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WOMEN'S ATTITUDES TOWARD MENSTRUATION: A QUANTITATIVE SURVEY AND QUALITATIVE INTERVIEW INVESTIGATION

A thesis presented in partial fulfilment
of the requirements for the degree
of Master of Arts in Psychology
at Massey University

Bridget Fitzgerald

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ABSTRACT

Menstruation plays an important role in the psychology of women. There is, however, little information about the nature of women's attitudes toward menstruation. The present study used a quantitative survey followed by a series of qualitative interviews to explore these attitudes in a sample of University women in New Zealand. The Menstrual Attitude Questionnaire (MAQ) was used to assess the attitudes and beliefs of 343 women. The psychometric properties of the MAQ and its underlying factor structure were examined using a range of factor analytic models. Responses were then used to select a sample of 10 women for interview. Interviews were conducted in order to elaborate upon the attitudes identified by the MAQ and to examine in more depth the nature of women's attitudes toward menstruation. Factor analysis of the MAQ yielded five orthogonal factors. Results suggested that these university women perceived menstruation as: Marginally causing physical, emotional and intellectual changes, a natural event, an inconvenience and slightly disrupting their usual performance and activities. Subjects accepted the existence of premenstrual tension. Similarly, interviews revealed that attitudes were multidimensional with each subject having an individual configuration of positive, negative and neutral beliefs about menstruation. No consistent pattern among the different beliefs was established. Furthermore, it would appear that attitudes towards menstruation may not be acquired from direct experience but may be learned through social expectations. Directions for future research are indicated, particularly the importance of qualitative research.

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CHAPTER 1
INTRODUCTION

On average, a woman will menstruate 450 times before she reaches menopause. This is the equivalent of four to five years of continuous bleeding (Delaney, Lupton, & Toth, 1976). It is therefore very likely that a woman will have a set of attitudes that encompass her thoughts, feelings and beliefs about menstruation. These attitudes may reflect a woman's own experience of menstruation as well as the attitudes held by the social and cultural milieu of which she is a part.

In the last three decades there has been an increased awareness of issues pertaining directly to women. This has been due in part to the growth of the feminist movement of the 1960s which re-examined topics directly affecting the lives of women (Mitchell, 1984; Rowbotham, 1974). Within New Zealand, events such as the cervical cancer inquiry (Coney, 1988) have also highlighted the importance of women's health issues to the general public. Whereas menstruation would have once been considered a taboo subject, it has recently become a topic "discussed everywhere from TV talk shows to dinner tables" (Abplanalp, 1983, p.17). The mass media has played a significant role in disseminating information to the general public in the form of a large number of self-help books and articles within the popular press. Unfortunately these articles often contain misinformation, with many authors presenting a distorted view of menstruation (Abplanalp, 1983).

One of the major themes to come out of the last two decades is the idea that personal experiences have a political dimension. Matlin (1987) emphasises this point in relation to menstruation when she states: "Menstruation is important in the lives of women as a personal, private experience. Menstruation is also important as a political issue that has influenced public policy" (p.90). This can be seen most clearly in the late nineteenth century when the fragile nature of women's reproductive organs was used as an argument to prevent access to

higher education (Ehrenreich & English, 1978). Intellectual stimulation was believed to drain energy away from the reproductive organs, causing permanent damage and consequently preventing a woman from fulfilling her ultimate purpose in life as a child bearer. Toth, Delaney, and Lupton (1981) report that "in 1874 Edward F. Clarke, M.D. argued that college work caused the brain to use up the blood and energy needed to get the menstrual process functioning efficiently. If young women continued using their blood in the wrong direction, they would be weakened, their offspring would be weakened, and the ultimate result would be nothing less than the end of the human race" (p.107). These arguments derived support from the substantially lower rates of marriage and births among female college graduates. Female students were shown to be "pale, in delicate health, and prey to monstrous deviations from menstrual regularity" (Ehrenreich & English, 1978, p.128).

For contemporary women, menstruation is no longer used as evidence of unsuitability to study and gain professional qualifications. Although, in some instances, a woman's behaviour is still seen as being determined by her underlying biology. Paige (1973) quotes one American doctor as stating: "If you had an investment in a bank, you wouldn't want the president of your bank making a loan under these raging hormonal influences at that particular moment. Suppose we had a President of the White House, a menopausal woman president, who had to make the decision of the Bay of Pigs, which was, of course a bad one, or the Russian contretemps with Cuba at that time?" (p.44). The recent successful use of premenstrual tension as an argument to commute charges of murder to manslaughter, by reason of diminished responsibility (Brahms, 1981), indicates that menstruation remains as much a political issue as it was a century ago.

Menstruation clearly differentiates between the sexes - women menstruate and men do not. Along with pregnancy, childbirth and menopause, menstruation is a life event that occurs exclusively for women and plays an important role in the psychology of women (Matlin, 1987). Nearly 40 years ago, Clara Thompson argued that the disparagement of women's sexual organs, in conjunction with

society's comparison of the menses to urine and faeces, had important implications for the psychology of women. She stated that "the acceptance of one's body and all its functions is a basic need in the establishment of self respect and self esteem" (Thompson, 1950, p.353). The limited research into women's attitudes toward menstruation means that we are probably no closer to understanding women's perceptions of menstruation than we were forty years ago.

The "psychology of menstruation" as labelled by Deutsch (1944), has generally been neglected by researchers. Relatively little information has been accumulated about the experience of menstruation and the evaluations that women place upon this experience. In the absence of data about women's attitudes toward menstruation, it is difficult to assess the impact of menstruation on other aspects of women's functioning. Rierdan, Koff, and Flaherty (1983) state that "notably absent from the literature are descriptive studies of the nature and variety of menstrual experiences and of the factors that may affect these experiences" (p.484). In order to address this gap in our knowledge, the present study aims to examine the nature of women's attitudes toward menstruation.

Prior to discussing women's attitudes toward menstruation there are a number of issues that need to be addressed. Chapter 2 examines the physiological basis of menstruation, the psychological definition of the construct "attitude", the way in which menstruation has been viewed historically and the concept of premenstrual tension. Chapter 3 provides a review of the literature on women's attitudes toward menstruation. The rationale for the methodology and the aims of the present study are presented in Chapter 4. The methodology adopted in the present study is discussed in Chapter 5, followed by a presentation of the survey results in Chapter 6. In Chapter 7 the factors obtained by the survey results are labelled and examined for their reliability. Chapter 8 offers a combined presentation and discussion of the results obtained from interviewing individual women about their attitudes toward menstruation. An overall discussion of the findings of the survey and interview approaches is presented in Chapter 9. Finally, the practical implications of the study and suggestions for further research are offered in Chapter 10.

CHAPTER 2

DEFINITIONS

Despite considerable research into the psychological and physical concomitants of menstruation (reviewed by Logue & Moos, 1988), very little is known about the attitudes women hold about this process. The aim of this chapter is to present a conceptual framework in which to situate women's attitudes toward menstruation. For the purposes of the present study it is necessary to review the physiological mechanisms responsible for the process of menstruation, as well as to propose a definition for the term "attitude". It is also important to situate attitudes to menstruation within the changing social and historical context from which they have developed. One part of the menstrual cycle that has received considerable attention in both academic and popular publications is the few days directly preceding menstruation and the phenomenon of premenstrual tension. Because this publicity may have had implications for women's attitudes about menstruation, research into this aspect of menstruation is also briefly reviewed.

BIOLOGICAL ASPECTS OF THE MENSTRUAL CYCLE

The first menstrual flow, known as the menarche, generally occurs between the ages of 11 and 13 although anywhere between 9 and 18 is considered normal (Calvert, 1982). Termination of menstrual periods, or menopause, commonly occurs between the ages of 48 and 52. Menstrual cycles vary in length from 20 to 36 days with 28 days being taken as an average length. It is customary to designate the first day of bleeding as day one of the menstrual cycle which means that in a 28 day menstrual cycle ovulation will occur on day 14 (Netter, 1954).

Although the length of the menstrual cycle varies considerably among women and may change throughout a woman's reproductive years (Calvert, 1982), a normal menstrual period is taken as lasting from 2 to 8 days, with 4 days being taken as the average length (Reame, 1985). During that time it is usual for a woman to lose approximately half a cup of menstrual fluid (Calvert, 1982). The blood released during menstruation differs in composition to the blood normally circulating within the body. Menstrual blood contains a variety of organic compounds, minerals and hormones (Beller & Schweppe, 1979, cited in Reame, 1985).

Menstruation results from the interplay of the hormones of the hypothalamus, anterior pituitary and ovaries (Netter, 1954). For convenience the mechanisms responsible for menstruation are generally divided into three processes: The hormone feedback system, the ovarian cycle and ovulation and the uterine cycle. These systems are not independent of each other, as changes in one system will be reflected in each of the others.

The hormone feedback system

Menarche occurs when the girl has reached a critical level of body weight. In later cycles if a woman's body fat level falls below a certain point her menstrual periods will cease until her body fat levels are restored (Boston Women's Health Collective, 1984). When the hypothalamus has received a message indicating that the critical weight has been reached it responds by sending a message to the pituitary gland which begins production of Follicle Stimulating Hormone (FSH). The pituitary gland is responsible for the production of two hormones essential in the menstrual cycle: FSH and Lutenising Hormone (LH). Hormones secreted by these organs are carried from one part of the body to another through the bloodstream (Boston Women's Health Collective, 1984).

The role of FSH is to stimulate the growth and development of follicles within the ovaries. Generally only one ovary is stimulated in a cycle (Weidger, 1975). Each follicle contains an egg cell, and around ten to twenty follicles are stimulated in a given cycle (Boston Women's Health Collective, 1984). As the follicles

develop they secrete the hormone oestrogen in increasing amounts. As the production of oestrogen increases the levels of FSH in the bloodstream decrease. When there is a critical level of oestrogen, the pituitary gland slows down its production of FSH and begins to produce LH. In effect, the oestrogen reaching the pituitary inhibits the production of FSH (Weidger, 1975).

In combination with oestrogen, LH suppresses the growth of all the follicles stimulated by FSH except one. This one follicle is stimulated to full maturity and releases the egg which it contains. Ovulation is the name given to the release of the egg. Some women report feeling the egg being released as a twinge or cramp in the lower abdomen or back (Boston Women's Health Collective, 1984). This is known as mittelschmerz or "middle pain".

Following ovulation the empty follicle changes its structure as a result of the action of LH to become the corpus luteum (literally yellow body). The corpus luteum is responsible for the manufacture of the second ovarian hormone called progesterone (Weideger, 1975). The name progesterone literally means "pregnancy making" (Marie Stopes Clinic, 1987). The role of progesterone is to develop the lining of the uterus so as to supply the fertilised egg with food and oxygen should it arrive. If the egg is fertilised, the corpus luteum continues to secrete oestrogen and progesterone to maintain the pregnancy (Boston Women's Health Collective, 1984). If the egg is not fertilised the corpus luteum decays and as this degeneration occurs the manufacture of progesterone and oestrogen decreases. When progesterone and oestrogen reach their lowest points menstruation occurs and the hormonal cycle begins over again.

The ovarian cycle

At birth the ovaries contain about 400,000 follicles which are balls of cells containing an immature egg. Only about 300 to 500 of these will develop into mature eggs (Boston Women's Health Collective, 1984). At about 12 days from the start of the cycle one follicle "gains ascendency" (Netter, 1954) and goes on to reach maturity. Occasionally two follicles will develop at the same time (Calvert, 1982). The follicle stimulated by LH moves toward a section of the

ovarian wall which in turn thins and bubbles out. The remaining follicles that had been stimulated by FSH earlier in the cycle degenerate before completing their development.

The period of time up to ovulation is frequently referred to as the follicular phase of the cycle. The length of the follicular phase varies between individuals and from month to month. The second stage in the ovarian cycle beginning at ovulation is referred to as the luteal phase and its duration is more or less fixed at 14 days (Weidger, 1975).

The process called ovulation occurs when the single developing follicle ruptures, bursting the ovary's wall. Pressure inside the follicle forces the egg outside the newly made opening in the wall. Scar tissue then forms over the opening. The empty follicle becomes known as the corpus luteum and helps to maintain pregnancy if the egg is fertilised. The finger like fibula at the end of the fallopian tubes acts to catch the egg and move it into the fallopian tube. It is then pushed along the fallopian tube by the cilia (small hairy projections) that line the fallopian wall and also by peristaltic contractions of the walls (Calvert, 1982; Weidger, 1975). It takes the egg four days to pass along the length of the fallopian tube. If the egg is not fertilised it continues along the fallopian tubes into the uterus where it rests upon the lining of the uterine wall. During the menstrual period whatever remains of the egg is washed out of the uterus.

The uterine cycle

The uterus is an organ the size of a pear which is composed of very thick muscular walls lined with spongy tissue rich in capillaries. The spongy lining is known as the endometrium. Netter (1954) writes that it was the cyclic changes in the endometrium, first discovered in 1908 that alerted researchers to the pattern of hormonal and ovarian changes in the menstrual cycle. The stages in the growth of the endometrium may be divided into the proliferative (up to ovulation) and secretory (from ovulation to menstruation) phases (Netter, 1954).

The walls of the endometrium slowly build up in response to the oestrogen reaching the uterus through the bloodstream. During the early proliferative phase the endometrium is relatively thin but is much thicker by the time ovulation occurs. Following ovulation, progesterone combines with oestrogen to stimulate even greater growth of the endometrium (Weidger, 1975). During the secretory phase, the capillaries within the endometrium eventually become engorged with blood. When the level of the ovarian hormones, progesterone and oestrogen, reach their lowest levels, the capillaries burst and the endometrium leaves the uterus and passes out of the vagina as menstrual flow. If conception takes place, rather than the uterus shedding its lining, the endometrium is maintained and increased by the corpus luteum to become the placenta (Weidger, 1975).

When the endometrium leaves the uterus on day one of the cycle, preparation for the next cycle has already begun. In this way menstrual bleeding can be looked at as "either the end or the beginning, depending on your point of view" (Matlin, 1987, p.99).

ATTITUDES

The study of attitudes was once the most theoretically rich and empirically active area of social psychology (Eagly & Himmelfarb, 1978). Attitude research reached its peak in the years following World War II, when topics such as persuasion and propaganda came under close examination (Fiske & Taylor, 1984). Recently, interest in attitude theory and measurement has declined (Eagly & Himmelfarb, 1978), suggesting that this concept has lost its popularity as a research topic. Reasons for this loss of popularity are discussed later.

There are a number of assumptions implicit in the use of the term "attitude". Eiser (1986) outlines some of the main assumptions as: Attitudes are subjective experiences of some issue or object, these experiences are able to be measured along an evaluative continuum, attitudes may be expressed through

language, different individuals can agree and disagree in their attitudes and attitudes are predictably related to social behaviour. Attitudes can be seen to differ from other kinds of descriptive statements primarily because they imply a value judgement of some kind (Eiser, 1986).

Attitudes are derived from individual evaluative beliefs summed together (Eiser, 1986). There may be times when some beliefs a person has about an object appear inconsistent with a persons attitude. Fishbein (1967) points out that "although each belief suggests an attitude, the attitude per se can only be reliably extracted by considering the many beliefs an individual holds" (p.480).

