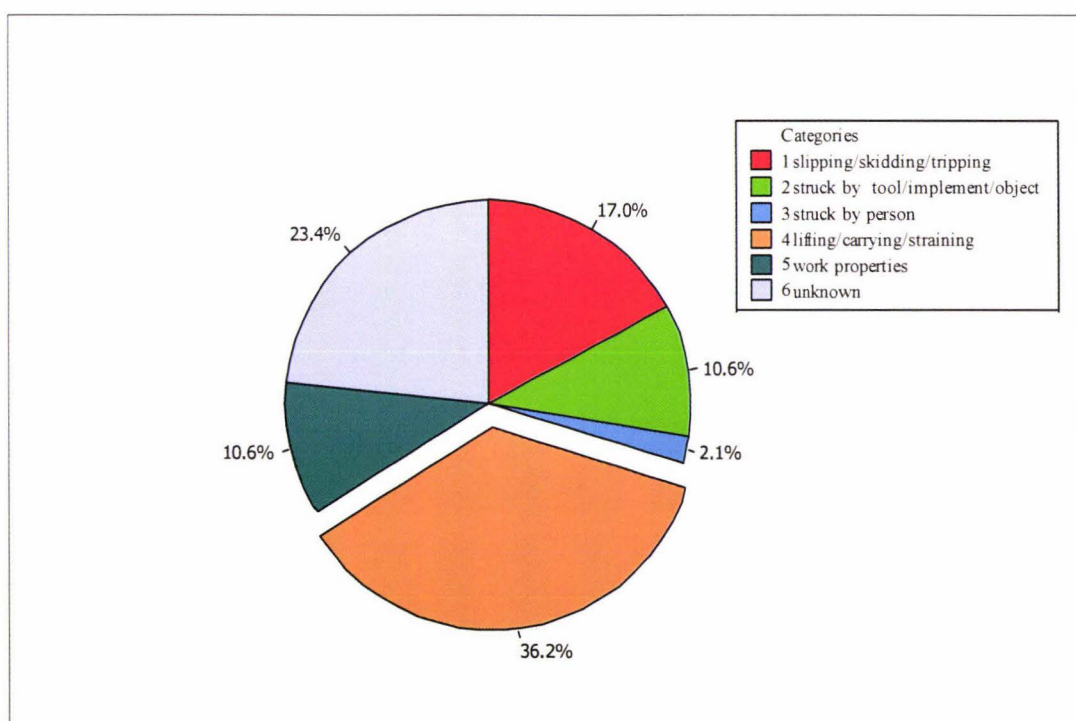
The injury sites are shown in Figure 5. Back injury was the most common site of injury across all three groups. Kindergarten teachers reported more ankle/foot/knee injuries than the other two groups, often stated to be due to trips and falls.

Figure 5: Accidental injury sites



Similar causes for injury existed across all three groups and there were no significant differences. Figure 6 shows the causes for all the injuries using the ACC categories for causes of the injury where known. The most common cause of injury was 'lifting/carrying/straining' children or equipment (36% of all injuries). 'Slipping/skidding/tripping' was the second most common cause (17%) where respondents reported tripping and falling over mats, chairs and children. 'Work properties' included injuries such as jamming a finger in the door and injuries from nails in the rubbish bag (10.6%). 'Being struck by a handheld tool or implement or object coming loose' (10.6%) included events such as being hit by a child with an object or hit by equipment (tyre swing, painting easels, stereo speakers). The cause was not stated for 23% of the injuries.

Figure 6: Causes of accidental injuries



Some examples of the injuries reported by respondents are detailed as follows:

From childcare teachers:

"neck and back strain from picking children up. Also as I'm tall I have to bend quite a bit to get to the children's level".

"moving a heavy painting easel, shifted my weight and the iron frame hit my knee"

"cut finger on a nail which was poking out of a rubbish bag"

"back strain from lifting child onto nappy change table"

"tripped over a child and cushions and hurt hip/back area".

From kindergarten teachers:

"backache from lifting"

"mild sprain to knee when playing soccer"

"cut finger on tin foil carton, it got infected"

"slipped/tripped over matting"

"fell over child's chair and badly bruised leg"

"a tyre swing pushed by a child hit the inner side of my knee causing damage".

From home-based educators

"fell hard onto the floor after a child kicked the chair out"

"pulled a muscle getting the kids out of the car".

Symptoms Frequency

Respondents were asked about the frequency of symptoms they experienced prior to and since working with children. There were twelve symptoms listed, these were: indigestion, backache, cold symptoms, cold sweats, constipation, diarrhoea, general fatigue, headache, loss of voice, muscle strain, sore throat and ringing in ears.

Chi squared analysis showed that there were no statistically significant differences between the groups for the frequency of symptoms experienced. However the frequency of many symptoms increased significantly for all groups. The results have been divided into two groups according to whether the symptom frequency changed more weekly or monthly. Table 6 shows the symptoms that changed the most for weekly frequency. The results show a big difference in the weekly symptoms for backaches, general fatigue and headaches from before and since working with children.

Table 7 shows the symptoms that changed the most for the monthly frequency. Cold symptoms, muscle strain and sore throats were symptoms that changed in frequency the most from before working with children until after. The symptoms that changed the least were indigestion, cold sweats and constipation.

Table 6: Changes in frequency of symptoms (weekly)

Symptom	Childcare teachers n = 73				Kindergarten Teachers n = 58				Home-based educators n = 37			
	Before		Since		Before		Since		Before		Since	
	Never %	Weekly %	Never %	Weekly %	Never %	Weekly %	Never %	Weekly %	Never %	Weekly %	Never %	Weekly %
Backaches	56	0	13	15	67	6	7	15	58	6	26	21
General fatigue	23	2	13	10	35	4	2	20	17	3	12	18
Headache	15	1	7	9	23	10	7	17	3	3	0	17

Table 7: Changes in frequency of symptoms (monthly)

Symptom	Childcare teachers n = 73				Kindergarten Teachers n = 58				Home-based educators n = 37			
	Before Never %	Monthly %	Since Never (%)	Monthly (%)	Before Never (%)	Monthly (%)	Since Never (%)	Monthly (%)	Before Never (%)	Monthly (%)	Since Never (%)	Monthly (%)
Sore throat	13	6	15	32	25	8	8	25	8	6	9	21
Cold symptoms	6	3	1	37	12	6	2	27	0	8	0	26
Diarrhoea	40	0	23	5	51	8	27	14	50	6	37	6
Loss of voice	72	2	40	10	78	6	24	12	69	0	56	3
Muscle strain	44	3	33	15	53	2	16	20	69	0	46	22
Ringling in ears	84	0	60	5	80	6	51	15	77	6	66	16
Indigestion	61	10	55	15	76	4	67	4	63	3	58	10
Cold sweats	85	0	68	5	92	2	90	2	85	0	81	6
Constipation	68	3	63	5	90	0	84	0	70	0	63	7

Health Conditions

Respondents were asked to identify from a list of specific health conditions which conditions they had been diagnosed with, both before and since working with children. The conditions were; anaemia, arthritis, asthma, colitis, gastritis, health disease, insomnia, kidney or bladder trouble, stomach ulcer, lung or breathing problems and high blood pressure. Analysis of the results focused on the group of respondents that indicated they had been diagnosed with the condition since they began working with children.

Table 8 lists the health conditions that the respondents indicated they had been diagnosed with since working with children. They have been arranged in order from the most respondents (of the total sample) affected, to the least number of respondents affected.

High blood pressure, anaemia, asthma, insomnia and arthritis were the five most common health conditions from the list for respondents to have been diagnosed with. Nearly one quarter of the kindergarten teachers had been diagnosed with high blood pressure since they began working with children. This is more than twice the number diagnosed with the same condition in the other two groups and may be related to a number of factors including the higher mean age of kindergarten teachers. The New Zealand Health Survey (Ministry of Health, 2003) reported that 20% of all adults claim to have high blood pressure. Twenty-four percent of kindergarten teachers reported high blood pressure, this phenomenon requires further investigation on a larger sample of teachers.

Kindergarten teachers and home-based educators were three and four times (respectively) more likely to be affected with anaemia than childcare teachers. Home-based educators were more likely to have anaemia than any other health condition. Kindergarten teachers had the highest rate of the three groups of having asthma diagnosed since they started working with children. In total, 26% of respondents said they had asthma diagnosed but only 12% of the total sample

were diagnosed since working with children although probably consistent with national rates (Ministry of Health, 2003). It was the most common condition on the list prior to working with children. According to the New Zealand Health Survey (Ministry of Health, 2003), one in five adults aged 15 to 44 years have been diagnosed with asthma.

Insomnia appeared to affect nearly the same percentage of respondents in each group. Arthritis was slightly more common in kindergarten teachers than in the other two groups and was probably age related as the mean age of kindergarten teachers is older. One in six adults over 45 years have been diagnosed with arthritis (Ministry of Health, 2003). Kidney and bladder problems were reported at a much higher rate by childcare teachers, this is an anomaly for which there is no obvious explanation.

Table 8: Health conditions diagnosed since began working with children

	Child- care teachers %	Kinder- garten teachers %	Home based educators %	Total %
High blood pressure	11	24	8	15
Anaemia	5	15	19	12
Asthma	10	16	8	12
Insomnia	13	12	11	12
Arthritis	8	12	8	10
Kidney/bladder problems	13	2	3	7
Gastritis	10	5	3	7
Lung or breathing problems	6	5	5	5
Colitis	3	3	5	4
Stomach ulcer	1	2	0	1
Heart disease	3	0	0	1

Health Symptoms

Respondents were asked whether they had experienced a range of 15 health symptoms during the last year. The symptoms were related to work stressors and strains, these are listed in Table 9. They were asked if they had experienced the symptom during the last year on a scale of “never, rarely, sometimes and often”. The two categories of “never” and “rarely” were combined to present the results. There were no statistically significant differences between the groups for each symptom. Symptoms are arranged in the table with the highest percentage of responses in the “often” category at the top and the lowest at the bottom.

There were six symptoms for which more than 10% of the total respondents indicated that they had experienced the symptom "often" in the last year (Table 9). The symptoms were: feeling completely worn out at the end of the day (43%), pains in back or spine (25%), difficulty in getting up in the morning (24%), having trouble getting to sleep (18%), stiffness, swelling or aching in joints or muscles (14%) and coughing or heavy chest colds (11%).

There were some variations between the groups although none statistically significant. Childcare teachers indicated a slightly higher percentage than the other two groups for experiencing coughing and heavy chest colds. Kindergarten teachers had a higher percentage of respondents who indicated "often" for three symptoms; feeling worn out at the end of the day, pains in back or spine and stiffness, swelling or aching in joints or muscles.

Table 10 shows the symptoms that less than 10% of the respondents reported experiencing "often".