According to Fazio (1985, cited in Eiser, 1986) attitudes should be regarded as a learned association between a given object and a given evaluation. That is, people learn to evaluate an object in favourable or unfavourable terms. The learning of attitudes may take place through classical or instrumental conditioning (Staats, 1967). Thus if a neutral stimulus is paired with a stimulus that elicits an emotional response, the new stimulus will come to elicit the same emotional response (Staats, 1967).

Early definitions of attitude focused upon mental and physical preparedness to act in response to an object or situation in the environment. In a 1935 review of attitude theory and research, Allport (1967) concluded that an attitude is a learned predisposition to respond to an object in a consistently favourable or unfavourable way. Allport described an attitude as being "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p.8). Furthermore, Allport emphasized that the most distinctive feature of the attitude concept was often regarded as the bipolarity direction of an attitude (i.e. the favourable versus the unfavourable). For example Thurstone (1932, cited in Allport, 1967) defined an attitude as "the affect for or against a psychological object" (p.8).

Allport (1967) argued that conceptualising attitude as a simple unidimensional concept was overly simplistic. According to Allport two people could be equally favourable toward an object, yet feel differently about components or characteristics of the object. Thus two people may have the same degree of affect toward an object and yet differ qualitatively in their attitude. The failure of the simple unidimensional model to account for qualitative differences in responses was proposed as a major reason why the use of attitudes as predictors of overt behaviour was frequently unsuccessful (Fishbein, 1967).

By the late 1950s, a multidimensional approach to attitude research was adopted almost universally (Ajzen & Fishbein, 1980). Rosenberg and Hovland (1960) proposed a tripartite model, according to which, an attitude is able to be defined as a set of "predispositions to respond in a particular manner to some particular class of stimuli" (p.2). The three major types of response are defined as being affective (i.e. evaluative feelings and preferences), cognitive (i.e. knowledge and beliefs) and behavioural (i.e. overt actions or statements of intent) (Eiser, 1986).

The tripartite model assumes that attitudes may be accessed through the use of either verbal or non-verbal measures. Within Rosenberg and Hovland's (1960) model, an individual's affective response may be inferred through the response of the sympathetic nervous system (such as in using measures of blood pressure or heart rate) or more typically through verbal statements of affect. The cognitive component may be measured through an individual's perceptual responses or verbal statements of belief. Similarly, the behavioural component may be evaluated by an individual's overt actions and their verbal statements concerning behaviour. Breckler (1984) argues that the validity of the tripartite model is increased when both verbal and non-verbal measures are used and when the attitude object is physically present. Although many researchers refer to the tripartite model, it is usually the evaluative or affective component that is measured and treated as attitude (Fishbein, 1967).

In a recent evaluation of the tripartite model, Breckler (1984) concluded that affect, behaviour and cognition are distinguishable components of attitude. It is, however, unclear the extent to which the three attitude components are independent or interdependent (Eiser, 1986).

The loss of research interest in attitudes may be due in part to the difficulties that psychologists have encountered when trying to establish consistent relationships between attitudes and behaviour. Much of the research directed at the attitude-behaviour relationship has yielded disappointingly weak results (Bagozzi & Burnkrant, 1979). Because of the difficulty in predicting overt behaviours from attitudes, the focus of research has shifted from questioning *if* attitudes predict behaviours to investigating *when* attitudes predict behaviours (Cialdini, Petty, & Cacioppo, 1981).

Some of the confusion that has been generated over the attitude-behaviour relationship may have been a consequence of the way in which attitudinal predictors and behavioural criteria were measured. Ajzen and Fishbein (1977) concluded that attitudes were good predictors of behaviour only when the attitudinal and behavioural measures showed a high degree of correspondence. Attitude and behaviour measures are said to correspond when they match on action, target, context, and time dimensions (Cialdini et al., 1981). The more the attitude measure corresponds to the behavioural criterion the better the prediction. More accurate predictions of behaviour would therefore be obtained from the simultaneous consideration of several dimensions rather than the consideration of a single attitudinal dimension or component alone (Bagozzi & Burnkrant, 1979). To increase the predictive validity of the tripartite model, Breckler (1984) advised researchers "either to measure each of the three components or to specify which of the three is of focal concern" (p.1203).

In this study the tripartite model of attitude was not tested but constructs from this model were focused upon. The concept of "attitude" was taken to refer to subjects' verbal statements of affect, belief and behaviour.

HISTORICAL ATTITUDES TOWARD MENSTRUATION

It has become widely recognised that an examination of the social context in which a woman's reproductive experiences occur is just as necessary as the study of their physiological basis (Carrie, 1981). The attitudes of contemporary New Zealand women toward menstruation are largely based on the philosophical and historical traditions of Western-European society. The following section focuses upon the dominant historical forces that have shaped our society's perception of menstruation. These are the writings of the ancient Grecco-Roman scholars, the Christian traditions and the attitudes held by pre-European Maori society to menstruation.

The ancient Grecco-Roman scholars

Many current beliefs about menstruation were derived from the writings of the ancient Grecco-Roman scholars including Hippocrates, Aristotle and Pliny. Pliny the Elder (cited in Crawfurd, 1915) made a number of claims about the properties of menstrual blood. He stated that "if a woman strips herself naked while she is menstruating and walks round a field of wheat, the caterpillars, worms, beetles, and other vermin will fall off from the ears of corn" (p.1332). According to Pliny, "all plants will turn of a yellow complexion on the approach of a woman who has the menstrual discharge upon her" (p.1332) and "dogs which may have tasted of the matter so discharged are seized with madness, and their bite is venomous and incurable" (p.1332). Not only was the menstrual fluid considered by Pliny to be dangerous to those who came in contact with it, but the menstruating woman herself was imbued with extraordinary powers. He saw that even the powers of nature could be influenced by a menstruating woman: "For in the first place hailstorms, they say, whirlwinds and lightning even will be scared away by a woman uncovering her body, while her monthly courses are upon her" (p.1333).

Prior to the discovery of the ovum in the seventeenth century it was widely believed that menstrual blood was the fluid out of which the infant was formed. Pliny wrote that "the seed of the male acting as a sort of leaven, causes it [the

menstrual fluid] to unite and assume a form, and in due time it acquires a bodily shape" (cited in Crawfurd, 1915, p.1331). Consequently this belief led to prohibitions against sexual activity during menstruation. Sexual intercourse during menstruation was considered dangerous as it could produce a deformed child and "some even argued that it was likely to produce a girl" (Crawford, 1981, p.63). After a child was born, it was believed that menstrual blood was diverted to the breasts where it became milk (Crawford, 1981).

Menstruation was considered peculiar in that bleeding occurred regularly in the absence of any injury. Aristotle explained women's recurrent loss of blood as a process necessary to get rid of the excess of blood that had accumulated in the interior of the body (Crawford, 1981). Similarly, Hippocrates regarded menstruation as a cleansing process. Hippocrates argued that women had a colder and less active disposition than men which meant that while men were able to sweat to remove impurities from their blood, women were unable to be cleansed in this way and therefore menstruated.

The beliefs of the ancient Grecco-Roman scholars shaped not only the common myths and folklore about menstruation, but the rediscovery of these early works dominated much of the popular and medical views of the sixteenth to eighteenth centuries (Crawford, 1981). According to Crawford, the religious perspective has undoubtedly had the greatest impact upon Western societies' attitudes toward menstruation.

The Christian perspective

Within modern New Zealand, we have inherited and have continued to develop our own attitudes toward menstruation. A large component of our attitudes, as well as those of other Western societies, have been derived from Judaeo-Christian beliefs (Delaney et al., 1976). Crawford (1981) states that the Bible has pervaded much of Western societies' beliefs about menstruation, although its influence and interpretation has varied over the centuries. For example, during the seventh century women were refused admittance to any church and forbidden to take Holy Communion when they were menstruating. In more

recent times, following the invention of tampons in 1933, their use was immediately attacked by the churches who claimed that it was a threat to virginity (Toth et al., 1981).

The Old Testament scriptures regarded a menstruating woman as unclean and therefore subject to restrictions that fitted her contaminated state. In the original Hebrew text the word "unclean" is *tawmay* connoting taboo or ritual defilement. Not only was the menstrual discharge considered unclean but also the woman from which it came (Novell, 1965).

Explicit reference is made to menstruation in the book of Leviticus which states: "When a woman has a discharge, *if* her discharge in her body is blood, she shall continue in her menstrual impurity for seven days; and whoever touches her shall be unclean until evening" (Leviticus 15:19). At the conclusion of each menstrual period women were required to take two doves to the temple so that the priest could "make atonement on her behalf before the Lord because of her impure discharge" (Leviticus 15:30). A number of taboos are set out in Leviticus concerning contact with a menstruating woman, as well as her contact with the animate and inanimate objects about her. A man who slept with a menstruating woman was also considered to be unclean for the following seven days. Throughout the Old Testament, the symbol of the menstruating woman was used to distinguish the sacred from the profane (Crawford, 1981). For example the message of the Lord to Ezekiel was "their way before me was like the uncleanliness of a woman in her impurity" (Ezekiel 36:17).

Attitudes toward the menstrual blood itself have changed over the years. The loss of blood has long been associated with the loss of strength and potentially the loss of life. Within Christianity, blood itself has a special symbolism. It has been Christ's blood which has been the salvation of mankind and His blood that Christians are receiving during Holy Communion services.

It is clear that the Christian perspective has shaped Western societies' attitudes toward menstruation. It is therefore useful to consider the way in which

menstruation was viewed in those cultures which had not been exposed to Christian ideas but which may have contributed to any unique New Zealand attitudes. The following section presents a brief review of early Maori attitudes toward menstruation.

The Maori perspective

In many cultures including Western societies, women were traditionally forbidden to prepare food or work in the fields when they were menstruating. A similar taboo operated in early Maori society where a menstruating woman was believed to be able to "blight crops in the garden or cause them to decay in storage pits, destroy the power of nets and snares to capture birds, drive cockles from the beaches, prevent boiling berries from being cooked, even stop the special black mud used to dye flax from 'growing'" (Hanson, 1982, p.343). In New Zealand the Maori people called menstruation either "mate marama" disease of the moon or "mate wahine" disease of women (Makereti, 1986, p.138). During her menstrual period, a Maori woman was considered tapu or unclean and was restricted from participating in a number of activities including preparing a hangi, gathering shell-fish and bathing in pools in which men bathed. Menstrual blood was considered to be the unripe seed of a human being and therefore unclean. The old time Maori also believed that malevolent spirits resided in menstrual blood which could cause terrible sickness if allowed to enter an animal, bird or fish. Care therefore had to be taken in disposing of used menstrual towels. Makereti (1986) writes that menstrual fluid was collected using "a whaka aupuru (diaper) of woven fibre, with soft moss on the inner side, and this was replaced from time to time, while the used moss was buried by the girl in a secret place where no one would ever find it" (p.139). In some tribes ceremonies were performed by the tohunga to render harmless the spirits inhabiting the menstrual blood (Hunton, 1977).

The medical perspective

Menstrual cycle research has been dominated by the medical model. Given that women have traditionally been dependent upon the medical profession for health care and medical knowledge, the unquestioning acceptance of a biomedical perspective on menstruation has implications for a woman's evaluations of menstruation. Historically the medical profession has viewed menstruation as a sickness and a disease. In 1900, the president of the American Gynaecological Association stated:

> "many a young life is battered and forever crippled in the breakers of puberty; if it crosses these unharmed and is not dashed to pieces on the rock of childbirth, it may still ground on the ever-recurring shadows of menstruation and lastly upon the final bar of the menopause ere protection is found in the unruffled waters of the harbour beyond the reach of the sexual storms"
> (Smith-Rosenberg & Rosenberg, 1973, cited in Fausto-Sterling, 1985, p.90).

In pre-industrial society two main, although conflicting, ideas existed about the purpose of menstruation. The first view was that menstruation purified the blood of women by ridding the body of impurities. The alternative explanation of menstrual bleeding was that women had a surplus of blood that needed to be evacuated by a monthly flow. This excess was shed through the weakest point in the body (Jones, 1980).

Menstrual disorders such as amenorrhoea (lack of menstruation) and menorrhagia (immoderate menstruation) were treated by the application of leeches to the vaginal area, noxious fumes applied to the nose to drive the blood down, injections into the womb, pessaries, provoking vomiting and bloodletting (Crawford, 1981). Amenorrhoea in particular was considered to be a dangerous condition as "the blood would beat back from her womb to trouble her brain, causing melancholy and troubling her spirits" (Crawford, 1981).

The belief in a mechanism linking the brain and the uterus was widely accepted in the nineteenth century. Showalter (1985) reported that nineteenth century

doctors warned their female clients about the dangers of intellectual stimulation and overexpenditure of vital energy, which were believed to have disastrous consequences for women's menstrual functions. Ehrenreich and English (1978) mentioned that the uterus and the brain were seen to be conflicting systems with women being "urged to throw their weight behind the uterus and resist the temptations of the brain" (p.127). They comment that these attitudes ultimately served to prevent women from obtaining higher education and entering the professions. Nineteenth century attitudes within the medical profession viewed menstruation as a sickness and a disease. Female functions were regarded as inherently pathological and theories held that a woman's normal state was to be sick (Ehrenreich & English, 1978). Women were seen as the weaker vessel and under the dictatorship of the ovaries.

The search for evidence to support the notion that women were inferior because they menstruated continued into the early part of this century. As recently as the 1940s significant interest was generated in the existence of a menstrual toxin, or menotoxin, within the menstrual fluid. This menotoxin was said to be lethal to young rats within hours following a single injection (Smith & Smith, 1945, cited in Reame, 1985). In his 1940 review of the available literature, the author Ashley-Montagu concluded that a menstruating woman was "capable of exerting noxious effects upon many living tissues" (p.218). By the 1950s the work on menotoxins had been rejected by the scientific community (Reame, 1985).

PREMENSTRUAL TENSION

One part of the menstrual cycle which has received considerable attention from medical practitioners and lay people alike is the few days directly preceding menstruation. The changes that may occur during this time have been given the label premenstrual tension (PMT). The term premenstrual tension was first coined by Frank in 1931. He used the term to describe subjects who in the seven to ten days prior to the onset of their menses complained of "unrest,

irritability, 'like jumping out of their skin' and a desire to find relief by foolish and ill considered actions" (p.1054). Frank (1931) proposed that this group of symptoms was caused by a hormonal imbalance and prescribed treatments including sterilising doses of roentgen rays applied to the ovaries and the ingestion by the sufferer of large quantities of desiccated ovaries or testis.

Nearly sixty years since Frank's description of premenstrual tension there is still no clear understanding of its cause or even universal agreement that it exists. Over the years medical practitioners have claimed more than 150 symptoms as being associated with premenstrual tension (Laws, 1983; Moos, 1968). These symptoms are generally able to be grouped into emotional, somatic and behavioural categories (Abplanalp, 1983). Little agreement exists in the literature on the precise nature, severity and duration of this syndrome. No clear aetiological factors in premenstrual tension have been confirmed although both physical and psychological risk factors have been suggested (Blume, 1983; Clare, 1979).