Table 9: Symptoms experienced in the last year: Reported “often” by 10% or more for the total respondents

Symptom	Childcare teachers n = 73			Kindergarten teachers n = 58			Home-based educators n = 37		
	Never /rarely %	Sometimes %	Often %	Never /rarely %	Sometimes %	Often %	Never /rarely %	Sometimes %	Often %
Feeling worn out at end of day	10	56	34	5	40	55	17	44	39
Pains in back or spine	54	27	19	30	36	24	49	31	20
Difficulty getting up in morning	37	45	18	30	43	27	53	36	28
Having trouble getting to sleep	48	40	12	47	32	21	50	28	22
Stiffness, swelling or aching joints or muscles	60	28	12	46	36	18	53	38	9
Coughing/ heavy chest colds	40	43	17	42	49	9	50	44	6

Table 10: Symptoms experienced in the last year: Reported “often” by less than 10% of the total respondents

Symptom	Childcare teachers n = 73			Kindergarten teachers n = 58			Home-based educators n = 37		
	Never /rarely %	Sometimes %	Often %	Never /rarely %	Sometimes %	Often %	Never /rarely %	Sometimes %	Often %
Feeling fidgety, nervous or tense	69	28	3	56	35	9	60	31	9
Leg cramps	74	23	3	63	26	11	64	30	6
Stomach pains	75	17	8	79	17	4	70	26	4
Tightness or heaviness in chest	87	8	5	82	10	8	88	12	0
Trouble breathing or shortness of breath	83	14	3	80	13	7	87	13	0
Spells of dizziness	89	10	1	71	15	4	74	17	9
Swollen ankles	92	6	2	84	10	6	88	12	0
Heart pounding or racing	77	20	3	71	27	2	80	17	3
Poor appetite	89	9	2	90	10	0	73	24	3

Illnesses Related to Working with Children

Respondents were asked if they had any illness during the last year that they thought was related to working with children and if they had they were asked to explain the illness. From their responses the illnesses were arranged into three categories according to the type, these were; respiratory illness, gastrointestinal illness and others.

One quarter to one third of all respondents in each group said they had experienced an illness related to working with children (28% in total). There were no statistically significant differences between the groups for experiencing an illness or the type of illness. The “other” category of illness included reports of headlice, impetigo, chickenpox, shingles and conjunctivitis. The results for this question are presented in Table 11.

Table 11: Illnesses related to working with children

Illness experienced	Childcare teachers	Kindergarten teachers	Home based educators	Total
	%	%	%	%
Responded “Yes”	33	23	25	28
Respiratory	15	7	8	11
Gastrointestinal	12	14	8	12
Other	11	5	8	8

Weight

Respondents were asked to rate themselves as underweight, about right, overweight or obese. Similar results were obtained for all three groups. Only 3 respondents (less than 2%) out of the total sample considered themselves obese and no-one regarded themselves as underweight. Over half of all the respondents said their weight was about right, (childcare teachers, 54%; home based educators, 56%; kindergarten teachers, 58%). The remainder of the respondents in each group perceived themselves as overweight (childcare teachers, 45%; home based educators, 42%; kindergarten teachers, 40%).

Pregnancy

Respondents were asked about whether they had become pregnant since they had begun working with children and the number of pregnancies. Since they began working with young children, 32% of the total sample reported becoming pregnant. There were no statistically significant differences between the groups, 38% of kindergarten teachers reported at least one pregnancy, as did 30% of childcare teachers and 28% of home-based educators. Home-based educators reported the highest mean number of pregnancies ($M = 2.5$, $SD = 2.068$) and childcare teachers reported the lowest ($M = 1.7$, $SD = 0.895$). Kindergarten teachers reported a mean of 1.8 pregnancies ($SD = 0.733$). This is comparable to the fertility rate of 1.9 live births or 2.5 pregnancies per woman in New Zealand (Statistics New Zealand, 2005).

Respondents were also asked to describe any unusual health problems during pregnancy. Eight childcare teachers, nine kindergarten teachers and four home-based educators said they had problems during pregnancy. Fourteen percent of the total respondents who reported a pregnancy cited miscarriage as a problem. Other problems cited during pregnancy were toxemia, high blood pressure, premature birth, back and muscle strain and infections.

Health Behaviours

Five areas of health behaviours were explored in the study. They were smoking, alcohol intake, nutrition, physical activity and working when ill (Table 12).

Smoking

The majority of respondents were non-smokers (88%). This is a lower reported rate than in the New Zealand Health Survey (Ministry of Health, 2003) which found that just over one in five adults currently smoke. Childcare and kindergarten teachers smoked more than home-based educators. Both childcare and kindergarten teachers reported smoking on average nine cigarettes per day, home-based educators smoked less than five.

Alcohol

The use of alcohol was reported to occur in 70% of all the respondents with no statistically significant differences between the groups. This is slightly lower than reported by the Ministry of Health (2003) who found that 80% adults reported having alcohol in the last year. As per Table 12, 76% of kindergarten teachers and 71% of childcare teachers reported drinking alcoholic beverages. Home-based educators reported the lowest number of users at 59%. On average it was reported that alcohol users drank two to three drinks per week.

Nutrition

Respondents were asked to rate their own nutrition using the indicators of "excellent, good, fair and poor". There were statistically significant differences between the groups in their own rating as can be seen in Table 12. Kindergarten teachers were more likely to report that their nutrition was excellent (42%), compared to childcare teachers (23%) and home-based educators (14%). Home-based educators were the most likely to report their nutrition was fair (25%) compared to childcare teachers (8%) and kindergarten teachers (5%). On closer examination of the home-based group, there was a noticeable difference between

the nannies in the group and the family day care providers. Forty percent of nannies reported their nutrition was fair compared to 18% of family day care providers. Overall 89% of respondents thought their nutrition was good or excellent (kindergarten teachers 95%; childcare 92% and home-based educators 75%).

Physical Activity

There were no statistically significant differences among the groups for the amount of times they were involved in physical activity each week. Table 12 shows a summary of the results for this question. Just under half (45%) of the total sample reported involvement in physical activity for a minimum of 30 minutes at least three times a week or more. A further 45% of the total sample said they were involved in physical activity at least one to two times a week. National findings indicate that 73% of adults engage in physical activity for at least 2.5 hours each week (Ministry of Health, 2003). It is not known how long the respondents spent on physical activity each week so direct comparisons cannot be made with national figures, however there is some indication that the respondents may be at least as physically active as the general population. Ten percent of the total sample stated they were involved in less than 30 minutes of physical activity each week.

Table 12: Health behaviours: smoking, alcohol, nutrition and physical activity

Health behaviour	Childcare teachers	Kindergarten teachers	Home based educators
Smokers	15%	11%	8%
Number of cigarettes per day			
<i>M (SD)</i>	9.6 (6.227)	9.1 (7.904)	4.7 (7.089)
Uses alcohol	71%	76%	59%
Number of drinks per week			
<i>M (SD)</i>	3.6(2.673)	3.8 (3.181)	2.3 (1.955)
Nutrition^a			
Excellent	23%	42%	14%
Good	69%	53%	61%
Fair	8%	5%	25%
Physical activity			
Never	10%	9%	11%
Once a week	21%	17%	14%
Twice a week	29%	24%	28%
Three or more times per week	40%	50%	47%

^a $\chi^2 = 17.325, df = 4, p = 0.002$

Working When Ill

The survey found that 91% of respondents reported having worked when ill at some stage. There were statistically significant differences between the groups for each of the reasons given (Table 13). Respondents were asked to identify the main reasons they worked when ill from a range of choices and were also given the opportunity to state any "other" reasons. They were able to indicate more than one reason. All groups identified that one reason for working was that they were not ill enough to not work. Major reasons for both childcare teachers and kindergarten teachers for working when ill were that there were no relievers and work responsibility. These were statistically significantly different to home-based educators who were more likely to cite financial reasons for working when ill.

Table 13: Working when ill

	Childcare teachers	Kindergarten teachers	Home based educators
	%	%	%
Have worked when ill ^a	86	100	86
Reasons			
Can't afford loss of income ^b	11	7	50
No paid sick leave ^c	11	15	50
No relievers ^d	57	84	59
Not ill enough ^e	60	33	75
Work responsibility	62	57	NA

^a $\chi^2= 8.686, df = 2, p = 0.013$, ^b $\chi^2=29.51, df = 2, p = 0.000$, ^c $\chi^2= 21.048, df = 2, p = 0.000$,

^d $\chi^2= 37.212, df = 2, p = 0.000$, ^e $\chi^2=17.109, df = 2, p = 0.000$

Health Concerns

The results for this section on health concerns are divided into several areas. The first area of health concerns deals with specific questions asked about stress and ergonomic aspects of the respondent's daily work. The second area shows the results from an open ended question that asks respondents to identify their own issues of health concern. These include aspects of health and well-being that were specifically raised by the respondents and are an opportunity to add in more detail their own comments.

Stress

Stress rating

Respondents were asked how stressful they perceived their job to be and to rate their stress on a scale from "not stressful, slightly stressful, stressful and very stressful". There were statistically significant differences between the groups in their perceived stress. Kindergarten teachers were two and a half times more likely to rate their job stressful than childcare teachers. Fifty percent of kindergarten teachers reported that working with children was either stressful or very stressful. This compares to 26% of childcare teachers and 16% of home-based educators who reported that their work was either stressful or very stressful. Table 14 shows the comparison of perceived levels of stress between the three groups.

Table 14: Stress rating for each group

Rating of level of stress in the job^a	Childcare teachers	Kindergarten teachers	Home based educators
	%	%	%
Very stressful	8	4	3
Stressful	18	46	14
Slightly stressful	57	40	65
Not stressful	15	10	16

^a $\chi^2 = 18.336, df = 6, p = 0.005$

Causes of stress

Respondents were asked to identify common causes of stress in their job. They were able to choose from the following items: child behaviour, relationships with adults (or parents for home-based educators), work hours, number of children and salary as well as an open response where they could add any other causes not listed. They were able to tick more than one item. Several other causes of stress were stated by the respondents and these were sorted and grouped into under the following headings: "administration/workload, noise/environment, staffing issues, demands of own family and sick children". The causes of stress are summarized in Table 15.

Table 15: Causes of stress

Cause of stress	Childcare	Kindergarten	Home
	teachers	teachers	based educators
	%	%	%
Child behaviour/guidance	58	42	65
Hours of work ^a	21	39	14
Number of children ^b	36	67	11
Salary	15	11	30
Administration/workload ^c	10	30	3
Relationships with adults/parents	37	49	30
Noise/environment	0	7	0
Staffing issues	6	0	0
Own family demands	0	0	13
Sick children	0	0	5

^a $\chi^2 = 8.812$, $df = 2$, $p = 0.012$; ^b $\chi^2 = 30.183$, $df = 2$, $p = 0.000$; ^c $\chi^2 = 15.734$, $df = 2$, $p = 0.000$

All groups reported that child behaviour and guidance issues were a source of stress. Of the total respondents 54% indicated this particular item. Relationships with other adults (or parents) were also a common cause of stress across all three groups, this was the second most common stress factor and indicated by 40% of the total respondents.

Different work situations for each group meant that there were statistically significant differences between the groups for “hours of work, number of children, and administration/workload”. Kindergarten teachers were more likely to report that all these items were stress factors in their job than the other two groups. Two thirds of kindergarten teachers reported that the “number of children” was a cause of stress. This is significantly higher than either of the other two groups. They were

the only group to state in the “other” category that the noise and environment was also a cause of stress, possibly related to working with larger groups of children. Noise is however mentioned later in a summary of health concerns, but not specifically identified by many respondents as a source of stress.

For childcare teachers, the main sources of stress were cited as “child behaviour/guidance issues, number of children and relationships with other adults”. Staffing issues was also a source that was identified by 6% of the respondents in the “other” category.

Child behaviour/guidance issues were the most stressful factor for home-based educators. They were also twice as likely as childcare teachers to cite salary as a stress factor. In the “other” category they stated that their own family demands (13%) and sick children (5%) were also a source of stress.

In the last open ended question which asked respondents if there was anything else they would like to share about their health, seven respondents specifically commented about stress, five of these were kindergarten teachers. Examples of comments from each group are given as follows:

Kindergarten teachers

“Stress from the amount of jobs to do – too many - not enough time and a lot of administration”.

“I feel that teachers are under a lot more stress as a result of child/teachers ratios, group sizes, additional hours, administrative load, parental expectation and that burnout is really a huge issue and will become even more prevalent in the future. It is a very demanding job”.

“Inadequate heating, lighting and work space facilities are a stress for me”.

“The main problem for me is more mental health/stress related due to extra workload, not so much with the children but with the advancement of technology which is all expected to be done out of teaching time. The job

just grows bigger and bigger and sometimes your core job of teaching disappears”.

“I have found it very important to monitor my stress levels and prioritise the workload eg. What really does matter – providing a high quality learning environment for children”.

“I think that stress is one of the health issues that is not addressed enough in early childhood.....the administrative load is growing all the time and there is a big expectation in other areas eg. Portfolios”.

Childcare teachers

“More rest days are required for childcare teachers – we work through term breaks – it is vital that ECE teachers get down-time, otherwise ‘burnout’ happens too often – it’s a busy job – 7 hours fulltime contact with children and adults each day”.

“Previously work relationships have provided much stress, but very happy in current centre.”

“Staffing issues, relievers and filling vacancies are ongoing stressors”

Home-based educators

“.....knowing the children you care for are sick enough to need to be at home and convincing their parent that this is the case. It is often hard to tell and even harder to confront the parent when they arrive at 7.30am that the child shouldn’t be coming”.

“It is very stressful working with children. It helps if caregivers can get leave from time to time it would help them more if it was paid leave because we are the lowest paid workers in childcare”.

“Balancing work- time with home- time e.g. looking after children while trying to do you children’s homework, after school sport and preparing dinner”.

Ergonomic Aspects of the Childcare Environment

Adult sized furniture

Ergonomic aspects of early childhood work are shown in Table 16. Respondents were asked if they had adult sized furniture available in the areas they worked with children. As to be expected, 52% of childcare teachers and 37% of kindergarten teachers reported that they did have adult sized furniture, compared to nearly all of home-based educators (97%). Both kindergarten and childcare teachers reported regularly sitting on child sized furniture (kindergarten 97%, childcare 93%) compared to 44% of home-based educators.

There were no statistically significant differences in the amount of time each group spent sitting on the floor, 5% of the total sample said they never sat on the floor. Over the total sample 53% said they sat on the floor once or twice a day, this was 44% of childcare teachers, 35% of kindergarten teachers and 42% of home-based educators.

Moving heavy furniture

There were statistically significant differences for each group in their reporting of regularly moving heavy equipment (Table 16). Kindergarten teachers reported the highest rate of moving heavy equipment (94%), childcare teachers the second highest rate (56%) and home-based educators the least (28%). Respondents were asked to explain what heavy furniture or equipment they moved and these were sorted into common categories where there were at least 5 responses for the same item. There were statistically significant differences for moving outdoor equipment, carpentry tables, water troughs and setting up. The majority of kindergarten teachers (86%) reported moving outdoor equipment. Setting up equipment was reported more often by childcare teachers (12%) and home-based educators reported more lifting of nursery type furniture (8%). Setting up included situations where childcare teachers worked in places that were also used by other organizations. This required the equipment to be packed away each day.

Table 16: Ergonomic aspects of child care work

Ergonomics activity	Childcare teachers	Kindergarten teachers	Home based educators	Total
	%	%	%	%
Adult sized furniture available	52	37	97	57
Regularly sits on child-size furniture ^a	93	97	44	84
Sits on the floor				
Never	7	4	6	5
1-2 times per day	49	61	53	54
Most of the day	44	36	42	41
Regularly has to move heavy furniture /equipment ^b	56	95	28	63
Types of equipment moved (Note A)				
Outside equipment ^c	37	86	5	
Carpentry/water trough	12	24	0	
Indoor play equipment	15	24	11	
Tables/chairs/furniture	34	34	14	
Nursery furniture	1	2	8	
Wheelie bins/rubbish	0	9	0	
Setting up ^d	12	2	0	

^a $\chi^2 = 52.807, df = 2, p = 0.000$; ^b $\chi^2 = 46.060, df = 2, p = 0.000$; ^c $\chi^2 = 64.424, df = 2, p = 0.000$;

^d $\chi^2 = 9.496, df = 2, p = 0.009$

Note A: Percentage of total of each group who reported moving this type of equipment/furniture.

General Health Concerns

Respondents had the opportunity to raise their own health concerns in the final open-ended question of the questionnaire. They were asked if there was anything else they would like to share regarding their health as it related to working with young children and if they had any suggestions they would like to make regarding health issues. A total of 88 responses were received. From within each group there were responses from 49% of childcare teachers, 65% of kindergarten teachers and 38% of home-based educators. Common themes from the responses were identified, these were; sick leave, sick children, noise levels, lifting and back strain, hygiene, staff vaccinations, workload and stress. Several respondents also stated points about the factors that contributed to positive health outcomes, these have been included also.

Sick Leave

Two issues that were common to all three groups were sick leave and the attendance of sick children. Seven childcare teachers and eight kindergarten teachers indicated that teachers were exposed to more illness through the nature of the job, so therefore they believed they should have more than five days sick leave per year, many of them also stated that their sick leave allowance was insufficient for their needs. Also, because of lack of relievers or lack of sick leave, staff tended to return to work earlier than they should, which then slowed their recovery.

Childcare teachers:

"I think we should get unconditional sick leave. It's harder to get better because as soon as your immune system is low it is easy to pick up bugs from the children".

"Staff should be encouraged not to work if they are sick, it only shares the bugs around".

Kindergarten teachers:

“Since contact with children brings contact with most ailments, it would be helpful if teachers received more sick leave and were made to feel less guilty about staying at home for self-recovery”.

Four home-based educators expressed concerns over lack of paid sick leave and holiday leave. Cancelling care for the children meant that they were not paid and this was not always an affordable option.

“Sick leave and holiday leave which is paid is essential for the well-being of any employee – both mentally and physically. Currently this is not available to home-based caregivers even though we have to pay tax”.

Several respondents mentioned that they had noticed that during the first year or two of teaching staff illness was a lot more common. Over time they felt that immunity seemed to increase, teachers built up a tolerance and were sick less often.

Sick Children

The issue of sick children attending was another concern raised by all three groups. Two childcare teachers, six kindergarten and three home-based educators mentioned this issue. All respondents referred to this as being a problem because the children brought their infections into the environment and spread them to other children and staff. Six home-based educators also said that their own children were more likely to get sick and the whole household was regularly exposed to illness.

Kindergarten teachers:

“Many children attend kindergarten when they are not really well enough to be there. They are still learning hygiene and self-care routines and germs are easily spread when lots of young children work together. We need to educate parents more about the spread of germs and infection”.

"Parents send their children even when they are unwell so they don't have to take time off work".

Home-based educator:

"It's often hard to tell and even harder to confront a parent when they arrive at 7.30am that the sick child shouldn't be in contact with other children and the child should be at home".

Noise Levels

Seven childcare teachers and six kindergarten teachers mentioned the noise level as a health concern. Issues raised about noise levels referred to the effects on personal wellbeing such as headaches and ringing in the ears. Three people expressed concerns about the effect of high noise levels on their hearing at a later stage of their lives. There were suggestions that noise levels should be monitored and regulated somehow and that the buildings should have good soundproofing.

Childcare teacher:

"the ringing in the ears from loud sounds is an awful part of our job, maybe soundproofing centres would be great."

Kindergarten teacher:

"Headaches and general fatigue increase in the wet weather and it is stressful with large numbers of children inside and an increase in noise levels".

Lifting and Back Strain

Lifting and back strain was mentioned specifically by eight childcare teachers and five kindergarten teachers. Most of the comments from childcare teachers included the problem of having to lift children up onto change tables for napkin changes and in and out of cots and highchairs. Several respondents suggested that all centres

should have steps for children to use next to the change table to avoid having to lift children so often.

Childcare teacher:

“Lifting of children in nappies onto change tables is of ongoing concern and has caused most of my injuries over the last year. Some of our children in nappies are very heavy proper lifting techniques would help, advice from the physio and ladders for nappy change area”.

Kindergarten teachers mentioned improving factors that contribute to back strain such as having computer workstations, furniture for adults and trying to avoid lifting heavy equipment.

Hygiene

Three childcare teachers and two kindergarten teachers commented on the importance of hygiene for both children and the staff. These included the importance of a clean environment, hand washing and teaching children about personal hygiene. Specific mention was made of toileting hygiene, wiping runny noses and teaching children to cover their mouth when coughing.

Staff Vaccinations

It was suggested by three childcare and four kindergarten teachers that they should be given the opportunity to have influenza and hepatitis B vaccinations paid for by their employer. Some respondents indicated that their employer already provided this. It was felt by many that they were exposed to the illness through their work at a much higher rate than the general population and that the employer should take responsibility to protect the staff.

Workload/ Stress

Issues about workload were raised in a number of ways by each group. Three childcare teachers expressed the desire to have more non-contact time with the

children. Kindergarten teachers had the most issues to do with workload, five teachers said that administration was a real issue for them and five specifically mentioned the high level of stress they experiences from the work demands. Five kindergarten teachers also said that the ratio of children to teachers should be lower.

Kindergarten teachers:

"More assistance is required with the administrative workload".

"Not so much pressure with administration, more support with computer skills, we find this very stressful".

"The stress and long hours mean staff are more prone to illness and physical injury".

Four home-based educators said in their comments that stress was an issue for them. Two nannies said:

"I have never worked for a family that has understood how much work a nanny does and how hard it is looking after some-one else's kids."