A distinction tends to be made in the literature between the group of symptoms that may occur premenstrually and dysmenorrhoea: Severe pain with the menses. Medical practitioners have traditionally believed dysmenorrhoea to be psychogenic. For instance Rogers (1950) states that "disorders in gynaecologic functions are often the result of emotional conflicts which are involved in the mechanisms of the unconscious" (p.321). Dysmenorrhoea has, however, since been established as resulting from an overabundance of prostaglandins which act in the uterus to produce strong contractions and associated severe pain (Abplanalp, 1983). Suppression of ovulation is frequently used to alleviate the symptoms of dysmenorrhoea, as are synthetic drugs which act to reduce prostaglandin activity.

In recent years the focus of the biology-behaviour relationship has shifted to an examination of the way in which menstruation affects a woman's cognitive functioning. Both men and women believe that a woman's performance at a number of tasks is adversely affected by menstrual related changes (Golub,

1981). When objective measures of performance are used, changes related to the menstrual cycle have not been demonstrated (Asso, 1983; Golub, 1976; Sommer, 1985). In fact Rodin (1976) demonstrated that women who were menstruating performed significantly better at a series of cognitive tasks than their non-menstruating counterparts. She concluded that women experiencing task related anxiety were able to attribute their anxiety to their menstrual symptoms and consequently perform more effectively.

Research on mood disorders related to the menstrual cycle has produced a wealth of nonreplicable, inconsistent, and sometimes uninterpretable findings (Gallant & Hamilton, 1988) with much of the research being hampered by methodological weaknesses (Parlee, 1973). In summary, it seems likely that some women do experience psychological and physical "symptoms" prior to menstruation although the available research is not clear about the proportion of women experiencing these changes.

An alternative interpretation of premenstrual tension is that this label offers an explanation for women's out of character behaviour. Laws (1985) states "PMT isolates the badness in women to a part of themselves which is only sometimes there and which results from influences (hormones) beyond their control" (p.21). According to Laws "a man who is spoken to angrily by a woman can at any time quietly comfort himself with the idea that she's only upset because of her hormones" (p.23). Laws argues that researchers "should think about the consequences of defining a large proportion of otherwise well women as ill because of unpleasant feelings during part of the menstrual cycle. To assert the reality of these feelings - yes, this is essential - but to decide that they are abnormal and to be stamped out ... that is another matter" (p.36). Similarly, Gallant and Hamilton (1988) propose that an alternative to a diagnostic label would be a situation in which women's experiences of premenstrual changes can be taken seriously without the experience being pathologised as a separate disorder.

Underlying the dominance of the medical perspective is the assumption that everything about menstruation is negative (Parlee, 1973). In general, research has focused largely on the symptoms associated with menstruation and normal or positive benefits of the menstrual cycle have tended to be ignored. Most studies have used structured questionnaires, such as the Menstrual Distress Questionnaire (Moos, 1968) and the Menstrual Symptom Checklist (Chesney & Tasto, 1975). These measures have retrospectively assessed the negative concomitants of menstruation and did not provide women with opportunities to report their own attitudes. The result has been a stereotypic negative bias that has failed to encompass the complexity of menstruation (Logue & Moos, 1988). Ultimately, the reliance upon medical research has lead to menstruation and the menstrual cycle being defined as a disease and an illness.

CHAPTER 3

REVIEW OF LITERATURE

The aim of this chapter is to review the available research concerning women's attitudes toward menstruation. In general two types of attitudes toward menstruation have been investigated by researchers. These are the attitudes of menarcheal girls and the attitudes of women toward menstruation. The relationship between variables such as religion, sex-role orientation and knowledge and women's attitudes is also discussed. The two main methodological approaches that have been used to examine women's attitudes toward menstruation are presented at the end of this chapter.

ATTITUDES OF MENARCHEAL GIRLS TOWARD MENSTRUATION

Menarche, or first menstruation, is just one of a number of biological events which occur during puberty. In many cultures menarche is imbued with special meaning and may be marked by elaborate rituals and ceremonies (Delaney et al., 1976). Menarche is often perceived as a rite de passage (Shorter, 1987), marking a major milestone to womanhood (Bennett, 1985).

Three main themes emerge from the research into attitudes surrounding menarche. Firstly, reactions to menarche typically involve the recall of negative feelings. When Whisnant and Zegans (1975) asked adolescent females to describe their first period they used terms such as "scared", "upset" or "ashamed". Similarly, Amann-Gainotti (1986) found that slightly more subjects evaluated menarche negatively than positively. Reasons for negative evaluations included loss of childhood games and having to assume more adult behaviour. Secondly, menarche is seen as a sign of sexual maturity and of being grown up. Using a sample of 258 postmenarcheal girls, Amann-Gainotti reported that nearly half gave a positive evaluation of their experiences

as it made them feel more mature, more adult and similar to their friends. A retrospective study into women's recollections of menarche showed a mixture of both positive and negative feelings (Woods, Dery, & Most, 1982). Finally, menarche may be surrounded with feelings of secrecy and mystery. This is illustrated by an entry in Anne Frank's (1967) diary: "Each time I have a period - and that has only been three times - I have the feeling that in spite of all the pain, unpleasantness and nastiness, I have a sweet secret and that is why, although it is nothing but a nuisance to me in a way, I always long for the time when I shall feel the secret within me again" (p.146).

A young woman's experience of menarche is undoubtedly influenced by the type of preparation, if any, she has received prior to the event. Amann-Gainotti (1986) reported that there was a positive significant relationship between advance information and a positive judgment of first menstruation. The timing of the information, however, may also be important. Dunham (1970) reported that the older a girl is when she is informed about menstruation the more likely she is to report a negative experience of menarche. According to Amann-Gainotti, the attitudes of the girl's family or cultural milieu also influence the evaluations a young woman places upon menarche. It is likely that the quality of the preparation, timing and source of information all have implications for the development of attitudes (Brooks-Gunn & Ruble, 1982).

As well as a young girl having a clear understanding of the biological mechanisms responsible for menstruation, Rierdan et al. (1983) also reported the importance of subjective preparation in which the girl is exposed to the more affective and experiential aspects of menarche and menstruation. Abstract information about menstruation as a biological event was considered by subjects as insufficient preparation for menstruation as a personal event (Rierdan et al., 1983; Rierdan, Koff & Flaherty, 1985/86). Whisnant, Brett and Zegans (1975) recommended that premenarcheal girls be told what it actually feels like to be menstruating and that emphasis be placed on the variability and individuality of this experience.

The four main sources of preparation for menarche identified in the literature are family (mothers and siblings), friends, health and school programmes and to a lesser extent books and other media sources (Abraham et al., 1985; Brooks-Gunn & Ruble, 1982; Matlin, 1987; Whisnant et al., 1975; Whisnant & Zegans, 1975; Zeno, 1970). It is not clear what girls are actually told about menstruation from the various sources although Abraham et al. (1985) reported that over half of their sample (n=1377) considered their preparation for menarche insufficient. Of the four sources of information outlined above, only the last two sources have been investigated in any great depth. Examination of the educational materials prepared and distributed by the makers of sanitary products showed an emphasis on sanitation and hygiene and an inaccurate description of menarcheal changes and the feelings that may accompany these changes (Whisnant et al., 1975). Advertisements for menstrual products tended to depict menstruation "as a 'hygienic crisis' that is best managed by an effective 'security system' affording peace of mind" (Havens & Swenson, 1988, p.95). Underlying the emphasis placed by the media on hygiene is the theme that menstruation brings the risk of soiling, staining, embarrassment and odour. Consistent with overseas research, Duncan (1983) found that menstrual advertisements and booklets available in New Zealand were confusing, clouded in mystery and dealt more with odours and problems. In addition these products may deny or inaccurately report the negative feelings or symptoms that may accompany menstruation (Duncan, 1983; Whisnant et al., 1975).

Girls' early experience of menstruation is frequently assumed to have major implications for their adult experience of menstruation. According to Clarke and Ruble (1978) for premenarcheal girls and boys of the same age, as well as girls who have experienced menarche, menstruation is associated with a set of mostly negative expectations and attitudes. When asked about their beliefs concerning the effects of menstruation on activities and mood, most of Clarke and Ruble's sample of 18 postmenarcheal girls, 18 premenarcheal girls and 18 boys believed that it was accompanied by physical discomforts, increased emotionality and mood changes and by disruption of social activities. These authors state that "a girl enters menarche with a clear set of expectations,

many of which are quite negative; and most of her peers, both male and female, hold similar expectations. Her experience of menstruation is, therefore a self-fulfilling prophecy" (p.233). Clarke and Ruble's findings suggest that attitudes may not develop from the direct experience of menstruation, but instead may be learned in the same way that attitudes toward other objects are acquired.

The use of sanitary protection also may have consequences for the way young women feel about their menstrual periods. For the first few menstrual periods young women tend to use sanitary pads for protection before changing to using tampons (Abraham et al., 1985). The reasons given for changing to using tampons were that tampons were more convenient and comfortable, prevented odours and didn't interfere with swimming or sport.

One recent Australian study compared the attitudes of mother and daughter pairs (n=53) and found that mothers and daughters held similar attitudes to menstruation (Lei, Knight, Llewellyn-Jones, & Abraham, 1987). The main differences between the two age groups were that mothers were less embarrassed about menstruation than their daughters. The majority of the nearly 1400 young Australian women sampled by Abraham et al. (1985) did not like menstruation, regarding it as a nuisance and an inconvenience. Only one percent of the sample felt that menstruation was proof of adulthood. Just over one half of the sample considered that their menstrual periods were worse than they had expected them to be, while one quarter felt they were better (Abraham et al., 1985). The secrecy surrounding menstruation was demonstrated by the finding that most young women regarded menstruation as an event that should not be talked about (except possibly with mothers) and should especially not be discussed with males (Abraham et al., 1985; Lei et al., 1987).

Menstruation is an indicator of sexual maturity. It is therefore likely that the attitudes a young woman holds about herself, and possibly others, may change as a result of her first menstrual experiences. Koff (1983, cited in

Williams, 1987) reported that following menarche girls were more likely to draw pictures of females with curvaceous bodies and more breast development than did their peers who had not begun to menstruate. According to Koff it was as if the experience of menarche effected a transformation from girl to woman.

Menstruation is also an indicator of the potential for a young woman to conceive. An important finding of Abraham et al.'s (1985) survey was that 61% of the young women sampled did not know when ovulation occurred and 51% did not know the most likely time in the cycle for conception to occur. Similarly Lei et al. (1987) reported that less than half of their sample of young women knew when ovulation occurred or when pregnancy was most likely to occur. This lack of knowledge about the menstrual cycle has serious implications for those teenagers engaging in sexual activity, especially considering that only ten percent of Australian teenagers were found to use birth control (McCarthy & Gordon, 1984, cited in Bennett, 1985).

In summary, there appear to be ambivalent feelings surrounding the menarche. Generally the onset of menstruation appears to elicit more negative feelings in many young women although at the same time menarche may also be seen as a sign of maturity and having become a woman.

ATTITUDES OF WOMEN TOWARD MENSTRUATION

The recent literature indicates that cultural attitudes and beliefs play an important role in the way in which menstruation is experienced by women (Asso, 1983). Application of Rosenthal and Jacobson's (1968) social expectation theory to menstruation, would suggest that the attitudes and expectations a woman holds about menstruation would affect her experience of menstruation.

The symptoms that may be associated with menstruation, reflect in part stereotyped attitudes about menstruation and the menstrual cycle (Sherif,

1980). When asked to indicate what women experience during the menstrual cycle, both men and women report very similar patterns of symptoms indicating the existence of stereotyped attitudes about menstruation (Parlee, 1974). Awareness that a study is monitoring menstruation has been shown to bias reporting toward the expectation of distress and experience of negative symptoms (AuBuchon & Calhoun, 1985; Slade, 1984). In addition, women who were led to believe they were premenstrual (when they were not), reported more symptoms of distress than women who were told they were in the middle of their menstrual cycles (Ruble, 1977). Ruble stated: "Learned associations or beliefs may lead a woman either to overstate what she is actually experiencing or to perceive an exaggeration of naturally fluctuating bodily states" (p.292). All these studies indicate that reports of menstrual experiences represent, in part, a social learning experience (Brooks-Gunn & Ruble, 1982).

Religious beliefs and attitudes toward menstruation

Variables such as religion have been suggested as influencing a woman's attitudes toward menstruation. Within the Hebrew tradition the menstruating woman becomes "niddah" and is considered spiritually unclean until the end of her period plus seven days (Siegel, 1985/86). During this time she is forbidden physical contact with her husband. Paige (1973) notes that historically the Catholic Church has also urged abstinence from sex during a woman's menstrual period.

The restrictions placed on menstruating women within the Jewish and Catholic Churches may lead to the development of different attitudes toward menstruation than those held by their Protestant counterparts (Brooks-Gunn, 1985). Investigating the attitudes of Protestant (n=56), Catholic (n=18) and Jewish (n=13) women, Paige (1973) reported that most of the Jewish and Catholic group said they would never have sex during menstruation compared to fewer than half of the Protestant group. Paige (1977) concluded "that the more orthodox one's religious affiliation the more likely sexual abstention will be practised at menstruation" (p.151).

Other factors than religion may be involved in a woman's decision to have sex during menstruation. Paige (1973) reported that women with lighter menstrual flows were more likely to ignore the menstrual sex taboo than those with heavier flows. The attitude of the male partner toward sex during menstruation is also an important deciding factor in whether sexual activity occurs. Golub (1981) reported that 86% of men compared with 46% of women would engage in intercourse during menstruation in her sample of 50 male and 50 female college students.

Siegel (1985/86) examined the attitudes of Jewish women who practised *mikvah* (a practice in Judaism consisting of ritual bathing and sexual abstinence) during menstruation (n=82) and those who did not (n=79). No differences between the two groups were found. Both groups of women reported menstruation as being predictable, bothersome, debilitating and natural. They somewhat disagreed that menstruation should affect behaviour. Siegel's finding of no major differences in the attitudes of the women who practised *mikvah* and those who did not may indicate that religious rituals and taboos have less effect on women's attitudes than previously thought. Alternatively, attitudes toward menstruation may be contained in the larger culture and therefore not confined to, or the result of, the laws and practices of a specific religion. The latter explanation would appear to be the most likely given that over half of the sample were university educated and having post-graduate qualifications. Siegel's study illustrates the difficulties involved in isolating the effects of one variable, such as religion, on the beliefs an individual woman has about menstruation.

Femininity, sex-role orientation and attitudes toward menstruation

The interest in the relationship between attitudes toward menstruation, femininity and sex-role orientation can be seen to have its origins in early psychoanalytic theory. Central to this perspective is the notion of the castration complex whereby the girl believes she had a penis that was taken away from her (Shainess, 1961). The female genitals are looked upon as a wound because where the penis is in a man, women have a place where blood issues

from time to time (Blanton, 1947). Within this perspective the menstrual fluid is viewed as being the "antithesis of life" (Lidz & Lidz, 1977). At a psychodynamic level menstruation is hypothesised to intensify unconscious conflicts about pregnancy, penis envy and aggression (Deutsch, 1944).

The relationship between sex-role orientation and attitudes toward menstruation has not been directly explored by researchers. Brattesani and Silverthorne (1978) found that college women (n=46) who held more traditional attitudes toward the role of women in society tended to report more symptoms of distress than those with more liberal views. Slade and Jenner (1980) using a sample of 108 teacher training students, supported Brattesani and Silverthorne's findings. They reported that not only women with traditional attitudes toward sex roles experienced more menstrual symptoms but as well women with modern egalitarian attitudes. Brown and Woods (1984) sampled 193 women from the general population and found that dysmenorrhoea was not strongly associated with sex role orientation although it was strongly correlated with attitudes toward menstruation.