"My eating habits have worsened since looking after children. I eat the kids leftover food and pick while preparing. I cook the evening family meal at work and then am too tired to come home and cook again so I just pick again."

Factors that Contributed to Positive Health Outcomes

While most of the comments made by respondents were concerns about their health, several comments were also made in the last open ended question about factors that helped their health and well-being. These included; taking time out to have a rest or a break from work, needing to eat well and have morning tea and lunch, learning different ways of dealing with the emotional and mental stress, encouraging staff to attend health and wellness seminars, improved fitness as a result of working with children all day, having a great team with a similar

philosophy, having a good laugh with colleagues and sorting out problems quickly, doing exercise to help with muscle strain and working with supportive colleagues.

As one home-based educator stated:

"If you are happy in your work your health is much better".

Some respondents used the opportunity to make suggestions and present their own ideas for topics of professional development. These were; more information about stress management, lifting techniques and prevention of back strain, women's health issues, parenting education about sick children and improved enforcement and policies about sick children and attendance.

In the next chapter these results will be interpreted and discussed to provide further meaning to these findings. The significance of these results will be related to the implications for adults working in an early childhood environment.

CHAPTER 5

DISCUSSION

Introduction

This study describes and compares the health status, health behaviours and health concerns of adults working in three different early childhood education settings; childcare centres, kindergartens and home-based care. Using a survey approach information was gathered through a questionnaire based on the one used by Gratz and Claffey (1996). To date there has been no New Zealand data collected on the health of adults working in early childhood education and knowledge of health issues have been largely based on overseas research. This study provides information that could be used for the development of workplace health promotion programmes in New Zealand early childhood settings.

The following discussion commences with a review of the demographics and work setting characteristics of the respondents. The discussion is then structured around the three focal areas of the research; health status, health behaviours and health concerns. Within each of these areas the findings are discussed and analysed with relevance to literature and research.

Demographics and Work Setting Characteristics

Most respondents were female (98%) which is representative of the early childhood workforce in these settings. According to Ministry of Education (2004a) males are about 1% of the staff in kindergarten and childcare centres, the number in home-based services is not known.

Kindergarten teachers worked the highest number of hours per week, with many indicating that they worked extra hours at home on administration tasks. They also

worked with the largest groups of children and had the highest teacher:child ratios of 1:15 or higher which is typical of this setting. More childcare teachers worked part-time than either of the other two groups. Age groups the respondents worked with were typical of the type of service they provide, in kindergartens only children over the age of two years old are enrolled.

Home-based educators, on average were younger than both childcare and kindergarten teachers. This corresponds with findings in a New Zealand based study which found that most family day care providers were in the 30 year age group (Everiss, 1999). Childcare teachers had spent less time in their current position than either of the other two groups; however the average time of 3.9 years was higher than the 2.5 years found in Smith's (1996) New Zealand study. Home-based educators were the least experienced in terms of years spent in the early childhood profession, probably because many family day care providers tend to do this type of work while their own children are young as it is a way to combine the role of motherhood with that of self-employment.

Health Status

There were several questions used to provide information on indicators of health status. There was a reliance on self reported health status, rather than medical evidence or examination, thus the results are dependant on the respondents own perception of their health. This method of self reporting is used in many health surveys including the New Zealand Health Survey (Ministry of Health, 2003), which is used for the comparisons of findings where applicable. In general, findings from the survey indicated that most respondents experienced reasonably good health. The areas relating to health status in the questionnaire will now be addressed, these are: general health indicators, absence from work due to illness, frequency of illness, health symptoms and conditions, job related injuries and pregnancy.

General Health Indicators

Self reported health status for all groups indicated that just over 92% of respondents reported they had good or excellent health, a similar finding to that of the New Zealand Health Survey (Ministry of Health, 2003). Weight was reported by over half of all three groups as 'about right', between 40% to 45% stated that they were overweight. The accuracy of this reporting needs to be viewed with caution as it has been found that several subgroups such as women, chronic dieters and obese individuals tend to under-report their weight (Shapiro & Anderson, 2002). This may possibly be the case in this study as most of the respondents were women. With this in mind, the actual findings are difficult to accurately compare with the New Zealand Health Survey which measured weight status using the objective Body Mass Index (BMI) measurement and found that over half of adults in New Zealand are overweight (Ministry of Health, 2003).

Absence from Work due to Illness

The number of days absent from work can also be an indicator of wellness and health status (Pelletier, Boles & Lynch, 2004). Respondents were asked to report the number of days they had been absent during the last year due to illness and any extended sick leave in the last two years. Significant differences between the groups were found. Kindergarten teachers indicated a much higher rate of illness and absence (both short and long term) from work than the other two groups, they were also more likely to have extended periods of sick leave, surgery being the most common reason for this. Increased rates of absenteeism have been seen as behavioural responses to stress (Vezina & St-Arnaud, 1995), this may be relevant to kindergarten teachers who reported higher levels of stress than the other two groups (discussed further under stress). More data related to their specific reasons for absence/illness would need to be gathered before definite relationships between stress and absence could be concluded. Childcare teachers had a higher rate of absence due to illness than home-based educators, who had the lowest rate of both absence and periods of extended sick leave. The low rate of sick leave for home-based educators may be due to working at home, a younger age group,

financial reasons and lack of relievers. Similar differences between the childcare teachers and home-based educators were found in the study by Gratz and Claffey (1996) which supports the suggestion that reasons for illness related absence may be related to the work setting.

One quarter of all the respondents said they had experienced an illness related to working with young children. The most common of these were respiratory and gastrointestinal illnesses which is hardly surprising as these illnesses have the highest incidence among children in childcare (Bradley, 2003). Group size has been found to have an influence on the rate of infectious illness amongst children, the larger the group the higher the rate of infection (Bradley, 2003; NICHD Early Child Care Research Network, 2001; Slack-Smith et al., 2002). On average, kindergartens have twice the number of children enrolled as childcare centres. This exposes kindergarten teachers to many more children in a larger group, which may contribute to their higher rate of sick leave. However, research also shows that the child's age is a factor in the rate of infection; adults working with children less than two years old are more likely to be exposed to respiratory and gastrointestinal infections (Osterholm, 1994). Childcare teachers and home-based educators frequently work with children in the younger age group. Napkin changing, nose wiping and poor hygiene habits of young children would pose an increased risk of infection to adults involved in their care. The younger age, together with the larger group size may be a contributing factor in the increased absence rate of childcare teachers compared to home-based educators. Home-based educators may also take less time off with illness as they are working in the home setting, factors related to this are explored in health behaviours.

Frequency of Illness, Health Symptoms and Health Conditions

To determine the impact upon the health of adults working with young children, the respondents were asked a series of questions that related to the frequency of illness, changes in frequency of symptoms before and since working with young children and the frequency of symptoms experienced during the last year.

Approximately one third of respondents said they were sick more often since they began working with children which was a similar finding for all three groups but notably different to Gratz and Claffey (1996) who reported that childcare teachers reported more frequent illness than home-based educators. More than half of the respondents in both the current study and that of Gratz and Claffey indicated that they were sick about the same. Many respondents also indicated that when they first started working with children they experienced frequent illness but after the first year or two of teaching their immunity improved and they were sick less often.

Working with young children was found to increase the frequency of many health symptoms experienced by the respondents, this supports the notion that this type of work is physically and emotionally demanding (Aronson, 2001). All groups indicated an increase in the frequency of symptoms since they started working with young children. Backaches, general fatigue and headaches were the most commonly increased weekly symptoms for everyone, a finding similar to Gratz and Claffey's (1996) study. Monthly symptoms that had increased more for all three groups were sore throats, cold symptoms and muscle strain. Other overseas studies have also reported a high incidence of backaches and muscle strain among childcare teachers (Grant et al., 1995; Ono et al., 2002). Fatigue and sleeping problems were experienced by about one third of the respondents, similar reports of these symptoms as well as headaches and backaches are also made by primary, intermediate and secondary teachers in New Zealand (Whitehead & Ryba, 1995). This suggests that it is not uncommon for those teaching and working with children of all ages to experience a negative effect on their daily physical and mental wellbeing.

Further indicators of health status can be the presence of certain health conditions. The most common health conditions the respondents had developed since working with children were high blood pressure, asthma, anaemia, arthritis and insomnia. Kindergarten teachers reported a slightly higher rate of high blood pressure (24%) than all adults in the New Zealand Health Survey (20%) (Ministry of Health, 2003).

High blood pressure can be related to a number of factors most of which have not been included in the current study. However, a high level of stress is one possible contributing factor to high blood pressure and it is possible that the higher reported stress ratings and higher mean age of kindergarten teachers are related to this. The very low rate of high blood pressure in home-based educators may be age related as the mean age for this group was ten years younger than kindergarten teachers.

Twelve percent of the respondents reported they had been diagnosed with anaemia since working with children. According to the Ministry of Health (1999) anaemia predominantly affects younger women, about 6% of women aged between 15 to 44 years were reported to be affected by anaemia. It is unknown if the respondents were affected by the condition at the time of the survey and therefore not possible to draw any conclusions and compare with known rates of anaemia in New Zealand women. One quarter of home-based educators reported that their own nutrition intake was fair, this may be a contributing factor to a high rate (19%) of reported anaemia in this group.

Asthma and arthritis rates for all groups were similar to national indicators from the New Zealand Health Survey (Ministry of Health, 2003), so it would appear that working with young children does not increase the risk of being affected by these conditions.

Job Related Injuries

Unintentional injuries were reported by all three groups and there were significant differences between the groups for the number of injuries reported. The highest number of injuries was reported by kindergarten teachers of whom 40% said they had experienced either a minor or serious injury during the last year. Both childcare teachers and home-based educators in this study reported a higher incidence of injuries (28% and 13% respectively) than the same groups of respondents in Gratz and Claffey's (1996) study. The reasons for this are not

apparent. Back injury was the most common type of injury for all three groups, most commonly reported to be caused by lifting or carrying children and/or equipment. These findings of the incidence of back injury are consistent with studies in the United States (Brown & Gerberich, 1993; Gratz & Claffey, 1996) and ACC data collected from injury claims in the New Zealand preschool sector (ACC, 2003). Sixty percent of injury claims to ACC from this sector were related to the back and spine and 40% of injuries were due to lifting/ carrying and strain.

Slips, trips and falls were another frequent cause of unintentional injury in this study, causing injuries to the ankle, knee or foot such as sprains and bruising. Previous studies of childcare teachers also found that falls were a common cause of injury in a childcare centre (Calabro et al., 2000; Gratz & Claffey, 1996) and ACC (2005) claims that 22% of all work related accident claims are due to slips, trips or falls. Small children, large groups, toys, cushions and equipment all pose a risk for this type of injury in an early childhood setting, many of these items were identified as the causes of the accident for the respondents. Adaptation of the environment is a vital aspect to minimise the occurrence of these types of accidents. The scope of the current study did not extend to ascertaining what preventive strategies were already in place if any, to minimise risks from slips, trips and falls, although the number of injuries reported suggest that a more proactive approach to reducing hazards could be taken.

Implications for Pregnant Workers

It could be expected that in a female dominated workforce there would be a large number of pregnancies. Pregnancy is a health issue in this type of occupation due to the increased exposure to infectious diseases likely to be harmful to the foetus such as cytomegalovirus, chickenpox and parvovirus. About one third of respondents had become pregnant during their time working with young children and the numbers of pregnancies reported were similar to the national New Zealand average, there is no information available regarding the rate of reported miscarriage (Statistics New Zealand, 2005). Information about any problems during

pregnancy was not enough to draw any conclusions related to adverse outcomes of working with young children. However, it is worthwhile for pregnant women and the management to be aware that working with children under the age of two years places the pregnant childcare teacher at potentially more risk than working with children in older age groups. This is due to the increased exposure to children's body fluids through napkin changing, runny noses and children's immature hygiene habits as well as an increased requirement for lifting young children and thus placing more strain on the body.

Health Behaviours

Information about smoking, alcohol intake, nutrition, physical activity and working while ill was gained to get an indication of health behaviours of the respondents. Overall their responses indicated that they lived a healthy lifestyle and most of the respondents practiced positive health behaviours.

Both tobacco smoking and alcohol use were reported to occur at less than the national rates. Tobacco smoking was reported by only 12% of the respondents, a much lower prevalence than the national rate of 22.9% (Ministry of Health, 2003). This is a positive finding, not only for the personal health of the adults but also for the provision of good role modelling for the children. Smoking activity in schools and early childhood centres is restricted by the Smoke-free Law in New Zealand (Ministry of Health, 2005) which may act as deterrent for childcare teachers. All childcare centres and kindergartens are smoke free and smokers must engage in this activity out of the sight of children and outside the boundaries of the centre. In the home-based care setting smoking is restricted to outdoor areas out of view of children (Education Review Office, 1998).

Home-based educators as a group were less likely to rate their own nutrition as excellent compared to the other two groups, this finding is in stark contrast to Gratz and Claffey's (1996) study who found that those working in the home had the best

reported nutrition. This result may well be influenced by the inclusion of nannies in the home-based educator group (27% nanny) so a direct comparison cannot be made. Family day care providers reported better nutrition than nannies, they work in their own home and are able to start preparation of meals earlier than any of the other groups. Those working as a nanny may be required to go home at the end of the day and cook their own meal, often after having cooked a meal for the children in their care. This may influence their own motivation to prepare nutritional meals for themselves, a situation that could be changed if they ate with the children.

Forty-five percent of respondents reported they were involved in physical activity at least three or more times per week meeting the recommendation by the Ministry of Health (2003) for physical activity which is at least 30 minutes per day of moderate intensity physical activity for at least five days of the week. This means that over half of the respondents were not achieving the recommended level of physical activity for good health. These results are consistent with national findings of physical activity (Ministry of Health, 2003) and also similar to the findings of Gratz and Claffey (1996). Several respondents stated that they considered their work with children was physically active and physically demanding however this would still not meet the guidelines for physical activity which specifies that the physical activity should be vigorous and of moderate intensity (Ministry of Health, 2003). However, it would meet the latest recommendations by Sport and Recreation New Zealand (SPARC) (2005). The current Push Play campaign suggests that all New Zealanders should be involved in some form of physical activity for 30 minutes each day. This includes an active work environment. Working with children is a physically demanding job and the fatigue reported by many respondents may inhibit these workers from engaging in more vigorous physical activity. On the other hand, involvement in more aerobic types of activity may increase the level of fitness in childcare teachers and therefore reduce their fatigue and increase stamina.

Working when ill was included in health behaviours of the respondents and it was found that the majority of them had worked when ill, a similar finding to Gratz and Claffey (1996). According to Aronsson, Gustafsson and Dallner (2000), sickness presenteeism (working when ill) has been reported to be frequent in Swedish occupational groups involved in Human Service Organisations. All kindergarten teachers said they had worked when ill, citing no relievers as the most common reason for this. More than half of all respondents said lack of relievers was a problem, an issue also highlighted in other studies (Caulfield & Kataoka-Yahiro, 2001; Gratz & Claffey, 1996). Lack of relievers and insufficient sick leave meant that staff often felt compelled to return to work earlier than they should, slowing down their recovery time. Many people commented on having insufficient sick leave and the need to work when ill to avoid loss of income. Financial reasons were significant for home-based educators, those working in family day care do not have paid sick leave and half of the home-based educators said they were unable to afford to have days off work as they would not be paid. Employment conditions for home-based educators (particularly those in family day care) are quite different to that of the other two groups in the study as stated in the introductory chapter.

Health Concerns

The two main health concerns respondents were asked about were stress and ergonomic aspects of the job. Respondents were also able to raise any other health concerns they had.

Stress

Respondents were asked to rate their perceived stress in the job on a scale from "not stressful to very stressful". Kindergarten teachers reported a significantly higher level of perceived stress than both childcare teachers and home-based educators. They also reported a the highest rate of high blood pressure than the other two groups, it is unknown whether this is related to stress, although blood pressure measurement can used an indicator of stress (O'Driscoll & Brough,

2003). Administration and workload, hours of work and the number of children were the significant factors that influenced kindergarten teacher's perceived stress. Many kindergarten teachers said they worked longer hours than they were paid for and they regularly took administration work home to complete.

In Gratz and Claffey's (1996) study there was little difference between the stress levels of the home-based educators and childcare teachers, a similar finding to this research, although they did find that these two groups indicated slightly higher stress ratings than those in the current study. Most studies on stress in early childhood education concentrate on the causes of stress rather than the level of stress or the outcomes. In this study behaviour and guidance issues with children and relationships with other adults (parents or colleagues) were causes of stress identified across all three groups, these same factors have also been found in other studies (Caulfield & Kataoka-Yahiro, 2001; Curbrow et al., 2000; Kelly & Berthelsen, 1995; Stremmel et al., 1993), so it would seem that these are common issues that are part of working with young children and their families. Home-based educators, (specifically the family day care providers) indicated stressors from demands of their own family. Research in this field suggests that they often have role-conflict, a situation when they are faced with meeting the demands of their own family needs and those of the children in their care (Deery-Schmitt & Todd, 1995).

The health symptoms reported by respondents (discussed previously) are indicative of individual stress responses and include sleep difficulties, fatigue, headaches, backaches and muscle strain. These same symptoms have been found in other studies examining teacher stress (Gratz & Claffey, 1996; Whitehead & Ryba, 1995), however it is positive to note that behavioural responses to stress such as increased tobacco and alcohol use are not present.

Stress for those working with children is an issue that needs addressing particularly for kindergarten teachers who experience a high rate of injury, illness and absence

from work due to illness. Significant stress related factors for kindergarten teachers are probably high administration load, long work hours, large groups of children and teacher:child ratios.

Ergonomic Aspects

There were several questions about the ergonomic aspects of the job including the use of child sized furniture, sitting on the floor, moving heavy furniture and the types of equipment required to be moved. As home settings are quite different to those of childcare centres and kindergartens there were significant differences between the two. Almost all childcare and kindergarten teachers reported regularly sitting on child-sized furniture and the majority of all three groups spent some of the day sitting on the floor, findings comparable with Gratz and Claffey (1996). According to the comments of several respondents, sitting at a child's level is part of the job and cannot be avoided, it is an important aspect of creating relationships and encouraging learning with young children. Gratz et al. (2002) suggest that sitting on the floor is not ergonomically conducive to a working environment aimed to minimize physical strain and that where possible teachers should sit with their backs against the wall or furniture for support.

Lifting and moving of heavy furniture and equipment was reported by two thirds of the respondents. Nearly all kindergarten teachers were involved in this activity, significantly more so than the other two groups. Outside equipment were the most commonly identified items kindergarten teachers had to move. Some of these items were particularly heavy such as carpentry and water troughs. Reasons why kindergarten teachers have to move outside equipment so much more than childcare teachers are unknown, it is possible that childcare teachers under-reported this aspect of their work, further explanation of this would need to be sought.

Other health concerns that were raised by the respondents included noise levels, sick children, importance of hygiene for both children and staff and availability of

staff vaccinations. Raised awareness of noise levels within childcare centres may have followed recent research by McLaren (2003) which showed that sometimes noise levels were unacceptably high in childcare centres. As a result some kindergartens and childcare centres have instigated noise reduction strategies of which there have been no outcomes published to date.

Limitations

This study provides some baseline data for further investigation into the health and wellbeing of adults who work in early childhood education and the beginnings of information for workplace health promotion. However there are several limitations to this study which may have influenced the findings which are discussed below.

The research was conducted as a small scale study thus a small sample size was used which closely represented the population of early childhood workers. Even though the sample was small, the results obtained were very comparable with Gratz and Claffey's (1996) study. Significant differences were found in the same aspects of both studies which indicate that despite a $\pm 15\%$ margin of error in the current study, the findings are still useful to use as baseline data for further research and development of workplace health promotion.

A stratified random sampling technique was used to determine the research participants. Whilst every attempt was made to achieve a random sample when sending out the questionnaires it cannot be guaranteed that this occurred. The distribution of questionnaires to participants was dependant on head teachers and supervisors. In kindergartens and childcare centres the questionnaires were sent to the head teacher or supervisor who was asked to choose one of their staff at random to complete it. It is not known how this was done and it is possible that the respondents volunteered themselves to be in the study based on their interest of concerns about health issues creating a selection bias. Home-based settings should have been more reliable for random distribution of the questionnaires. The

co-ordinator of each home-based group was asked to choose every *n*th person from their alphabetical listing and deliver questionnaires to these people.

The home-based group was comprised of both family day care providers and nanny educators. Both were included to provide a cross section of people working in home-based care and to have a larger population from which to draw the sample. In hindsight this may have produced varying results for the home-based group as their circumstances and work situations are not identical. Family day care providers work in their own home and also often have their own children present, whereas nanny educators work in their employer's home. The reliability of comparisons to the study by Gratz and Claffey (1996) may be influenced by the combination of family day care providers and nanny educators in the current study, Gratz and Claffey (1996) only used family day care providers.

The survey relies heavily on self reported health status. This strategy is used commonly by researchers to determine measures of health and wellbeing and was utilised in the New Zealand Health Survey (Ministry of Health, 2003) which formed the basis for some comparisons in this study. Although self-report measures are valid and useful instruments to use, they also need to be used with care. When both objective and self reported measures have been combined, correlations between the two have not always been conclusive which indicates that self-reported data may not be accurate (Danna & Griffin, 1999). As several questions relied on self-reported health status, the results need to be viewed with some caution, particularly in reference to weight, alcohol intake, smoking prevalence, health symptoms and stress.