Physiological knowledge and attitudes toward menstruation

Knowledge of the physiological aspects of menstruation may also be important in understanding women's attitudes toward menstruation. Golub (1981) reported that from her sample of 50 female subjects, 92% believed they understood the physiological aspects of menstruation. Although an earlier study by Golub in 1976 failed to find an impairment in cognition and performance during menstruation, over half of the women questioned erroneously believed that a woman was less able to function when she was menstruating. A further misconception believed by the majority of the sample was that a woman smelt and looked different when she was menstruating (Golub, 1981). Despite the evidence to the contrary, over a quarter of the women sampled by Golub felt that menstrual pain had a psychological basis.

Snow and Johnson (1977) questioned 40 women attending a clinic serving a multi-ethnic low-income population, about their knowledge of menstruation.

Generally, these women were ignorant about the real function of the menstrual cycle. One quarter of the sample did not know where the menstrual blood came from, and even fewer women were able to explain the onset and cessation of each menstrual flow. In addition a number of respondents were found to hold erroneous beliefs about menstruation which influenced the way they felt about menstruation.

Menstrual euphemisms and attitudes toward menstruation

A potential mechanism for transmitting attitudes about menstruation is through the use of menstrual expressions or euphemisms. Euphemisms such as "the curse" have generally been regarded as reflecting an attitude toward menstruation that is negative. It has been suggested that "cultural attitudes, especially negative ones, are maintained and reinforced by the use of such terms" (Ernster, 1975, p.3).

Ernster (1975) examined the menstrual euphemisms used by 70 females and 24 males. Euphemisms were grouped into the following categories: References to a female visitor; to a male; to time or cyclic references; negative references such as illness, inconvenience or distress; to the colour red or blood; to the material used in menstruation; to nature and to behaviour. The categories most widely used by women were negative references (e.g. the curse, being unwell, under the weather), followed by references to a female visitor or friend (e.g. I've got my friend, Aunt Sylvia is visiting me) and references to the material used during menstruation (e.g. ride the white horse, to ride the cotton pony). Ernster further reported that while females tended to learn menstrual expressions at menarche, males learnt these expressions in their late teens. The expressions used by men also indicated a woman's sexual unavailability (e.g. too wet to plow, on the rag and riding the flag). Ernster suggested that these euphemisms may be a mechanism for transmitting menstrual taboos on intercourse during menstruation.

Hays (1987) examined the relationship between menstrual expressions and attitudes toward menstruation, using a sample of 133 college women. She

found that the most widely used expressions for menstruation were period, friend, that time of the month and menstruating. No direct relationship was found between choices of menstrual expressions and attitudes toward menstruation. It was therefore not possible to predict the euphemism a subject would use to describe menstruation on the basis of their attitude toward menstruation. Hays suggested that in general subjects who used negative euphemisms also held negative attitude toward menstruation (Hays, 1987).

Elimination of menstruation and attitudes toward menstruation

Feminist Germaine Greer (1971) wrote "no woman would menstruate if she did not have to" (p.51). Greer's opinion is supported by Miller and Smith (1975) who found that 80% of their sample (n=88) was willing to eliminate their menstrual cycles for a period of time, given that the method of doing so was safe and reversible. Eliminating the menstrual cycle was reported as being a good form of birth control, would remove the mess and embarrassment and please their boyfriends. Those women in Miller and Smith's study who stated that they would prefer to retain their menstrual cycles did so for the reasons of feeling feminine and desirable to men, and because it would not feel right interfering with menstruation or the menstrual cycle.

METHODOLOGICAL APPROACHES

Studies have typically used one of two methodologies to examine women's attitudes toward menstruation. The first method involves survey research using structured questionnaires. The second method uses a qualitative approach, either an in-depth interview or an unstructured format. The following sections discuss the findings of the research conducted into women's attitudes toward menstruation according to the methodology used.

Research using a quantitative approach

Investigations into women's attitudes have traditionally made use of structured questionnaires in which respondents indicate whether statements are true or false or indicate their agreement with items. McHugh and Wasser (1959) administered a scale that contained 48 statements of attitudes toward menstruation to 200 college women. High scores on this scale were obtained for items such as "menstruation is a normal biological function to me" and "menstruation has an essential purpose". Low scores were obtained for items such as "menstruation revolts me" and "I feel abnormal and peculiar when I menstruate". McHugh and Wasser reported that college students had a neutral attitude about menstruation and a general understanding of its physiological purpose.

Levitt and Lubin (1967) shortened the scale developed by McHugh and Wasser (1959) to 27 items. Scores on this questionnaire ranged in value from 0 to 27 such that a high score indicated an unfavourable attitude toward menstruation. The mean score for the sample of 191 student nurses was 3.5 indicating that these women expressed more positive than negative attitudes. Dunham (1970) also used items from the scale developed by McHugh and Wasser and found that college women (n=189) did not view menstruation as special in either a positive or negative way.

The questionnaires used in these studies to measure subjects' attitudes toward menstruation cannot be considered well-developed psychometric instruments. No reliability or validity data were provided to support their technical adequacy. In addition, the original scale developed by McHugh and Wasser was shortened by both Levitt and Lubin (1967) and Dunham (1970) without any attempt to ensure that the underlying properties of the questionnaire remained intact.

In an effort to move away from conceptualising menstrual attitudes on a single positive-negative dimension the Menstrual Attitude Questionnaire (MAQ) was developed. The MAQ was initially constructed by Brooks, Ruble, and Clark

(1977). Brooks et al. state that the MAQ gave subjects "the opportunity to respond to attitude items that reflected potentially important aspects of the cycle, such as keeping in touch with one's body and styles of dealing with menstruation" (p.290) rather than administering a scale containing solely negative items. The original 46 item scale was constructed to represent five categories: Beliefs about physiological and psychological concomitants of menstruation, styles of dealing with menstruation, menstrual-related effects on performance and general evaluations of menstruation.

Each of the 46 MAQ items was rated on a 7-point Likert scale (disagree strongly = 1; neither disagree or agree = 4; strongly agree = 7). Brooks et al. (1977) initially used the MAQ to examine the attitudes of 191 female students. The original 46 item questionnaire was factor analysed using a principal components analysis with varimax rotation. Five factors were obtained representing the attitudinal dimensions: Debilitating, bothersome, positive, predicted or anticipated and denial of effect. The women sampled by Brooks et al. regarded menstruation as slightly positive and not very debilitating or predictable, although they did not deny that it had some effects. They seemed to perceive the effects of menstruation as relatively minor and to accept such minor effects rather routinely. Menstruation was perceived as more positive than negative by three quarters of the sample. Brooks et al. concluded that "the literature has overemphasised the negative and debilitating aspects and has ignored the positive aspects" (p.296).

In a further investigation using the MAQ, Brooks-Gunn and Ruble (1980) examined the attitudes of two groups of college women (n=190 and n=154). The original 46 item questionnaire was shortened to 33 items for the second sample of women. Five dimensions of attitudes were identified as underlying the MAQ, from both 1980 samples. These five factors were labelled: Menstruation as a debilitating event (Factor 1), menstruation as a bothersome event (Factor 2), menstruation as a natural event (Factor 3), anticipation and prediction of the onset of menstruation (Factor 4) and denial of any effect of

menstruation (Factor 5). The variance that each factor accounted for was not reported.

The results from the 1980 samples were similar to those obtained in the 1977 study using the MAQ. The mean data from Brooks-Gunn and Ruble's 1980 sample suggested that the college women perceived menstruation as natural, somewhat bothersome, and not very debilitating or predictable, although they did not deny that menstruation had some effects.

The quantitative survey research reviewed, conceptualised menstruation on bi-directional scales disregarding the complexities of individual responses. As Parlee (1973) suggests the reliance on positive-negative or good-bad continuums to evaluate menstruation is overly simplistic and does not provide a complete picture of menstrual-related attitudes. Therefore, structured questionnaires make it unlikely for a woman to express the range of beliefs that she has about menstruation.

Research using a qualitative approach

Very few studies have used a qualitative format to assess women's attitudes toward menstruation. In the ones that have adopted a qualitative methodology, attitudes toward menstruation have not been the main focus of these investigations.

Scambler and Scambler (1985) used an in-depth interview format to ask a community sample of 79 women a number of open-ended questions about menstruation as part of a larger study looking at menstrual symptoms and consulting behaviour. Subjects were encouraged by the interviewer to express any positive or negative feelings they may have about the menstrual cycle. The researchers found that responses fell into three broad categories which they labelled: Acceptance, fatalism and antipathy. One quarter of the women accepted menstruation and stated that they experienced no menstrual symptoms. Within this group some subjects were almost apologetic that they had escaped the distress that everyone else seemed to experience. Just over

one quarter of the women held fatalistic attitudes, although seeing their periods as a nuisance they were resigned to the inevitability of menstruation. The so called antipathy group, with just under one half of the subjects, reported absolute dislike of menstruation, ranging from negative feelings of inconvenience to downright hostility.

In a study of 133 college women by Hays (1987), the relationship between menstrual attitudes and the use of menstrual euphemisms was examined. Respondents' attitudes toward menstruation were based on responses to a question asking women to describe, in a written form, their current feelings about menstruation. Only five percent of the sample reported positive feelings about menstruation. The majority of the subjects expressed negative feelings with the remainder reporting neutral attitudes toward menstruation.

In both of these studies, women's attitudes toward menstruation were described as being only positive, neutral or negative. In categorising the data in this manner, much of the meaning each individual subject gave to menstruation was unavailable for interpretation. It is likely that subjects exhibited a varying combination of attitudes about menstruation that may have been difficult to categorise under a single dimension of attitude. Therefore the advantage of the qualitative approach, to explore in depth the meaning each woman gives to menstruation, was not fully used.

Conclusions

The early studies using structured questionnaires described women as having either neutral or slightly positive attitudes toward menstruation. The investigations by Brooks et al. (1977) and Brooks-Gunn and Ruble (1980) demonstrated that attitudes toward menstruation are complex and include both positive and negative directions. The descriptions provided by the qualitative approaches reported women as having either negative or neutral attitudes toward menstruation.

Both research approaches used in the literature have methodological limitations and do not provide a full account of the multi-dimensionality of attitudes toward menstruation. It is apparent that before any conclusions are able to be made on women's attitudes toward menstruation, a more thorough investigation is required, combining the quantitative and qualitative methods.

CHAPTER 4

RATIONALE AND AIMS

A number of recommendations have recently been made for future research into menstruation. Golub (1981) emphasises the need for "more qualitative data such as those obtained through interviews or case studies" (p.134). Similarly, Koeske (1983) recommends the adoption of alternative methodologies that would emphasise the "insider" perspective on menstruation. Koeske states:

> "Trends have resulted in a dominance of "outsider" views of the menstrual cycle over "insider" views and a preference for scientific expertise over experience as the arbiter of truth" (p.3).

It was the intention of this study to begin to redress this imbalance by investigating the thoughts, feelings and actions that women have about menstruation. The aim was to provide two types of descriptions of attitudes: A depiction of group attitudes, and a portrayal of attitudes toward menstruation on an individual level. To achieve this aim two complementary methodologies - the quantitative survey research followed by a qualitative interview approach - were adopted.

METHODOLOGY RATIONALE

The use of both quantitative and qualitative techniques allowed for a more thorough investigation of the area of women's attitudes toward menstruation than would have been obtained if just one of these methodologies was employed. Swanson & Chenitz (1982) state that qualitative and quantitative methodologies need not compete with each other as both have a place in social science research. When used together, these methodologies complement each other by providing different information about the phenomenon under investigation.

One of the major strengths of survey research is that it is capable of providing information about a large number of subjects. Through the use of statistical analyses, survey research is able to meet the scientific criteria for reliability, validity and objectivity. Normative data can therefore be succinctly described. A limitation of using survey research is that this method is unable to examine all of the aspects of the phenomenon under investigation. Swanson and Chenitz (1982) state that "the problem with relying only on large-scale surveys is that they cannot tap the meaning of the behaviour to the subject nor the context which gives meaning to the act" (p.243). Qualitative research is, however, able to go beyond the limitations inherent in quantitative research by emphasising the subjective reality or the nature of "human phenomena or experiences as they are lived and perceived by subjects" (Sandelowoski, 1986, p.30).

Qualitative research can best be described as the systematic study of the world of everyday experience (Swanson & Chernitz, 1982). This general method focuses on the subjective reality or the meanings subjects give to, and derive from, their life experiences (Sandelowski, 1986). The findings generated from a qualitative study are important for the richness of detail that they are able to provide about the subjects' social world. Miles and Huberman (1984) sum up the strengths of qualitative data by stating that "they are a source of well-grounded, rich description and explanation of processes occurring in local contexts" (p.21).

In recent years qualitative research has become increasingly popular among feminist researchers. For this group of researchers, traditional scientific methods are regarded as reducing "the human being under study to an object with many small quantitative units" (Omery, 1983, p.49). A strength of qualitative research is that it attempts to go beyond treating women as the objects of research and instead views women as participating in research. Furthermore, the qualitative interview adopts an idiographic approach so that each unique woman is the focus of study. This is in contrast to a nomothetic methodology

in which the object is to find general laws which subsume individual cases (Abercrombie, Hill & Turner, 1984).

AIMS OF THE PRESENT STUDY

This study was of an exploratory nature and therefore no definite hypotheses or firm expectations were made but the three specific aims of this study were:

1. To identify the factors underlying the MAQ.

A survey approach was used to focus upon the psychometric properties of the MAQ. Firstly, the MAQ was examined in order to determine whether the factor structure obtained by Brooks-Gunn & Ruble (1980) was able to be replicated. Secondly, the MAQ was subjected to a range of factor analytic techniques in order to shed more light upon the way in which attitudes toward menstruation are structured. Furthermore, the robustness of the factor structure was examined across different factor analytic assumptions. The factors were labelled on the basis of the underlying theoretical constructs which they represent. Reliability data was also obtained.

2. To identify the attitudes of New Zealand female university students to menstruation (as measured by the MAQ) and to compare this with available United States data.

The mean responses of subjects on the abbreviated factor scales (composite scales) were provided. In order to explore cultural variations in attitudes toward menstruation, the mean scores of New Zealand university women on the composite scales were examined. To the extent that a similar factor structure was found, the attitudes of the American college women and the New Zealand university women were compared.

3. To explore the attitudes of women toward menstruation using a qualitative interview technique.

The aim of the second stage of this study was to examine what menstruation means to each woman by using an in-depth interview. The factor scores obtained on the MAQ were used to select subjects for interview. In this stage of the study the focus was upon the configuration of beliefs that individual women have about menstruation. The qualitative data was used to elaborate on the attitudes identified in the MAQ as well as to examine in more depth the nature of women's attitudes toward menstruation. Common patterns and themes between subjects, as well as variations of these were illustrated. In addition the responses subjects made in the interview situation were compared with the content of the particular factor on which they were selected.

CHAPTER 5

METHOD

SUBJECTS

Three hundred and forty three female students enroled internally at Massey University participated in the survey phase of this study. Ten subjects from this sample were then selected for interview.

Subjects were volunteers from first year Psychology, Education and History papers and a second year Social Psychology paper. This was a convenience sample. University women were selected to allow comparisons to be made with Brooks-Gunn and Ruble's (1980) sample.

MEASURES

Two measures were used. The Menstrual Attitude Questionnaire (MAQ) and the in-depth, open interview.

THE MENSTRUAL ATTITUDE QUESTIONNAIRE

The MAQ was originally designed in 1980 as a self-report inventory to be used "to explore the nature of women's attitudes toward menstruation and to examine possible dimensions or styles of coping related to menstruation" (Brooks-Gunn & Ruble, 1980, p.503). The MAQ consists of 33 items which subjects rate on a seven point scale such that 1 = disagree strongly and 7 = strongly agree. For an earlier discussion of the MAQ refer to pages 31 to 33. A copy of the MAQ is contained in Appendix A.

The following account is based upon Brooks-Gunn and Ruble (1980). The MAQ was factor analysed on two samples of undergraduate college women (n=190 and n=154) using a principal components extraction with varimax rotation. Seven factors with eigenvalues greater than one were extracted. Two factors containing only two items in each were subsequently excluded. The five factors retained were interpreted as reflecting the following attitudes: Menstruation as a debilitating event (Factor 1), menstruation as a bothersome event (Factor 2), menstruation as a natural event (Factor 3), anticipation and prediction of the onset of menstruation (Factor 4) and denial of any effect of menstruation (Factor 5). The eigenvalues of the retained attitudinal factors and the percentage of variance accounted for, were not reported but Cronbach's alpha values ranged from 0.95 to 0.97.

To enable comparisons to be made to the results obtained in the original analysis, no alterations were made to items within the MAQ or to the scoring format for the purposes of the present study. In the development of the MAQ information was also collected on contraceptive use, length of menstrual flow and knowledge of menopause. As this information was additional to the MAQ, it was not gathered at this stage of the present study. The only additional variable collected was subjects' age.

Since its development, the MAQ has been used in a number of studies. Some of these studies have provided data on the psychometric properties of the MAQ. The following section presents a brief review of the reliability and validity of the MAQ.

Psychometric properties of the MAQ

The relationship between responses on the MAQ and the Menstrual Distress Questionnaire (MDQ) was explored by Brooks-Gunn and Ruble (1980), using two samples of college women (n=190 and n=154). As described by Moos (1968), the MDQ consists of eight symptom scales labelled pain, water retention, negative affect, arousal, autonomic reactions, concentration, behaviour change and control (containing control items which should not

fluctuate across the menstrual cycle). The relationship between current attitudes toward menstruation and menstrual symptoms was examined for three conditions (self report, simulation, and women in general). Perceiving menstruation as natural and bothersome was not related to the MDQ scales. Reporting menstruation as debilitating was related to higher symptom scores on the MDQ pain, negative affect, concentration, behavioural change and autonomic reactions scales. Women who perceived menstruation as predictable were likely to report higher symptomatology on all of the MDQ scales with the exclusion of the arousal and control scales. Women who denied the effects of menstruation reported less severe symptoms on the MDQ scales for both the self-report and women in general conditions, but not the simulation conditions. Given that three of the MAQ factors were related in a common sense direction to the self-reported experience and expectations of menstrual symptomatology, these results provide support for the construct validity of the MAQ.

Using a sample of women from the general population (n=179), Woods et al. (1982) explored the relationship between attitudes toward menstruation as measured by the MAQ and current premenstrual and menstrual symptoms. An adaptation of the MDQ, containing only those scales found to vary significantly across cycle phase (labelled pain, water retention, negative affect and impaired performance) was used to measure premenstrual and menstrual symptoms. A positive and statistically significant relationship was found between seeing menstruation as debilitating and the MDQ premenstrual symptom scales pain ($r=0.29$, $p<.05$), negative affect ($r=0.35$, $p<.05$) and impaired performance ($r=0.40$, $p<.05$). Anticipation of menstruation was positively correlated with the four MDQ premenstrual scales (pain $r=0.38$, $p<.05$; water retention $r=0.32$, $p<.05$; negative affect $r=0.29$, $p<.05$ and impaired performance $r=0.31$, $p<.05$). The debilitation and anticipation factors were also positivley correlated with the MDQ menstrual symptom scales. The factor denying the effects of menstruation was related to all of the premenstrual scales (pain $r=-0.27$, $p<.05$; water retention $r=-0.22$, $p<.05$; negative affect $r=-0.40$, $p<.05$; impaired performance $r=-0.33$, $p<.05$) and all of the menstrual symptom scales except for water retention (pain $r=-0.28$, $p<.05$; negative affect $r=-0.31$, $p<.05$;

impaired performance $r=-0.35$, $p<.05$). Neither seeing menstruation as bothersome or a natural event was related to menstrual or premenstrual symptoms.

Woods et al. (1982) reported the internal consistency and reliability, as measured by Cronbach's alpha, for each factor ranging from 0.80 to 0.93. This suggests that although lower than the values obtained by Brooks-Gunn and Ruble (1980), the internal reliability of each factor remained high. Woods et al. noted that as factor analysis techniques capitalize on item homogeneity these values may be somewhat inflated.

Strauß, Appelt, and Lange (1987) administered a German translation of the American MAQ to a sample of university students ($n=228$). The original 33 items were supplemented by five items about the effects of menstruation and sexuality. For the five factor scales of the MAQ, Strauß et al. reported Cronbach's alpha values in the range of .75 to .83 and test-retest reliabilities ranging from .41 to .92. The test-retest reliabilities were achieved by using a random sample of 20 students who completed the questionnaire twice within five weeks. Strauß et al. suggested that the low coefficient values obtained for three of the scales could be due to these items being more susceptible to short-term change. Subjects may have reacted to completing the MAQ during different phases of their menstrual cycles. The small sample size may have also resulted in imprecise estimates of reliability.

Brown and Woods (1984) used the MAQ to examine the relationship between attitudes to menstruation and the experience of dysmenorrhoea. Self-reported experience of pain during menstruation was found to be negatively related with the factor labelled denial ($r=-0.34$, $p<.001$). A positive correlation was found between the debilitation factor and a woman's experience of pain during menstruation ($r=0.33$, $p<.001$). Given that these results make sense theoretically, this study strengthens the case for the MAQ being a valid measure of women's attitudes toward menstruation.

Ruble, Boggiano, and Brooks-Gunn (1982) examined the relationship between attitudes toward menstruation and the willingness to accept menstrual related excuses as an excuse for negative social behaviour. A sample of 22 female and 16 male students was used. Ruble et al. modified the MAQ so that only four of the attitude dimensions were retained, omitting the items comprising the factor labelled menstruation as a natural event. Their analyses indicated that subjects who agreed that menstruation was a debilitating event, were less annoyed at an irritable premenstrual/menstrual woman, $F(3,33)=10.0$, $p<.05$. According to Ruble et al. subjects who believed menstruation was bothersome were less likely to blame a woman who claimed to be irritable because of menstrual symptoms than subjects who did not perceive menstruation to be bothersome, $F(3,33)=8.8$, $p<.01$. Finally, subjects who denied the effects of menstruation were more annoyed at an irritable premenstrual/menstrual woman, and blamed her more than subjects who were low on the denial factor, $F(3,33)=17.5$, $p<.001$; and $F(3,33)=11.2$, $p<.01$, respectively. In general, Ruble et al. demonstrated that attitudinal factors, as measured by the MAQ, were able to predict the degree of annoyance toward a woman behaving negatively because of menstrual symptoms. These results add further support for the validity of the MAQ.

Siegel (1985/86) used the MAQ to examine the attitudes of Jewish women who practised the Hebrew ritual *mikvah* during menstruation ($n=82$), and Jewish women who did not follow this custom ($n=79$). Siegel reported no significant differences between the attitudes of the women who practised *mikvah* and those who did not. The implications that may be drawn from Siegel's study regarding the validity of the MAQ are limited by the fact that the majority of subjects were described as university educated.

Brooks-Gunn (1985) administered the MAQ to a sample of 156 female college students in order to examine the relationship between two menstrual characteristics - flow and length - to attitudes toward menstruation. Perceptions of flow and regularity were related to four of the five MAQ factors. Those with intense flows perceived menstruation as more bothersome, more debilitating,

less predictable and were less likely to deny the effects of menstruation than women who had lighter flows. In addition, Brooks-Gunn used this sample to examine the difference in the attitudes of Catholic and Protestant women, with light and heavy flows. She reported that the Catholic but not the Protestant women with intense flows were more likely to perceive menstruation as both bothersome and debilitating. These results provide further evidence for the technical adequacy of the MAQ.

Overall, evidence for the psychometric properties of the MAQ strongly supports the internal consistency of each of the underlying factors. Less support is provided for the test-retest reliabilities. The studies reviewed generally demonstrate a pattern of results consistent with that anticipated if the MAQ is in fact a valid measure of women's attitudes toward menstruation. The reliability and validity data gathered so far, is sufficient to warrant the continued exploration and use of the MAQ. Previous findings do, however, indicate a need for further investigation of both the test-retest reliabilities and validity of this instrument.

ADMINISTRATION OF THE MENSTRUAL ATTITUDE QUESTIONNAIRE

The questionnaire was administered to undergraduate students during the first two weeks of the academic year (March 1989). Subjects were approached during lectures and asked to complete the questionnaire at the conclusion of lecture time. Informed consent was obtained through a consent form attached to the front of each questionnaire. A copy of this consent form is contained with the MAQ in Appendix A. Subjects were assured that their responses would be treated confidentially and that their names would be detached from the questionnaire. Questionnaires were administered to subjects within a group setting.

After completing the questionnaire subjects were asked if they were prepared to participate in an interview. They were informed that the aim of this interview

was to further explore their attitudes toward menstruation. Women who agreed to participate in the second stage recorded their names and contact phone numbers on their completed forms. These were available only to the researcher and were detached from the questionnaires prior to analysing the data.

DATA ANALYSIS OF THE MENSTRUAL ATTITUDE QUESTIONNAIRE

The Statistical Package for the Social Sciences, SPSS^x, (SPSS Inc. 1983) was used for analysing the data collected from the questionnaire. The following procedures were used:

1. Descriptive statistics to describe the age distribution of the population and to summarize the means and standard deviations of responses to each item in the MAQ.

2. Bivariate statistics in the form of Pearson's product-moment correlation coefficients to examine the intercorrelation among variables.

3. Factor analyses. The first aim of the study involved identifying the factor structure underlying the MAQ (refer to page 38). In order to accomplish this aim both principal components and factor analytic techniques were used. An overview of the factor analytic techniques used is given in Table 1.

The main difference between the principal components and factor analytic methods lies in the way the variance is analysed. In the latter only shared variance is analysed, with variance due to errors of measurement and variance that is unique to each variable being eliminated.

Table 1: Summary of the factor analytic techniques used in the study

Extraction	Rotation	No. of Factors Extracted
Principal Components Analyses	Varimax	5 8
	Oblique	5 8
Factor Analyses	Varimax	5 8
	Oblique	5 8
Minres	Varimax	5
	Oblique	5
Maximum Likelihood	Oblique	5

One of the difficulties in applying principal factors analyses has been that of estimating communalities. The two other factor analytic solutions selected, Minres (GLS) and Maximum Likelihood, make communality estimation part of the overall problem in that they seek to estimate the communalities simultaneously with the factor loadings (Cliff, 1987).

A Minres (minimum residual) solution was examined for both an orthogonal and oblique rotation. Minres differs from principal factors method in that the factor solution is obtained by minimizing the residual correlations (Harman, 1976). Unlike principal factors, only the off-diagonal differences are considered and the diagonal of the correlation matrix is ignored. As the diagonal elements represent the overlap of the variable with itself they are of no interest (Gorsuch, 1983).

The generalised least squares (GLS) factoring method is derived from minimum residual analysis. It also seeks to minimize (off-diagonal) squared differences between observed and reproduced correlation matrices but in this case weights are applied to variables. Specific factors, error variances or uniqueness are not involved (Gorsuch, 1983). Rather differences for variables that have substantial shared variance are weighted more heavily than differences for variables that have substantial unique variance (Tabachnick & Fidell, 1989).

The final factor analytic technique employed was a Maximum Likelihood (ML) factor extraction. In a ML procedure it is explicitly recognised that a sample is being analysed. Population values for factor loadings are estimated by calculating loadings that maximize the probability of sampling the observed correlation matrix from a population (Tabachnick & Fidell, 1989). Harman (1976) states that the question of orthogonal or oblique rotation is of no consequence in the ML procedure.

Goodness-of-fit was calculated for each solution. Goodness-of-fit deals with the issue of the reproducibility of the correlation matrix. In essence it compares the reproduced matrix with the original correlation matrix. Unfortunately the SPSS^x package does not provide an overall index of goodness-of-fit for the factor models. Although SPSS^x reports how much of the total variance is accounted for, the proportion of shared variance explained for by a principal factors model is not provided. This is due to the eigenvalues that are necessary to assess fit not being reported.

Cliff (1987) circumvents this deficiency by using the eigenvalues from the principal components analysis to estimate the eigenvalues from the factor analysis with the following formula:

$$\Sigma\lambda^2 cf = \Sigma\lambda^2 pc - p + \Sigma(h_j')^2$$

(p.377)

Where $\Sigma\lambda^2 cf$ is the sum of square eigenvalues from the factor analysis, $\Sigma\lambda^2 pc$ is the sum of the squared eigenvalues from the principal components analysis,

p is the number of variables and $\Sigma(h_j')^2$ is the sum of the squared output communalities.

The goodness-of-fit is then calculated by obtaining the ratio of the sum of the squared eigenvalues in reduced form ($\Sigma\lambda r^2$) to the sum of all the squared eigenvalues from the factor analysis ($\Sigma\lambda^2 cf$).

To calculate the goodness-of-fit for the principal components models, the sum of the squared eigenvalues in reduced form was divided by the total sum of the squared eigenvalues.

Factor scores were calculated using regression estimates for the factor scales of the preferred model. Mean scores obtained by subjects on the composite scales were also calculated by taking the sub-group of items with salient loadings (≥0.40) in each factor and reversing the signs of items where necessary.

4. Reliability of composite and full factor scales were determined. The diagonal of the covariance matrix was used to ascertain the reliability of the factor scales. For the composite scales, alpha reliability tests were used for the sub-group of items making up each composite scale.

THE INTERVIEW

The interview schedule was constructed on the basis of areas identified in past research as contributing to women's attitudes toward menstruation (refer to Chapters 1 to 3). The following issues were explored in the interview: The use of euphemisms to describe menstruation, preparation for menarche, knowledge about the physiological aspects of menstruation, menstrual history, attitudes toward eliminating menstruation, basis of menstrual cramps, myths concerning menstruation, enjoyment and dislike of menstruation, advantages and disadvantages of menstruation, awareness of ovulation, premenstrual

experiences, menstrual experiences, effects of birth control, interference to activities, attitudes of significant others, ability to discuss menstruation with others, cultural practices, attitudes toward sex during menstruation, effect on intellectual performance, advertising on television and sex role orientation. A copy of the interview schedule is contained in Appendix B.

ADMINISTRATION OF THE INTERVIEW

On the basis of their responses to the questionnaire, ten subjects were selected for the second stage of this study. A full account of this selection process is given on page 77. Subjects were contacted by phone approximately three months after completing the questionnaire. All ten women agreed to participate in an interview. Subjects were then re-contacted two weeks later and a suitable time to be interviewed was arranged.