Many questionnaire results are influenced by 'memory effects' that may contribute towards error variance (Maxim, 1999). This refers to the reliability of the memory of respondents. This survey is no exception and asks the respondents to think back over several years to remember health experiences. The question on health symptoms experienced both before and since working with children is an example

of this, although they are also often asked to remember events during the last year in other questions. The researcher cannot be certain that the respondent has been accurate in recalling this information especially if the respondent had been working with children for some time.

Throughout this discussion, several health issues have been explored and need to be addressed to promote a healthy early childhood workforce. Evidence from this study can provide a point from which workplace health promotion programmes can be developed in support of the New Zealand Government Strategy (Department of Labour, 2005). The final chapter of this thesis presents the conclusions and recommendations from the study.

CHAPTER 6

CONCLUSION

This thesis was concerned with the occupational health and wellbeing of adults working in early childhood education. The aim of this study was to describe and compare the health status, behaviours and concerns of three groups of adults working in early childhood education: childcare teachers, kindergarten teachers and home-based educators. The survey was designed as a small scale study and carried out on a sample of adults currently working in the industry. There is little empirical data from New Zealand sources about the health and wellbeing of adults working in these settings so current knowledge and information is based on overseas studies and anecdotal evidence. This study was inspired by Gratz and Claffey (1996) from the United States, who undertook research on the health of childcare centre directors, teachers and family day care providers working in early childhood education. With their permission the same questionnaire was used, with small modifications, for this New Zealand study.

The current study will contribute towards the development and progress of workplace health promotion in early childhood education. As discussed in Chapter 1, recent concepts of workplace health promotion operate on the socio-ecological model of health promotion, an integrated approach which combines both organisational, community and personal characteristics. This approach has the premise that the health and wellbeing of employees is dependant on a combination of individual measures, environmental, organizational, ergonomic and social factors (Wilson et al., 2004). The study also contributes specifically to the 'Workplace Health and Safety Strategy for New Zealand to 2015' (Department of Labour, 2005). Several of the priority target areas in this strategy are very relevant to the early childhood sector. Included in the strategy is the principle of 'participation', the idea that there are many stakeholders involved in the promotion of a healthy workplace. The initial development phase of workplace health

promotion may include the collection of baseline data such as individual health concerns, lifestyle and health risk appraisals (O'Donnell, 2002). This study has provided some of this baseline data that could provide employers with information to be used for their own workplace health promotion programmes. The promotion of strategies for a healthy early childhood education workforce will also contribute to the New Zealand Government strategy to improve the quality of early childhood education services (Ministry of Education, 2002).

A review of the literature indicates that there are a number of occupational hazards and risks to the health of the early childhood worker. Infectious diseases are a dominant topic in the literature and there are several studies about the transmission and risks of diseases such as respiratory and gastrointestinal infections, hepatitis B, cytomegalovirus (CMV), chickenpox and parvovirus B19. Related to these are also the possible risks to the foetus of pregnant early childhood workers from infectious diseases. The psychological effects of working in early childhood education such as stress and burnout are also a common topic of study in this area. The literature indicates that working in early childhood settings can be a stressful and demanding occupation and that a number of organizational factors are common factors in this. The physical hazards of childcare work include injuries and issues related to ergonomic aspects of the job. Early childhood workers are at risk from sprains, back strain, muscle strains, cuts and bites from children. Noise has also been identified as an environmental hazard in childcare centres and kindergartens, causing stress and in the long term possible auditory impairment.

Overall the study has shown that this group of adults is relatively healthy. Health indicators for all three groups such as weight and physical activity are typical of many New Zealanders although they tend to smoke tobacco and use alcohol less than the national average. Significant differences between the groups were found for nutrition, days absent due to illness, accidental injuries, job-related stress and ergonomic aspects of childcare work. Of all three groups kindergarten teachers

showed the most areas of health concern. They were more likely to have days off work for illness, have an accidental injury at work, experience higher levels of stress and be involved in lifting heavy outdoor equipment. The higher than national rate of self-reported high blood pressure for kindergarten teachers needs further investigation. A major concern from kindergarten teachers was the administration workload and the requirement to work extra hours (often at home) to complete this. Numbers of children and the low teacher:child ratio were also common sources of stress.

This study supports Aronson's (2001) notion that working with young children is a physically and emotionally demanding occupation. Although the literature reports that the risk of infectious diseases is high for adults working in early childhood education, it would appear from this study that infectious disease is only one small aspect of the physical effects of working with young children. All groups reported that since working with young children they had experienced an increase in physical stressors and strains on their body, in particular backaches, fatigue and related symptoms. Regular lifting and moving of children and equipment in conjunction with working in an environment often suited more for children than adults, are contributing factors to these physical stressors and strains.

A comparison of this New Zealand study with the American study by Gratz and Claffey (1996) shows there are many similarities in the findings for the health of home-based educators and childcare teachers. No direct comparison can be made for kindergarten teachers as they were not included in the American study. One area of difference and concern is that New Zealand childcare teachers and home-based educators reported more job-related injuries than their American counterparts. Home-based educators also had the lowest rating of their own nutrition, the opposite to Gratz and Claffey's study in which they had the highest rating. On a positive note New Zealand childcare teachers and home-based educators participate in more physical activity each week and report they are less likely to be overweight.

Recommendations for Further Research

This study provides a good baseline for further research in this area. Although it was a small scale study the findings have highlighted several areas of concern for early childhood workers and further research could be undertaken to explore these issues.

- Stress is one area of concern for kindergarten teachers that requires a more in depth investigation. Objective physiological measures to indicate stress combined with self-reported information on a larger group of kindergarten teachers would provide more information to work with in developing workplace health promotion programmes to reduce stress.
- Investigations into the ergonomic practices and environments in kindergartens and childcare centres could be undertaken to reveal how much is being done to reduce the risks of back, muscle strains and workplace injuries. This may help to determine the need for education and training, equipment, financial resources and organizational systems.
- Research into the organisational culture of health and wellbeing in childcare centres and kindergartens in New Zealand would assist towards developing strategies to implement 'Preventive Workplace Cultures' (Department of Labour, 2005). We need to know more about health and safety management systems and the values, attitudes and beliefs of both employers and employees who work in these environments.
- Further research on the development of participatory workplace health promotion programmes in early childhood settings could provide useful models and examples of best practice for others to implement their own programmes.

Future Directions

This study has highlighted many key areas of concern about the occupational health and safety of adults working in early childhood education. It provides some of the initial data for developing workplace health promotion programmes in early childhood settings. The findings show that there are some areas of risk and concern to the health and safety of adults working in the environment, however just addressing these on their own are insufficient for the creation of a preventive health and safety culture in the workplace.

It is recommended that workplace health promotion programmes be developed in all early childhood settings using an integrative settings approach that also fits with the New Zealand Strategy (Department of Labour, 2005). This involves the combined efforts of all stakeholders and could be achieved through a model such as the participatory needs-based problem solving cycle (Chu & Dwyer, 2002). According to Chu and Dwyer workplace health promotion programmes benefit all those involved by:

- improving the working environment and organisation,
- developing a health and safety culture,
- encouraging the participation of all involved,
- fostering personal work and lifestyles and
- ensuring that strategies for health promotion and disease prevention are integral in the workplace

To assist early childhood education settings in the development of workplace health promotion resources with information, strategies and support for implementation need to be provided. These could be developed as part of the New Zealand government's commitment to improve health and safety in the workplace. This study has provided data that can be used as part of this whole approach and has identified issues that would need to be addressed as part of the programme.

The following is a summary of the highlights from this research for consideration in the development of workplace health promotion programmes in early childhood settings.

- The creation of ergonomically designed working environments in childcare centres and kindergartens to minimise the risks of musculoskeletal injuries to childcare teachers. These could include:
 - Steps up to napkin changing areas and cots to reduce lifting
 - Platforms for children to stand on while shoes being put onto reduce bending over
 - Equipments needs to be stored appropriately to avoid stretching and awkward postural movements
 - Wheels or castors should be fitted to all furniture and large equipment that needs to be moved around
 - Trolleys need to be available to reduce carrying equipment.
- The provision of training, education and regular refresher programmes on lifting procedures and prevention of injury and strain.
- Regular reviews of hand-washing and hygiene procedures in group settings, this could be self or peer review.
- Vaccinations offered to those workers who are at greater risk for exposure to chickenpox, influenza and Hepatitis B.
- Creation of strategies for pregnant early childhood workers who work with under two year old children to reduce the risk of exposure to CMV as well as back and muscle strain.
- Alleviate the administration and workload pressures for kindergarten teachers and reduce the need for unpaid overtime.

- Ensure that sick leave entitlements for early childhood teachers are reasonable to recover from illness.
- Revision of leave entitlements for home-based educators, especially family day care providers who currently have no leave entitlements.
- Investigation into ways to reduce noise levels in centres.
- Provision of health promotion seminars on stress management, physical activity and personal health and wellbeing.

All those in employment have the right to work in an environment that is safe, healthy and productive. Early childhood workers have a responsibility not only for their own health and wellbeing but also for that of the children in their care. One important aspect of the quality of this care is a healthy workplace environment, mentally, physically and socially. Employers have a responsibility to provide leadership in the development of positive workplace health promotion practices and it is anticipated that the findings from this study could contribute towards this process.