All interviews took place within the consulting rooms of the Applied Psychology Clinic at Massey University. Permission was obtained from subjects for the interviews to be tape recorded. Subjects were assured that the tape recordings would be erased after the interview had been transcribed. The consent form used in this stage of the study is contained in Appendix B.

Each subject was asked the same open-ended questions. Although efforts were made to standardise the order in which questions were presented, on occasions this varied slightly between subjects. This was due to subjects raising issues relating to other areas earlier in the interview situation. Where appropriate, further questions were asked so as to expand upon or clarify responses made by the subject.

Although demographic data was collected from subjects at the end of each interview, little reference is made to this in the results due to the sheer complexity of the information gathered. Questions were asked regarding the participant's age, ethnic background, occupation prior to becoming a student,

marital status, religious upbringing, current religious practices, previous pregnancies, number of children, medical reasons that may prevent future pregnancies and current method of birth control if any. Interviews ranged in length from 30 minutes to two hours.

DATA ANALYSIS OF THE INTERVIEW

Data analysis proceeded through several stages. Firstly, interview tapes were transcribed verbatim and then erased. Material was read through several times to gain the flavour of each woman's responses. Secondly, data was grouped for each subject under headings which generally corresponded to the issues outlined on pages 49 to 50. For example all responses relating to menarcheal experiences made by a subject were grouped together. Grouping the data in this manner allowed for subjects' responses to be compared for common themes and attitudes. Where applicable subjects' responses to issues raised in the interview were also compared with their responses to items on the MAQ.

Finally, extracting meaning from subjects' responses was guided by the techniques of pattern-matching and explanation-building (Yin, 1984). In the first technique, the pattern established from a case-study is compared with one that has been predicted. Pattern matching was used on a number of occasions to describe common themes and patterns in responding. For example the responses made to issues raised in the interviews were compared with the outcomes of previous research. This technique was also used to compare alternative patterns of beliefs among subjects. Illustrative excerpts describing typical and atypical patterns of responding were reported. In the second technique described by Yin, explanation-building, the goal of the analysis is to build an explanation about the case. Explanation-building searches for causal links which are able to explain the phenomenon under investigation. In the current investigation, data analysis involved examining the beliefs that each woman had about menstruation and attempting to establish links among these beliefs.

CHAPTER 6

SURVEY RESULTS

A sample size of over 330 cases was chosen so as to meet the criterion of at least ten observations per variable, if reliable factor analyses are to be conducted (Nunnally, 1978). Analyses were conducted on 342 cases, one having been omitted because of missing data.

The age range was from 16 to 55 years. The mean age was 21.65 years and the median age was 19 years. The majority of the sample (70.3%) were 20 years of age or under. A total of 63 subjects (18.4%) agreed to be interviewed. The ages of these women ranged from 17 to 52 years. The mean age of women who volunteered to be interviewed was 26.73 years. The five year difference between the mean age of women agreeing to be interviewed and the mean age of the sample suggests that older subjects were more willing to discuss their attitudes toward menstruation than younger subjects.

Mean responses and standard deviation for responses to MAQ items

The range of possible responses to the MAQ scale extend from 1 (strongly disagree) to 7 (strongly agree). The full response range was used for every item of the scale. The mean responses and standard deviations are reported in Table 2.

Table 2: Mean responses and standard deviation for each of the MAQ items

Item	Description	Mean	Standard
1.	A woman's performance in sports is not affected	4.03	1.71
2.	I feel as fit	3.60	1.86
3.	Something I just have to put up with	5.16	1.68
4.	An indication of good health	4.39	1.71
5.	Weight gain	4.97	1.42
6.	Cramps are bothersome only if one pays attention	2.52	1.68
7.	Women are more tired than usual	4.82	1.49
8.	Women may not perform as well	3.29	1.60
9.	A way to keep in touch with my body	3.99	1.57
10.	Affirmation of womanhood	4.34	1.62
11.	My moods are not influenced	2.71	1.77
12.	Barely notice the effects	3.25	1.75
13.	Expect extra consideration	2.53	1.54
14.	I can't expect as much of myself	3.14	1.76
15.	I enjoy my menstrual periods	2.28	1.59
16.	Can tell my period is approaching	5.66	1.65
17.	Others should not be as critical	5.51	1.33
18.	Effects no greater than usual	3.61	1.47
19.	Doesn't effect my intellect	4.71	1.83
20.	Men have an advantage	5.34	1.67
21.	Example of the rhythmicity of life	4.70	1.32
22.	More easily upset	5.14	1.65
23.	Attributing irritability to period is neurotic	2.51	1.51
24.	Doesn't interfere with my usual activities	5.72	1.46
25.	Get it over in a few minutes	5.00	2.01
26.	Allows women to be aware of their bodies	4.54	1.43
27.	Learned to anticipate it by mood changes	4.44	1.74

Table 2: Contd.

Item	Description	Mean	Standard
28.	Menstrual distress just an excuse	2.45	1.48
29.	Can interfere with my performance in sports	3.92	1.64
30.	Avoiding certain activities wise	3.23	1.65
31.	Only good to let me know I'm not pregnant	4.27	1.96
32.	Make too much of the effects	3.27	1.43
33.	Premenstrual tension is in a woman's head	1.94	1.34

The results from Table 2 show that the mean response for nine out of the thirty-three MAQ items was between 3.5 and 4.5 (the "neither agree nor disagree" position of the scale). Three items (16, 17, and 24) had a mean response greater than 5.5. The content of these items that subjects agreed with were: Being able to tell when a period was approaching, not being critical of a woman who is upset prior to her period and not allowing menstruation to interfere with activities. A further three items (15, 28, and 33) had a mean response less than 2.5. The content of these items that subjects disagreed with were: Enjoying menstruation, menstruation being used as an excuse and premenstrual tension not being real.

Table 2 also shows that the standard deviation scores fell within a narrow range. The highest standard deviation value was 2.01 for item 25. The limited range of standard deviation values indicates that the attitudes expressed by subjects were reasonably homogeneous.

BIVARIATE STATISTICS

Pearson's product-moment correlation coefficients were obtained to examine the inter-correlation amongst items. The correlation matrix for the thirty-three MAQ items is reported in Appendix C. Examination of the bivariate statistics showed that the majority of items were significantly correlated with each other ($p<.001$). The magnitude of the correlations ranged from 0 to 0.62. The largest correlations were obtained for items 22 and 11 which both dealt with upset in moods and items 9 and 26 which were both concerned with keeping in touch with a woman's body. The pattern of correlations was coherent in that the direction of the signs followed commonsense expectations.

A positive correlation ($r=0.35$; $p<.001$) was found between age and volunteering to be in an interview suggesting that older subjects were more willing to be interviewed than younger subjects.

FACTOR ANALYSES

Overview

The statistical analysis of the MAQ was based on two objectives. The first was to identify the constructs (factors) underlying the MAQ. A number of analyses were performed in an effort to find the model which was best able to explain the factor structure of the MAQ. As well as searching for a factor structure that was able to make sense of the items in the MAQ it was necessary to consider how much variance was explained by each solution. One way in which to explore the issue of variance is to examine how well each solution "fitted" the original correlation matrix. The analyses performed varied in the number of factors that were extracted, whether principal components or principal factors analysis was used and the rotation technique to which the solution was subjected. The second objective on which the data analysis was based, was that of using the resultant factors as a means of identifying subjects for purposes of an interview.

The factor analytic techniques used in this study are presented in Table 1 on page 47.

Detailed information was provided in the main body of the text about the solution from which factor scores would be calculated and that would form the basis for selecting subjects for the interviews. The results that were not subsequently used are contained in the Appendices. In order to decide upon a model to label, goodness-of-fit indices were calculated for each analysis. In addition the simple structure and psychological interpretability of each model was also examined. Details of the labels given to the factors of the preferred model, as well as factor scores and alpha reliability tests are provided in the following chapter.

1. Principal components analysis for a five factor solution using orthogonal rotation.

In an attempt to replicate the analysis of Brooks-Gunn and Ruble (1980) a principal components analysis for a five factor solution using orthogonal (varimax) rotation was performed. The composite factors obtained by Brooks-Gunn and Ruble are reported in Appendix D. Full factor scales were not reported in the 1980 article.

In principal components analysis all the variance in the observed variables is analysed and no differentiation is made between common, unique and error variance. As a result of this, communalities are taken as being 1.0. The eigenvalues for all of the factors extracted in the principal components analysis are reported in Appendix E. Forty-seven percent of the variance was accounted for by extracting five factors. This means that over half of the variance remained unexplained and suggests the need to explore further factor analytic techniques. Rotating these five components orthogonally yielded the factor structure reported in Appendix F. The factor structure was examined to determine which items reached salient loadings in each factor. A salient loading is taken as being an item that loads at a level of 0.40 or greater. Examination of items with salient

loadings showed that all items loaded into at least one factor. Item 15 was found to load into two factors. One third of the items (accounting for 19.2% of the variance) were found to load into the first component extracted.

The main difference found between the current analysis and that performed by Brooks-Gunn and Ruble (1980), was a failure to replicate their Factors 1 (menstruation as a debilitating event) and 4 (anticipation and prediction of the onset of menstruation). Items that had salient loadings in Brooks-Gunn and Ruble's (1980) Factor 1, were found to load either into the first or fourth factors extracted in the current analysis. Those items which in the original analysis had salient loadings in Factor 4 were currently found to load greater than 0.40 in the first factor. The other three factors identified in the original analysis - menstruation as a bothersome event (Factor 2), menstruation as a natural event (Factor 3) and denial of any effect of menstruation (Factor 5) - were all closely replicated.

2. Principal components analysis for a five factor solution using oblique rotation.

The assumption underlying the use of a varimax rotation is that the factors are uncorrelated. Because constructs in the real world are rarely uncorrelated, Harman (1976) suggests that oblique rotation more accurately represents the complexity of the examined variables. Ford, MacCullum, and Tait (1986) also argue that it is more sensible to rotate the factors obliquely and then determine the orthogonality assumption. In forcing the factors to be uncorrelated, Brooks-Gunn and Ruble (1980) presupposed that the attitudes underlying the MAQ had no relationship with one another. It is, however, highly probable that the attitudes reflected in the MAQ would be correlated with each other to some degree. Given the likelihood of menstrual attitudes sharing some degree of overlap with each other, it was decided to subject the five factor solution to an oblique (direct oblimin) rotation.

In an oblique rotation, the factor correlation matrix contains the correlations among factors. The loading matrix from the orthogonal rotation is split into two matrices: The structure and pattern matrices. The structure matrix consists of correlations between factors and variables and the pattern matrix describes the unique relationships (uncontaminated by overlap among factors) between each factor and each observed variable (Tabachnick & Fidell, 1989). Following oblique rotation Tabachnick and Fidell (1989) recommend ascertaining the meaning of factors from the pattern matrix. For this reason, only the pattern matrix will be referred to although the structure matrix, for both this and subsequent oblique transformations, was examined and found to show a similar pattern of loadings to that obtained in the pattern matrix.

The loadings of items from the principal components analysis with oblique rotation are reported in Appendix F. One of the items (item 13) failed to load above 0.40 on any factor in the pattern matrix. No multiple salient loadings were found. The items which had salient loadings when the factors were rotated orthogonally also had salient loadings when an oblique transformation was used.

In principal components analysis the first component extracted represents the largest amount of variance, and each succeeding component accounts for decreasing amounts of variance. When the oblique rotation was performed a similar underlying factor structure was obtained although the order in which those factors were extracted had altered. For example items with salient loadings in the second component extracted using an oblique rotation (items 4, 9, 10, 15, 21, and 26) comprised the third component under an orthogonal rotation.

Examination of the factor correlation matrix showed fairly weak correlations, ranging from 0 to -0.28, among factors. The factor correlation matrix is reported in Appendix G. The failure to find notable differences between the orthogonal and oblique rotations, combined with the lack of correlation among factors, suggests that the components may be representing independent attitude

constructs. These results therefore support Brooks-Gunn and Ruble's (1980) use of an orthogonal rotation technique.

The five component extraction gave a value of 0.83 for the model's goodness-of-fit. This indicates that the reproduced correlation matrix was an acceptable reproduction of the original matrix.

3. Principal components analysis for an eight factor solution using orthogonal and oblique rotations.

Kim and Muller (1978) and Weiss (1976) have argued in principal components analysis for the application of the Kaiser Criterion (Kaiser, 1970) of retaining factors with eigenvalues greater than one. In the current analysis eight components were identified with eigenvalues greater than one, accounting for 58% of the variance (refer to Appendix E). The loadings of items on each of the eight factors for both varimax and oblique rotations are reported in Appendix F.

In general, examination of the pattern of loadings from Appendix F suggested that eight factors were too many to extract. Under an orthogonal rotation, the eighth factor contained a singlet (i.e. had only one item with a salient loading) while the seventh factor contained doublets (i.e. had only two items with salient loadings). In terms of Thurstone's (1947) concept of simple structure, three items loaded into more than one factor while one item failed to load into any factor. Items with salient loadings in the first four of the eight factors were the same as had been found when five factors were extracted. Brook-Gunn and Ruble's (1980) Factors 2, 3, and 5 were all closely replicated.

By allowing the eight factors to be correlated (i.e. by using an oblique rotation), three of the thirty-three items failed to reach salient loadings on any factor in the pattern matrix. Another five items loaded above 0.40 on two factors. Only one item was found to reach a salient loading on the eighth factor. Although Brooks-Gunn and Ruble's (1980) Factors 3 and 5 were closely replicated the other factors were not as clear.

Weak correlations, ranging from 0 to 0.31, were found among factors. This suggests that the factors are not very highly correlated and may have accounted for the minimal difference found between using an orthogonal or oblique rotation. The factor correlation matrix is reported in Appendix G.

Critics of the Kaiser Criterion have argued that this criterion incorrectly estimates the number of factors (Tucker, Koopman & Linn, 1969). For instance in the current analysis components with eigenvalues barely over 1.0 (1.10 and 1.12) were extracted while components just under 1.0 (0.97 and 0.95) were arbitrarily excluded. In summary, by using the Kaiser criterion, only an additional ten percent of the variance was accounted for and the factors produced contained singlets and doublets. In terms of the first aim of this study, the eight factor extraction failed to reproduce a similar factor structure to that obtained by Brooks-Gunn and Ruble (1980) and may not have resulted in a more interpretable factor structure.

The goodness-of-fit value for the eight component extraction was 0.89, a six percent increase on the five component solution. This indicates that extracting an additional three components improved the fit of the reproduced correlation matrix to the original correlation matrix, although only by a small amount.

4. Principal factor analysis for a five factor solution using orthogonal and oblique rotations.

In order to separate out variance specific to each variable and variance caused by errors in measurement, it was decided to explore a factor analytic solution. This was due in part to the fact that for the five factor solution, principal components analysis accounted for less than half of the variance. The main theoretical difference between principal components analysis and principal factors analysis is that the latter method includes error explicitly in the model (Gorsuch, 1983). Comparisons of the two methods in a Monte Carlo study, showed that the principal factors analysis was a more accurate procedure for reflecting the population pattern. Principal components analysis was found to

produce solutions that differed from the population pattern, particularly when low loadings and few variables were used (Snook & Gorsuch, 1989). In addition it makes more theoretical sense to eliminate variance due to unique factors or errors of measurement, and to analyse only the variance that is shared between items. Both orthogonal and oblique rotations were considered with a five factor solution being initially examined.

For the principal axis factoring, squared multiple correlations were used as communality estimates. The resultant solutions were rotated using varimax and direct oblimin procedures. As the orthogonal and oblique rotations gave virtually identical results only the latter will be discussed. Item 13 failed to load into any factor at a level greater than 0.40. A further four items (5, 6, 17 and 18), all had loadings slightly less than 0.40 although item 18 loaded under an orthogonal solution. As the five factor solution for the oblique rotation will be discussed further it is reported in Table 3. The five factor solution for an orthogonal rotation is contained in Appendix F. Communality estimates are also given in this Appendix.

Comparisons between the component and factor solutions showed few differences between these two extraction techniques. Principal components and principal factor analyses produced essentially the same factor structures and patterns. Using Harris's (1967) definition of a robust factor as one that consistently has two or more items with loadings of 0.3 or higher, regardless of the factor analytic method used, five "robust" factors emerged consistently across extraction and rotation methods.

Since the factor correlation matrix obtained for the oblique solution will be discussed further it is reported in Table 4. Inter-correlations between factors ranged from 0.01 to -0.41. Factors 1 and 5 appear related in content and are correlated in the solution.

Table 3: Principal factors analysis: Communality estimates and factor loadings from a five factor solution using oblique rotation

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.34	.11	-.00	.00	**.52**	-.04
2	.59	.26	.11	.01	**.55**	-.14
3	.18	.03	.06	**.41**	.12	.03
4	.31	.03	**.57**	.09	-.05	.03
5	.22	-.39	.21	.18	.07	.02
6	.23	.07	.07	.03	.16	-.36
7	.29	**-.46**	-.06	.08	-.21	-.08
8	.19	-.07	.05	.02	**-.43**	-.14
9	.63	-.07	**.69**	-.29	.00	.01
10	.51	-.01	**.68**	-.16	-.10	-.03
11	.48	**.59**	.02	-.02	.01	-.18
12	.51	**.49**	-.01	.02	.21	-.23
13	.25	-.31	-.05	-.24	-.16	.08
14	.32	-.26	-.07	-.03	**-.40**	.02
15	.49	.01	.37	**-.53**	.08	-.02
16	.34	**-.59**	.09	.02	.09	.03
17	.15	-.04	.04	.08	-.01	.38
18	.36	.39	.18	.17	.07	-.21
19	.31	**.43**	.18	.13	.19	.02
20	.38	-.17	-.02	**.54**	-.19	-.06
21	.33	-.01	**.58**	.02	-.08	.01
22	.61	**-.66**	.02	.07	-.00	.22
23	.51	.03	.01	.08	-.03	**-.69**
24	.22	-.11	.04	-.02	**.46**	-.13
25	.36	-.04	-.16	**.56**	-.04	.00
26	.46	-.17	**.56**	-.22	.12	-.07
27	.49	**-.64**	.16	.05	.06	.13
28	.60	-.06	-.03	.03	.05	**-.78**
29	.34	-.04	.01	-.17	**-.50**	.11
30	.22	.10	.12	.09	**-.49**	.01
31	.35	-.02	-.20	**.51**	-.05	-.08
32	.59	.08	.21	.25	.00	**-.62**
33	.50	.09	-.07	-.10	-.04	**-.68**

Table 4: Principal factors analysis: Factor correlation matrix from a five factor solution.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00				
Factor 2	-0.05	1.00			
Factor 3	0.01	-0.13	1.00		
Factor 4	0.33	0.14	0.01	1.00	
Factor 5	-0.41	-0.08	-0.15	-0.21	1.00

Cliff's (1987) algorithm (refer to page 48) was used to calculate goodness-of-fit for the five factor solution. This resulted in a value of 0.97 being obtained. Comparing the goodness-of-fit values obtained for the principal components and principal factors solution, showed that the latter extraction resulted in a closer fit of the reproduced correlation matrix to the original matrix.

5. Principal factors analysis for eight factors using orthogonal and oblique rotations.

Examination of the eight factors extracted using the Kaiser criterion, again showed few differences between the orthogonal and oblique solutions. The additional three factors all contained doublets or singlets. For both solutions several items loaded under 0.40 (for the orthogonal transformation these were items 3, 5, 6, 13 and 17 and items 5, 6, 7, 13, 17 and 19 for the oblique solution). Item 15 loaded into two factors for the oblique rotation and item 18 loaded into two factors for both solutions. The eight factor solutions for both the orthogonal and oblique rotations, with communality estimates, are contained in Appendix F.

The first four factors were similar to those extracted under the five factor solution. The fourth factor that had been extracted under the five factor solution (containing items 1, 2, 8, 14, 24 29 and 30) was, however, split into four for the

eight factor solution. Both the principal components and principal factors extraction techniques produced a similar structure and pattern of loadings for the eight factor solutions.

The factor correlation matrix for the oblique eight factor solution is reported in Appendix G. The inter-correlations among factors ranged from 0 to 0.43. The highest inter-correlations were found between the first and third factors extracted. These factors showed a similar pattern of item loadings to the first and fifth factors extracted under the five factor solution, which Table 4 showed were also moderately correlated.

Cliff's (1987) equation was used to calculate the goodness-of-fit for the eight factor, principal factors solution. The resultant value of 0.98 was only a one percent improvement on that obtained for the five factor, principal factors solution. This suggests that the five factor solution is an acceptable model, as there was only a minimal increase in the variance that was accounted for when an additional three factors were extracted. Furthermore, this result supports the use of a principal factors rather than the principal components solution used by Brooks-Gunn and Ruble (1980).

The five factor solution was considered preferable to an eight factor solution for several reasons. These were: Harris's (1967) criterion, the interpretability of the results, the fact that the additional three factors had only one or two items loading on them and the minimal increase in goodness-of-fit gained through the use of the eight factor model. Before choosing the final solution to label, it was decided to subject the reduced correlation matrix to further factor analytic extraction techniques.

6. Minres analysis for a five factor solution using orthogonal and oblique rotations.

A Minres (minimum residual) solution, using the generalised least squares factoring method, was examined for both an orthogonal and oblique rotation. Since these results were not subsequently used they are reported in Appendix F. The main differences found between the orthogonal and oblique solutions was that item 15 loaded into two factors in the orthogonal transformation but into only one factor in the oblique. Otherwise the two solutions had a similar pattern of item loadings into factors. Four items (5, 6, 13 and 17) failed to reach a loading of 0.40 or greater. The items with salient loadings for the five factors were the same as were found for the previous extraction techniques, giving support for the robustness of the underlying factor structure.

The factor correlation matrix for the oblique transformation is reported in Appendix G. Inter-correlations among factors ranged from 0 to 0.43 which were similar to those found in the principal components and principal factors analyses.

A value of 0.95 was obtained for the goodness-of-fit of the five factor Minres solution which indicated that the estimated correlation matrix closely reproduced the sample correlation matrix. This value was slightly less than that obtained for the principal factors, five factor model.

7. Maximum Likelihood analysis for a five factor solution using oblique rotation.

A Maximum Likelihood (iterated principal factors) for five factors with oblique rotation was obtained. The resultant solution is reported in Appendix F. Seven items failed to load at a level greater than 0.40. Three of these items (3, 24 and 30) had salient loadings in the previous extractions. No items loaded into more than one factor. In general, a similar pattern of loadings was obtained for the principal factors and Maximum Likelihood extractions.

The factor correlation matrix for the Maximum Likelihood analysis is reported in Appendix G. Values ranged from 0.02 to 0.46. The correlations among factors were similar to those obtained by the previous extraction techniques.

Cliff's (1987) equation was used to calculate the goodness-of-fit. The resultant value was 0.96. This was a one percent improvement on the value obtained for the Minres solution although still slightly less than those calculated for the principal factors solutions.

In summary, it would appear that the use of Minres and Maximum Likelihood analyses did not provide a different factor structure from that obtained by the principal components and principal factors methods. Although both of these models closely reproduced the original correlation matrix, the goodness-of-fit values for each were slightly less than those obtained for the principal factors solutions.

SUMMARY OF ANALYSES

The decision about which factor analytic solution to label was based upon a number of criteria. These criteria were: Goodness-of-fit, simple structure and psychological interpretability. The eight factor solutions were rejected because of factors containing doublets or singlets, failure of items to reach salient loadings, difficulties in interpretation and because they only minimally increased the goodness-of-fit.

The goodness-of-fit indices previously calculated for the five factor solutions favoured the principal factors solution as the preferred model. The earlier analyses revealed few differences between the orthogonal and oblique transformations of the five factor, principal factors solutions. Following examination of both solutions it was decided to label the oblique rotation. The decision to label the oblique solution was based in part upon the fact that Table 4 revealed a moderate correlation between two factors. Furthermore, labelling

the oblique rather than the orthogonal solution has been demonstrated as making greater theoretical sense (Ford et al.,1986; Harman, 1976).

In terms of the first aim of this study (refer to page 38), five orthogonal factors were found to underlie the MAQ. These factors differed from those obtained by Brooks-Gunn and Ruble (1980). The factor structure was robust in that it did not vary markedly across different factor analytic techniques. The labels given to the five factor principal factors solution, using an oblique transformation, are discussed in the following chapter.

CHAPTER 7

LABELLING AND RELIABILITY OF THE FACTORS

The previous section concluded that the model best able to explain the factor structure underlying the MAQ was the five factor, principal factors solution with an oblique rotation. In the following section, the labels given to the factors and the reliability of both the full and composite factors are presented. The composite scales (consisting of items with loadings 0.40 or greater) are reported and compared to the scales obtained by Brooks-Gunn and Ruble (1980). The mean scores obtained by subjects on the composite scales are discussed and compared where possible to the results of the American University students. Factor scores are also presented. The factor scores of the women who volunteered to be interviewed are compared to the factors scores of the rest of the sample. Finally, the method used to select subjects for the interview stage of the study is described.

LABELLING OF FACTORS

Table 3, reported in the previous chapter, was examined prior to deciding upon the label for each factor. The direction for the labels was chosen in such a way so as to simplify the discussion of the contents of each factor and to avoid conceptual confusion given the negative phrasing of some items.

The first factor summarizes those items in the MAQ that deal with pre-menstrual or menstrual changes. The label given to the first factor was **physical, emotional and intellectual changes.** The items with the highest loadings in this factor are those to do with changes in mood prior to, or during menstruation. Overall, this factor reflects subjects' own experiences of the emotional, physical and intellectual changes that may accompany menstruation. The content of other items with high loadings reflect concerns about the

physical changes that may occur in the menstrual cycle including increased tiredness, weight gain and signs of the approach of menstruation. An additional item dealing with changes in intellectual ability also loaded highly into this factor.

The second factor is constructed out of those items which describe menstruation as a natural event and part of being a woman. This factor strongly resembles the factor Brooks-Gunn and Ruble (1980) labelled menstruation as a natural event. The label used by Brooks-Gunn and Ruble, **menstruation as a natural event**, was retained. Items in this factor loaded in a positive direction. Overall, this factor provides a positive view of menstruation.

The third factor summarizes those items dealing with the inconvenience and hassle of menstruation. This factor highlights that menstruation is an event that women endure and do not necessarily enjoy. An example of the inconvenience of menstruation is reflected in the item proposing that menstruation last only for a few minutes. The label given to this factor was **menstruation as an inconvenience**.

The fourth factor was labelled **disruption to usual performance and activities**. Items summarized in this factor deal with menstruation affecting a woman's overall performance, including her performance in sporting activities. The content of items in this factor also indicate an avoidance of particular tasks.

The final factor to be isolated was labelled **acceptance of premenstrual tension**. Items with salient loadings in this factor are related to the concept of premenstrual tension and the validity of this concept.

The first and fifth factors had a moderate negative correlation of 0.41. These two factors were concerned with premenstrual and menstrual related changes and the concept of premenstrual tension. The other three factors, menstruation as a natural event, menstruation as an inconvenience and menstruation as a disruption to usual performances and activities, were generally orthogonal. This

indicates that these three factors represented discrete attitudinal domains underlying the MAQ.

COMPOSITE SCALES

Composite scales were constructed from the factor scales reported in Table 3 so as to allow comparisons to be made with the scales reported by Brooks-Gunn and Ruble (1980). Composite scales consist of only those items which loaded highly into factors. The convention of taking 0.40 as the level for inclusion of a variable into a composite factor was adopted. The items contained in the composite scales are reported in Table 5.

Table 5: Items loading into composite scales

Item	Loading	Description
	1. Physical, Emotional and Intellectual Changes	
7	-.46	Women are more tired than usual
11	.59	My moods are not influenced
12	.49	Barely notice the effects
16	-.59	Can tell my period is approaching
19	.43	Doesn't effect my intellectual tasks
22	-.66	More easily upset
27	-.64	Learned to anticipate it by mood changes
	2. Menstruation as a Natural Event	
4	.57	An indication of good health
9	.69	A way to keep in touch with my body
10	.68	Affirmation of womanhood
21	.58	Example of the rhythmicity of life
26	.56	Allows women to be aware of their bodies

Table 5: Contd

Item	Loading	Description
	3. Menstruation as an Inconvenience	
3	.41	Something I just have to put up with
15	-.53	I enjoy my menstrual periods
20	.54	Men have an advantage
25	.56	Get it over in a few minutes
31	.51	Only good to let me know I'm not pregnant
	4. Disruption to usual Performances and Activities	
1	.52	A woman's performance in sports is not affected
2	.55	I feel as fit
8	-.43	Women may not perform as well
14	-.40	I can't expect as much of myself
24	.46	Doesn't interfere with my usual activities
29	-.50	Can interfere with my performance in sports
30	-.49	Avoiding certain activities wise
	5. Acceptance of Premenstrual Tension	
23	-.69	Attributing irritability to period is neurotic
28	-.78	Menstrual distress just an excuse
32	-.62	Make too much of the effects
33	-.68	Premenstrual tension is in a woman's head

Five of the thirty-three MAQ items failed to reach the 0.40 cut-off level for inclusion into a composite scale. Four of these items (5, 6, 17, and 18) had loadings slightly less than this criterion. Item 13, which dealt with expecting extra consideration from friends, had a loading barely greater than 0.30. With the exception of item 18, the items which failed to load into a composite scale all had relatively low communality estimates (refer to Table 3). This indicates

that there was a considerable proportion of unique variance associated with each of these items.

The composite scales reported in Table 5 were compared to the abbreviated factor scales presented by Brooks-Gunn and Ruble (1980). The composite scales identified by Brooks-Gunn and Ruble are reported in Appendix D. The first composite scale, **physical, emotional and intellectual changes** is comprised of items from Brooks-Gunn and Ruble's debilitating event (Factor 1) and anticipation and prediction (Factor 4) scales. The scale derived from the current analysis focuses more directly on the psychological and physiological changes that may be associated with the menstrual cycle.

The second composite scale, **menstruation as a natural event**, contains the same items as Brooks-Gunn and Ruble's (1980) menstruation as a natural event (Factor 3) scale. Similarly, the third scale in Table 5, **menstruation as an inconvenience**, contains all but one of the items reported by Brooks-Gunn and Ruble in their menstruation as a bothersome event (Factor 2) scale.