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APPENDIX A

Early Childhood Education Occupational Health Survey

The purpose of this survey is to study occupational health of teachers and adults who work with young children. Please help me by completing the following questionnaire. **All information will be kept confidential.** Your name or that of your kindergarten/centre will not be used in any way in analysing or reporting the results. By completing this survey you give your informed consent to participate in the study. The letter of information provides you with more details and should be read before taking part in this survey. Please return your questionnaire in the attached envelope by [redacted] to :
Belinda McGrath, [redacted]

1. Indicate the type of early childhood setting in which you currently work.

Kindergarten other, please explain
 Childcare centre _____

2. Overall, I would rate my health today as: Excellent Good Fair
 Poor

3. Do you get regular yearly health checkups from your doctor? Yes No

4. Approximately how many days were you absent from work in the last year because of illness? _____ days

5. Have you been absent from the kindergarten/centre for an extended period (more than 10 days) in the past two years due to illness? Yes No

If YES, please explain

6. Have you ever worked when you were ill? Yes No
 IF YES, for which of the following reasons (tick all that apply):

<input type="checkbox"/> can't afford loss of income	<input type="checkbox"/> work responsibility
<input type="checkbox"/> no paid sick leave	<input type="checkbox"/> other, please explain
<input type="checkbox"/> no relievers	_____
<input type="checkbox"/> not ill enough to stay at home	_____

7. Do you feel or get sick more often, less often, or the same amount as you did prior to working with children?

sick more often sick less often sick about the same

8. Have you experienced any accidental injuries on the job in the past year?

Yes No

If YES, please explain _____

9. How often did you experience the following symptoms BEFORE and SINCE you began working with children?

BEFORE WORKING WITH CHILDREN

	Never	1-2 times per year	1-2 times per month	Once a week or more
a Indigestion	_____	_____	_____	_____
b Backaches	_____	_____	_____	_____
c Cold symptoms	_____	_____	_____	_____
d Cold sweats	_____	_____	_____	_____
e Constipation	_____	_____	_____	_____
f Diarrhoea	_____	_____	_____	_____
g General fatigue	_____	_____	_____	_____
h Headache	_____	_____	_____	_____
l Loss of voice	_____	_____	_____	_____
j Muscle strain	_____	_____	_____	_____
k Sore throat	_____	_____	_____	_____
l Ringing in ears	_____	_____	_____	_____

SINCE WORKING WITH CHILDREN

	Never	1-2 times per year	1-2 times per month	Once a week or more
a Indigestion	_____	_____	_____	_____
b Backaches	_____	_____	_____	_____
c Cold symptoms	_____	_____	_____	_____
d Cold sweats	_____	_____	_____	_____
e Constipation	_____	_____	_____	_____
f Diarrhoea	_____	_____	_____	_____
g General fatigue	_____	_____	_____	_____
h Headache	_____	_____	_____	_____
l Loss of voice	_____	_____	_____	_____
j Muscle strain	_____	_____	_____	_____
k Sore throat	_____	_____	_____	_____
l Ringing in ears	_____	_____	_____	_____

10. Do you currently consider yourself:

_____ about the right weight _____ underweight _____ overweight _____ obese

11. Emotionally, how stressful do you feel working with young children is for you?

_____ very stressful _____ stressful _____ slightly stressful _____ not stressful

12. What causes you the most stress in your work? (you may tick more than one)

_____ child behaviour and guidance issues _____ Relationships with other adults _____ Work hours _____ Number of children

_____ salary _____ other, please explain _____

13. Do you smoke? _____ Yes _____ No. If YES, approximately how many cigarettes per day? _____

14. Do you drink alcoholic beverages? _____ Yes _____ No. If YES, approximately how many drinks per week? _____

15. How would you rate your nutrition?
_____ Excellent _____ Good _____ Fair _____ Poor

16. How many times per week are you involved in physical exercise/activities for at least 30 minutes?
_____ Never _____ Once _____ Twice _____ Three or more times per week

17. Have you been diagnosed with any of the following conditions? ____ No
If YES, any since working with young children?

	Yes, Diagnosed		Since began working with children	
	Yes	No	Yes	No
a. Anaemia	_____	_____	_____	_____
b. Arthritis	_____	_____	_____	_____
c. Asthma	_____	_____	_____	_____
d. Colitis	_____	_____	_____	_____
e. Gastritis	_____	_____	_____	_____
f. Heart disease	_____	_____	_____	_____
g. Insomnia	_____	_____	_____	_____
h. Kidney or bladder trouble	_____	_____	_____	_____
i. Stomach ulcer	_____	_____	_____	_____
j. Lung or breathing problems	_____	_____	_____	_____
k. High blood pressure	_____	_____	_____	_____

18. Have you become pregnant since you began working with young children? ____

Yes ____ No ____ N/A (males)

If YES, how many pregnancies? _____

Please explain any unusual health problems during pregnancy

19. Is adult-sized furniture available for the staff in the areas you work with children?

____ Yes ____ No

20. Do you regularly sit on child size chairs or furniture? ____ Yes ____ No

21. Approximately how often each day do you sit on the floor?

____ Never/rarely ____ Once/twice a day ____ I spend most of the day on the floor

22. Do staff regularly move heavy furniture or equipment? ____ Yes ____ No

If YES, please explain _____

23. How often have you experienced any of the following in the past year?

	Never	Rarely	Some- times	Often
a. Coughing or heavy chest colds	_____	_____	_____	_____
b. Difficulty in getting up in the morning	_____	_____	_____	_____
c. Feeling completely worn out at the end of the day	_____	_____	_____	_____
d. Feeling heart pounding or racing	_____	_____	_____	_____
e. Feeling fidgety, nervous or tense	_____	_____	_____	_____
f. Having trouble getting to sleep	_____	_____	_____	_____
g. Leg cramps	_____	_____	_____	_____
h. Pains in back or spine	_____	_____	_____	_____
i. Poor appetite	_____	_____	_____	_____
j. Spells of dizziness	_____	_____	_____	_____
k. Stiffness, swelling or aching in joints or muscles	_____	_____	_____	_____
l. Stomach pains	_____	_____	_____	_____
m. Swollen ankles	_____	_____	_____	_____
n. Tightness or heaviness in chest	_____	_____	_____	_____
o. Trouble breathing or shortness of breath	_____	_____	_____	_____

24. Have you had any other illness in the past year you think is related to working with children? ____ Yes ____ No

If Yes please

explain: _____

25. Number of children attending the kindergarten/centre: _____

26. Group size you currently work with: _____

27. Ratio in your group (adults to children):

____ 1 to 2 ____ 1 to 3 ____ 1 to 4 1 to 5 ____ 1 to 6 ____ 1 to 7

____ 1 to 8 ____ 1 to 9 ____ 1 to 10 1 to 15 ____ other

28. Age groups you **currently** work with: (tick all that apply)

____ 0 - 6 months

____ 7 - 18 months

____ 19 months - 2 years

____ 2 - 3 years

____ 3 - 5 years

____ other, please specify

29. Age groups you **previously** worked with: (tick all that apply)
- 0 - 6 months 7 – 18 months 19 months - 2 years
 2 – 3 years 3 – 5 years other, please specify _____
30. How long have you been at your current position? _____
31. Total number of years in the early childhood profession? _____ years
32. How many hours do you work per day ? _____ Per week? _____
33. Your age: _____
34. Female Male
35. Your educational background (tick all that apply):
- No early childhood qualification
 - Level 3 early childhood certificate
 - Level 5 early childhood certificate
 - NZ National Nanny certificate
 - Diploma Teaching (ECE) or equivalent
 - Bachelor's degree
 - Master's degree or higher
 - Other, please explain _____

Is there anything you would like to share with me about your health as it relates to working with young children? Is there anything else you'd like to suggest that would help you or other staff regarding health issues?

Thank-you for your help and taking the time to do this questionnaire.

Remember to enclose your entry form for the voucher draw in the return paid envelope with this questionnaire.

APPENDIX B

Home-based Child Care Occupational Health Survey

The purpose of this survey is to study occupational health of home-based care providers who work with young children. Please help me by completing the following questionnaire. **All information will be kept confidential.** Your name or that of your program will not be used in any way in analysing or reporting the results. By completing this survey you give your informed consent to participate in the study. The letter of information provides you with more details and should be read before taking part in this survey. Please return your questionnaire in the attached envelope by [redacted] to :
Belinda McGrath, [redacted]

1. Indicate the type of early childhood setting in which you currently work.

Your own home other, please explain
 Your employers home _____

2. Overall, I would rate my health today as: Excellent Good Fair
 Poor

3. Do you get regular yearly health checkups from your doctor? Yes No

4. Approximately how many days were you unable to care for children in the home in the last year because of illness? _____ days

5. Have you been unable to care for children in the home for an extended period (more than 10 days) in the past two years due to illness? Yes No

If YES, please explain

6. Have you ever worked when you were ill? Yes No
 IF YES, for which of the following reasons (tick all that apply):

can't afford loss of income other, please explain
 no paid sick leave _____
 no relievers _____
 not ill enough to stop working

7. Do you feel or get sick more often, less often, or the same amount as you did prior to working with children?

sick more often sick less often sick about the same

8. Have you experienced any accidental injuries on the job in the past year?
 Yes No If YES, please explain

9. How often did you experience the following symptoms BEFORE and SINCE you began working with children?

BEFORE WORKING WITH CHILDREN

SINCE WORKING WITH CHILDREN

	Never	1-2 times per year	1-2 times per month	Once a week or more		Never	1-2 times per year	1-2 times per month	Once a week or more
a Indigestion	_____	_____	_____	_____	a Indigestion	_____	_____	_____	_____
b Backaches	_____	_____	_____	_____	b Backaches	_____	_____	_____	_____
c Cold symptoms	_____	_____	_____	_____	c Cold symptoms	_____	_____	_____	_____
d Cold sweats	_____	_____	_____	_____	d Cold sweats	_____	_____	_____	_____
e Constipation	_____	_____	_____	_____	e Constipation	_____	_____	_____	_____
f Diarrhoea	_____	_____	_____	_____	f Diarrhoea	_____	_____	_____	_____
g General fatigue	_____	_____	_____	_____	g General fatigue	_____	_____	_____	_____
h Headache	_____	_____	_____	_____	h Headache	_____	_____	_____	_____
i Loss of voice	_____	_____	_____	_____	i Loss of voice	_____	_____	_____	_____
j Muscle strain	_____	_____	_____	_____	j Muscle strain	_____	_____	_____	_____
k Sore throat	_____	_____	_____	_____	k Sore throat	_____	_____	_____	_____
l Ringing in ears	_____	_____	_____	_____	l Ringing in ears	_____	_____	_____	_____

10. Do you currently consider yourself:

_____ about the right weight _____ underweight _____ overweight _____ obese

11. Emotionally, how stressful do you feel working with young children is for you?

_____ very stressful _____ stressful _____ slightly stressful _____ not stressful

12. What causes you the most stress in your work? (you may tick more than one)

_____ child behaviour and guidance issues _____ Relationships with parents _____ Work hours _____ Number of children

_____ salary _____ other, please explain _____

13. Do you smoke? _____ Yes _____ No.

If YES, approximately how many cigarettes per day? _____

14. Do you drink alcoholic beverages? _____ Yes _____ No.

If YES, approximately how many drinks per week? _____

15. How would you rate your nutrition?

_____ Excellent _____ Good _____ Fair _____ Poor

16. How many times per week are you involved in physical exercise/activities for at least 30 minutes?

_____ Never _____ Once _____ Twice _____ Three or more times per week

17. Have you been diagnosed with any of the following conditions? No
 If YES, any since working with young children?

	Yes, Diagnosed		Since began working with children	
	Yes	No	Yes	No
a. Anaemia	_____	_____	_____	_____
b. Arthritis	_____	_____	_____	_____
c. Asthma	_____	_____	_____	_____
d. Colitis	_____	_____	_____	_____
e. Gastritis	_____	_____	_____	_____
f. Heart disease	_____	_____	_____	_____
g. Insomnia	_____	_____	_____	_____
h. Kidney or bladder trouble	_____	_____	_____	_____
i. Stomach ulcer	_____	_____	_____	_____
j. Lung or breathing problems	_____	_____	_____	_____
k. High blood pressure	_____	_____	_____	_____

18. Have you become pregnant since you began working with young children?

Yes No N/A (males) If YES, how many pregnancies? _____

Please explain any unusual health problems during pregnancy

19. In the area of the home you use for childcare, is there adult sized furniture available?

Yes No

20. Do you regularly sit on child size chairs or furniture? Yes No

21. Approximately how often each day do you sit on the floor? Never/rarely

Once/twice a day I spend most of the day on the floor

22. Do you regularly move heavy furniture or equipment? Yes No

If YES, please

explain _____

23. How often have you experienced any of the following in the past year?

	Never	Rarely	Some-times	Often
a. Coughing or heavy chest colds	_____	_____	_____	_____
b. Difficulty in getting up in the morning	_____	_____	_____	_____
c. Feeling completely worn out at the end of the day	_____	_____	_____	_____
d. Feeling heart pounding or racing	_____	_____	_____	_____
e. Feeling fidgety, nervous or tense	_____	_____	_____	_____
f. Having trouble getting to sleep	_____	_____	_____	_____
g. Leg cramps	_____	_____	_____	_____
h. Pains in back or spine	_____	_____	_____	_____
i. Poor appetite	_____	_____	_____	_____
j. Spells of dizziness	_____	_____	_____	_____
k. Stiffness, swelling or aching in joints or muscles	_____	_____	_____	_____
l. Stomach pains	_____	_____	_____	_____
m. Swollen ankles	_____	_____	_____	_____
n. Tightness or heaviness in chest	_____	_____	_____	_____
o. Trouble breathing or shortness of breath	_____	_____	_____	_____

24. Have you had any other illness in the past year you think is related to working with children? _____ Yes _____ No

If Yes please

explain: _____

25. Total number of children you care for: _____

26. Group size you usually work with: _____

27. Ratio in your group (adults to children):

_____ 1 to 2 _____ 1 to 3 _____ 1 to 4 1 to 5 _____ 1 to 6 _____ 1 to 7

_____ 1 to 8 _____ 1 to 9 _____ 1 to 10 1 to 15 _____ other

28. Age groups you **currently** work with: (tick all that apply)

_____ 0 - 6 months

_____ 7 - 18 months

_____ 19 months - 2 years

_____ 2 - 3 years

_____ 3 - 5 years

_____ other, please specify

29. Age groups you **previously** worked with: (tick all that apply)

0 - 6 months 7 – 18 months 19 months - 2 years
 2 – 3 years 3 – 5 years other, please specify

30. How long have you been a home-based childcare provider? _____

31. Total number of years in the early childhood profession / childcare? _____ years

32. How many hours do you work per day ? _____ Per week? _____

33. Your age: _____

34. Female Male

35. Your educational background (tick all that apply):

No early childhood qualification

Level 3 early childhood certificate

Level 5 early childhood certificate

NZ National Nanny certificate

Diploma Teaching (ECE) or equivalent

Bachelor's degree

Master's degree or higher

Other, please explain _____

Is there anything you would like to share with me about your health as it relates to working with young children? Is there anything else you'd like to suggest that would help you regarding health issues?

Thank-you for your help and taking the time to do this questionnaire.

Remember to enclose your entry form for the voucher draw in the return paid envelope with this questionnaire.



Massey University

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Wellington Campus
Private Box 756
Wellington 140
New Zealand
T 64 4 801 2794
F 64 4 801 2884
www.massey.ac.nz

APPENDIX C LETTER TO CHILDCARE CENTRE SUPERVISOR



9 August 2004

To the Supervisor

I am a Masters student at Massey University and am conducting a survey on the health of adults who work in early childhood education, specifically kindergartens, childcare centres and home-based caregivers.

Please find enclosed one questionnaire and information about the survey. It would be appreciated if you could give this package to one teacher chosen at random who could complete it and send it back to me.

Thank you,

Yours sincerely

Belinda McGrath
Masters student
Massey University



APPENDIX D LETTER TO KINDERGARTEN ASSOCIATIONS



11 June 2004

To the Kindergarten Association

Dear

You may remember me talking to you about my Masters study at Massey University and my plan to do a research study on the health status of teachers and adults who work in early childhood education. I have a special interest in this area as I teach early childhood student teachers about health and wellbeing at Whitireia Polytechnic.

The participants of the study will be kindergarten teachers, as well as adults in childcare centres and home-based caregivers. Each participant will receive a questionnaire which asks them about aspects of their health and wellbeing. The questionnaire will take about 15-20 minutes to complete and is sent back to me in the envelope provided. The participant and kindergarten will be anonymous, the persons name and organisation will not be able to be identified.

It is planned to send out the questionnaires during the third term. Approximately 50 teachers from kindergartens chosen at random in your area would receive a copy of the questionnaire, teachers can make a choice as to whether they wish to participate in the study or not. The study has been approved by the Massey University Human Ethics Committee.

Before sending out the questionnaire, I would like to seek your support and consent for the kindergarten teachers in your area to participate. My study will be useful for identifying adult health issues in early childhood education and for working towards optimal health and safety in the workplace.

If you would like further information you can contact me by phone: [REDACTED] or email [REDACTED].

I look forward to hearing back from you and hope that you are willing to support this research.

Yours sincerely

Belinda McGrath



Massey University

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Wellington Campus
Private Box 756
Wellington 142
New Zealand
T 64 4 801 2794
F 64 4 801 2884
www.massey.ac.nz

APPENDIX E
LETTER TO KINDERGARTEN HEAD TEACHER



9 August 2004

To the Head Teacher

I am a Masters student at Massey University and am conducting a survey on the health of adults who work in early childhood education, specifically kindergartens, childcare centres and home-based caregivers.

Please find enclosed one questionnaire and information about the survey. It would be appreciated if you could give this package to one teacher chosen at random who could complete it and send it back to me.

The Kindergarten Association has approved this research.

Thank you,

Yours sincerely

Belinda McGrath
Masters student
Massey University



APPENDIX F LETTER TO THE MANAGER OF HOME-BASED ORGANISATION

[REDACTED]

12 June 2004

To the Home-based organisation

Dear

I am a Masters student at Massey University and am planning a research study on the health status of teachers and adults who work in early childhood education. I have a special interest in this area as I teach student nannies and early childhood teachers about health and wellbeing at Whitireia Polytechnic.

The participants of the study will be home-based caregivers, kindergarten teachers and adults working in childcare centres. Each participant will receive a questionnaire which asks them about aspects of their health and wellbeing. The questionnaire will take about 15 – 20 minutes to complete and is sent back to me in the envelope provided. The participant will be anonymous, the only feature to be identified will be the setting in which they work, e.g. the home.

It is planned to send out the questionnaires during the third term. I would like to seek your support and consent for the home-based caregivers in your area to participate in the study. I would need to make an arrangement with you as to how the participants can be selected and the questionnaire be distributed to them. This can be discussed in more detail once you have initially approved the project. The study has been approved by the Massey University Human Ethics Committee.

My study will be useful for identifying adult health issues for home-based early childhood educators and for working towards optimal health and safety in the workplace. If you would like further information you can contact me by phone: [REDACTED]

I look forward to hearing back from you and hope that you are willing to support this research.

Yours sincerely

Belinda McGrath

**APPENDIX G
PERMISSION EMAIL FROM RENEE GRATZ TO USE THE
QUESTIONNAIRE**

Date sent: **Thu, 21 Aug 2003 09:08:16 - 0500**

From: [REDACTED] >

To: [REDACTED] z

Subject: **Re: adult health in childcare research**

Hello Belinda:

I was delighted to hear from you and I apologize for the delay in responding. We are still on summer break here and I will be back at the university on Monday but I have an all-day meeting when I return.

I'd be pleased to share the questionnaire with you - and you have my permission to use it with proper attribution to our work here. I don't believe I have an electronic copy to attach to an email so I'll check my files for a hard copy on Tuesday.

Could you give me a postal address to send that copy to?

Thank you for your interest in our work

My best

Rene Gratz

Rene Gratz. PhD

Professor Department of Health Sciences
University of Wisconsin-Milwaukee
Box office: Enderis Hall Room 467

[REDACTED]

> > < [REDACTED] 0811 1103 03:47AM > >

Dear Dr Gratz,

I am a Masters student at Massey university in New Zealand. I have a health background and teach early childhood education students. I am currently intending to embark on research that examines the health of early childhood teachers in New

Zealand. I am very interested in your research on this topic and found that your research provided excellent information in this area.

I thought that your research was well carried out and provided a valuable insight into the health of early childhood workers.

I am wondering if you would be willing to provide me with a copy of your questionnaire that you used so I could use it to compare with one I am developing. In New Zealand we have many similar issues but also several different ones too as our administration and health care is different.

It is interesting to find that there is little research in this area, there is nothing in the New Zealand setting at all.

I look forward to your response.

Yours sincerely

Belinda McGrath
Whitireia Polytechnic



APPENDIX H
INFORMATION LETTER TO PARTICIPANTS

Adult Health Status in Early Childhood Education
Information Sheet

You are invited to participate in a research study on the health and wellbeing of adults working in early childhood education. It should only take 15 to 20 minutes to complete, your participation would be appreciated as this is the first study of its kind in NZ.

What is the purpose of this survey?

This survey is to find out about the health of adults who work in early childhood education, specifically kindergartens, childcare centres and home-based caregivers. This information will be used to identify key health issues for early childhood workers. It will be useful for employees, employers, teacher training organisations and the Ministry of Education.

Who is conducting this survey?

I am doing this survey as part of my Masters thesis at Massey University. I am especially interested in this area as I teach early childhood student teachers and nannies about health and wellbeing at Whitireia Polytechnic.

How will your privacy be protected?

Everyone in the survey will be anonymous, I am unable to identify you or your place of work once you have filled out and posted back the questionnaire. Your name or your organisation will not be used in the analysing or reporting of the results. By completing this questionnaire you are giving your informed consent to be in the study.

How were you chosen?

Staff from kindergartens and childcare centres in the Wellington region have been included in the survey, home-based caregivers have been accessed through their management organisation. The Kindergarten Association and Home-based care Managers have approved this research. If when filling out the questionnaire you think you might have health concerns, do contact your Doctor or nurse.

Book Voucher Prize Draw

People who complete this questionnaire are able to enter a draw to receive one of ten \$30 book vouchers. If you wish to enter the draw you need to provide your contact details on the entry form and return it with your completed questionnaire. The survey administrator will separate the entries from the questionnaire before being forwarded to the researcher. The voucher draw will be made after the latest date for the return of the questionnaires.

Further information.

If you need more information about this survey I can be contacted by phone: [REDACTED] [REDACTED] or email [REDACTED] My supervisor for the study is Annette Huntington, Associate Professor, School of Health Sciences, Massey University, she can be contacted if you wish by phone: 048012794 X6315.

Ethical Approval

This project has been reviewed and approved by the Massey University Human Ethics Committee, WGTN Protocol 04/11. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Acting Chair, Massey University Campus Human Ethics Committee: Wellington, ph. 048012794 x6358, email humanethicswn@massey.ac.nz

Thank you

Belinda McGrath