The fourth composite scale, **disruption to usual performance and activities**, is made up of items in Brooks-Gunn and Ruble's (1980) debilitating event scale (Factor 1). Unlike the earlier analysis, the current scale is smaller and more specific to involvement in activities.

The final composite scale, labelled **acceptance of premenstrual tension** in this analysis, is composed of items which formed part of Brooks-Gunn and Ruble's (1980) denial of any effect of menstruation (Factor 4). Again the current scale is smaller and more specific to the underlying subject area.

Mean scores on composite scales

The mean scores obtained by subjects for composite scales were calculated by taking the sub-group of items with salient loadings in each factor. Items were reversed where necessary so that all item signs were in a positive direction. For Composite scale 1 items 7, 16, 22 and 27 were reversed. No reversal of item

direction was necessary for Composite scale 2. Item 15 was reversed for Composite scale 3 and items 8, 14, 29 and 30 reversed for Composite Scale 4. All items in Composite scale 5 were reversed. Values are such that a score of 1= disagree strongly, 4= neither agree nor disagree and 7= agree strongly. Mean scores and standard deviations for the composite scales are shown in Table 6.

From Table 6 it can be seen that subjects perceived menstruation as: Marginally causing physical, emotional and intellectual changes, a natural event, an inconvenience, disrupting their usual performance and activities and accepted the existence of pre-menstrual tension.

Table 6: Mean scores and standard deviations on composite scales

Scale	Label	Mean Score	Standard Deviations
1	Physical, emotional and intellectual changes	4.20	0.55
2	Menstruation as a natural event	4.39(4.51)*	1.11(1.04)*
3	Menstruation as an inconvenience	5.11(4.65)*$^{+}$	1.19(1.09)*
4	Disruption to usual performance and activities	4.62	0.97
5	Acceptance of premenstrual tension	2.52	1.06

* Values obtained from Brooks-Gunn and Ruble's 1980 sample of 154 students
$^{+}$ $p < .001$

The composite scales obtained in the present study were compared to the abbreviated factor scales obtained by Brooks-Gunn and Ruble (1980). A full comparison was not possible as only two scales remained essentially unaltered. The mean scores and standard deviation values obtained by the American sample for these two scales are reported in brackets in Table 6. Comparisons of the mean scores for these two scales showed that the American students reported menstruation as being more natural and less inconvenient than the

New Zealand sample. Even though the second of these was statistically significant (t=4.09), neither of the differences was sufficiently large to warrant substantive comment.

RELIABILITY OF FACTORS

The reliability of the full factors was determined from the diagonal of the factor covariance matrix. The reliability coefficients are reported in Table 7.

Table 7: Reliability values of factors and composite scales

Factor	Full Factors	Composite scales
1	.84	.81
2	.81	.78
3	.74	.69
4	.76	.72
5	.84	.81

These results indicated that the internal consistency of all factors were within an acceptable range. The reliability of the full factors were compared with the reliability of the composite scales. This was to determine whether abbreviating the full factors to composite scales, led to a decrease in the reliability of each scale.

Reliability of composite scales

Alpha reliability tests were computed for the sub-group of items with salient loadings in each factor. Where necessary the signs of items were reversed. The decision to reverse item signs was based on examination of the Pearson's product-moment correlations as well as the label that had been given to each of the five factors. The alpha reliability test results are reported in Table 7.

Table 7 shows that the internal consistency of each composite scale was adequate. Alpha values for the first and fifth composite scales were both above 0.80. The lowest alpha calculated was 0.69 for the third composite scale although if item 3 were to be deleted from the reliability analysis, the alpha obtained would be greater than 0.70.

Comparisons between the reliability values obtained for the factor and composite scales, showed that there was only a minimal decrease in reliability when the abbreviated scales were used. This suggests that the psychometric properties of the sub-scales, at least in terms of their reliability, are very close to that of the full scale.

FACTOR SCORES

Factor scores were calculated using regression estimates (SPSS Inc., 1983). The mean for each score was standardised at zero. The standard deviations, maximum and minimum values calculated on each factor for all subjects are reported in Table 8. The maximum and minimum values for Factors 1 and 4 were reversed so as to keep the direction of factor scores consistent with item scores (i.e. the minimum value for Factor 1 became the maximum value for Factor 1 and vice versa).

Table 8: Standard deviations, maximum and minimum values of factor scores for all subjects

Factor	Minimum Value	Maximum Value	Standard Deviation
1	-2.78	2.06	.92
2	-2.38	2.76	.90
3	-2.69	2.31	.86
4	-2.22	2.21	.87
5	-2.91	1.45	.92

To see if there were differences in the factor scores of the group of subjects who volunteered to be interviewed compared to the rest of the sample, separate scores for this group were calculated. The standard deviations, maximum and minimum values for the women volunteering to be interviewed are reported in Table 9. Similarly, the maximum and minimum values for both Factor 1 and 4 were reversed to ensure consistency in factor direction.

Table 9: Standard deviations, maximum and minimum values of factor scores for subjects volunteering to be interviewed

Factor	Minimum Value	Maximum Value	Standard Deviation
1	-2.08	2.06	0.95
2	-2.11	2.76	1.00
3	-2.70	1.32	0.91
4	-1.86	2.21	0.90
5	-2.50	1.44	0.75

Tables 8 and 9 indicate that, with the exception of Factor 3, the maximum factor scores obtained for the women agreeing to be interviewed were similar to those obtained for the entire sample. Compared to the rest of the sample, less extreme minimum values were obtained for the women agreeing to be interviewed on three factors. Overall, the women who held the most extreme factor scores in the group volunteering to be interviewed expressed relatively less disagreement with the notions of: Menstruation causing physical, emotional and intellectual changes, disrupting activities or pre-menstrual tension. Furthermore this group was less likely to perceive menstruation as an inconvenience.

SELECTION OF SUBJECTS FOR INTERVIEW

Only those subjects who had volunteered to be interviewed were considered for selection. Participation in an interview was based upon subjects factor scores, which were calculated from all the weighted items in a scale.

Guertin and Bailey (1970) state that a person who scores highly on the several items that have heavy loadings for a factor, will consequently obtain a high factor score on it. The factor score therefore shows that the subject possesses that general characteristic to a high degree. Using extreme factor scores as the basis on which subjects are selected, is consistent with a qualitative research design. Sandolowski (1986) states that within qualitative research "sampling is often theoretical rather than statistical. Subjects are initially selected because they can illuminate the phenomenon being studied" (p.31). In keeping with the third aim of the study, this method of selection allows the attitudes identified as underlying the MAQ to be elaborated upon and for the individual meaning given to menstruation to be explored.

Each of the five factors were represented by two subjects such that one subject had obtained the highest factor score for that factor and the other subject had obtained the lowest factor score for that factor. Subjects would therefore be expected to either strongly agree or strongly disagree with the content of the particular factor they were selected on. This resulted in ten cases being selected in total. For practical reasons, qualitative samples are typically small because of the large volume of verbal data that must be analysed and the intensive nature of the interview situation (Sandelowski, 1986).

The generally orthogonal nature of the factors resulted in no women being selected twice for an interview. The factor scores obtained by each subject for each of the five factors, as well as the ages of subjects, are reported in Table 10. As previously discussed, direction of item signs were reversed for Factors 1 and 4 so as to ensure that subjects' factor scores were consistent with the

direction of their item scores. The results of the interview findings are presented in the following chapter.

Table 10: Age of subjects and factor scores for interview subjects

Subject	Age	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	35	**2.06***	1.90	-1.79	2.09	1.19
2	32	**-2.08***	-1.37	-.98	.13	-.57
3	46	1.21	**-2.11***	-.05	.37	1.30
4	53	.02	**2.76***	.41	-.51	-.12
5	20	1.71	1.35	**-2.70***	1.07	1.18
6	21	-1.10	-1.20	**1.32***	-.55	-.10
7	31	1.33	-.72	-.19	**2.21***	1.39
8	30	-1.90	.37	-.72	**-1.86***	-1.64
9	19	-1.46	-.92	-.62	1.02	**-2.50***
10	39	1.21	-.75	-.21	-.22	**1.44***

* denotes the factor score that the subject was selected on

CHAPTER 8

INTERVIEW RESULTS AND DISCUSSION

The second stage of this study focuses upon describing the attitudes that individual women have about menstruation. Subjects were selected on the basis of the responses they had made to the MAQ so that each factor was represented by two women, one who had supported and one who had opposed its content. Subjects' responses were examined in order to elaborate upon the attitudes identified by the MAQ.

The in-depth interview data was analysed for the descriptions that it provides about women's attitudes toward menstruation. Both the nature and configuration of each woman's beliefs were investigated.

In the sections that follow, the results and discussion of the interviews are presented. The data is grouped under subheadings which correspond to the issues outlined in the interview schedule (refer to Appendix B) and the general headings of recollections of menarche and current menstrual attitudes. Where applicable, the responses subjects made in the interview situation are compared with the content of the particular factor on which they were selected. Illustrations of common patterns and themes among subjects, as well as variations of these, are provided.

RECOLLECTIONS OF MENARCHE

Preparation for menarche

Subjects were generally between 10 and 12 years of age when they first learned about menstruation. Subject 9, who was the most positive in her descriptions of menarche and who did not accept the concept of premenstrual tension on the MAQ, recalled being told about menstruation by her mother when she was 7 or 8 years old. This is consistent with the finding of Dunham (1970) that the timing of information received about menarche may be important to the

development of a positive experience of menstruation. Only one informant Subject 3, who was chosen because of her score on Factor 2 of the MAQ, received no information prior to menarche.

The sources of preparation for menarche identified in this sample are consistent with those reported in the literature i.e. mothers, school friends, education programmes and books. All subjects recalled having been spoken to by their mothers. Five subjects recalled also being given books to read about menstruation. Subject 1 who agreed with Factor 1 on the MAQ (physical, emotional and intellectual changes) recalled that her mother was too embarrassed to discuss menstruation and had only given her a book to read. She stated that she had misconstrued the material presented in the book as *"when they talked about periods they said that some girls did not get them because they got pregnant ... I got all mixed up and thought you had a choice over whether you got your period or not"*. The experiences of Subject 1 support the need for an emotionally available mother as part of an adequate preparation for menarche (Rierdan et al., 1985).

For two of the subjects, their first exposure to information about menstruation came from girl friends at school. Subject 7 recalled a friend at school telling her *"something about ... when your hole bleeds"*. Similarly, Subject 5 recalled that a girl in her class said *"something about* [how] *she had blood in her pants"*. School friends may not always be accurate sources of information as illustrated by Subject 10: *"One of the girls came to school and said her next door neighbour had started to bleed and we couldn't understand why this should be so. We then kind of realised that she went to a Catholic School and maybe it was something to do with Catholics"*.

School education programmes were an important source of preparation for two of the younger informants. Subject 5 described her reaction to viewing an educational film: *"I can remember it was only the girls saw the film at school and afterwards one guy asked a girl in my class what the film was about. She told him it was about Mickey Mouse. She was too embarrassed to say. He said*

'I wish I could have seen that too'". This is an example of the secrecy and mystery about menarche perceived by young girls who also see menstruation as something which should not be discussed with males (Abraham et al., 1985; Lei, 1987). Subject 6, who on the MAQ had regarded menstruation as an inconvenience, recalled having received information on menarche from reading girls' magazines.

Perception of mother's attitude

Three informants reported that their mothers had negative attitudes about menstruation. One woman stated that her mother *"saw it as sort of dirty and messy, a nuisance ... Something you were ashamed of and you did not talk about it. You suffered it because we are women"*. For two of these subjects menarche was described as a particulary negative event. Subject 5 who did not regard menstruation as an inconvenience on the MAQ, reported that she initially denied that she had begun to menstruate. She recalled thinking *"no this can't be it. I don't want it to come. So I thought if I ignore it, it might go away. But then when I got home that night it was still there"*. Her embarrassment at menarche was possibly heightened by her perception of her mothers' attitudes: *"I actually didn't say anything, I just showed her* [my mother] *my knickers with the blood on it. I was too embarrassed to say anything"*.

The other subjects felt that their mothers had neutral or slightly positive attitudes toward menstruation. Typical statements that reflected this attitude were: *"It's always been sort of neutral in our family. It was just a fact of life"*, *"it was one of the things that women got. It was neither a wonderful thing, nor overly bad. It was something you had to deal to"* and *"it was a normal part of life that you got on with and dealt with"*.

The experience of menarche

The onset of menstruation came as a surprise for nearly all subjects. For Subject 3, selected on the basis of disagreeing with menstruation as a natural event on the MAQ, who had received no prior preparation about menstruation, menarche was particularly traumatic. She recalled: *"It was in the evening and*

I was getting undressed and I suddenly saw this blood on my knickers. I dashed downstairs where both my parents were and I ran into the sitting room and said 'I'm bleeding!'".

One factor that has not been fully explored in the literature is the importance of peer and family support during menarche. Three women who described menarche as a negative event recalled being away from their home and friends. The woman who agreed with Factor 1 on the MAQ recalled that her first menstrual period occurred on the day she was due to go on holiday with a friend's family. She stated that *"I wanted to go on this holiday desperately .... but once we got down there I found it awfully hard because we had to go to the women's toilets and that to change... and being in a caravan and changing your pants and things".* Furthermore Subject 2 who disagreed with this factor on the MAQ also described menarche negatively stating that her family had just moved to a new town and she had not yet made any friends.

Subject 6 who was selected on the basis of endorsing the items making up the menstruation as an inconvenience scale on the MAQ, described her first menstrual period as *"a nuisance".* She reported that *"It just occurred at a time when I was helping my father on the farm and I thought what a pain ... when I started getting my period I had a very heavy period which meant that you had to go home every hour to change things".* Only one subject described menarche in solely positive terms. Subject 9 who didn't accept the concept of premenstrual tension on the MAQ stated: *"It was really amazing actually 'cos it was the morning of my first school dance and I was so excited ... and here I was going to it as a woman".*

Clarke and Ruble's (1978) conclusion, that the attitudes held by premenarcheal girls may make menstruation a self fulfilling prophecy, was consistent with the experiences of two subjects. Subject 1, who described menarche as a negative experience, recalled that she *"had decided that I was not going to get that thing. I did not like the sounds of it you see".* In contrast Subject 9, who recalled menarche as a positive event, stated: *"Beforehand I was always wanting to*

have it, because the rest of me developed quite fast. I was just wanting to have it. So I was finally there. Finally a woman".

Expectations of menarche

Half of the women did not recollect having any prior expectations about what it would be like to menstruate. For example Subject 7 stated: *"I don't really know that I expected to feel anything. That's not an area of the body you really think about at that age".* In the remaining instances, subjects had underestimated the amount of menstrual flow or were surprised that menstrual cramps could be so painful. One woman recalled incorrectly assuming that the experience of bleeding itself would be painful: *"I thought you would every second of the day feel the blood coming out and I was surprised that you did not feel much".* This misconception may have originated from the attempt to understand the anticipated menstrual bleeding by relating it to bleeding associated with injuries (Rierdan et al., 1985). One woman commented that she had expected that everyone would be aware that she had begun to menstruate: *"I thought everyone would know. Would be able to tell, but of course they can't most of the time".*

Not all of the respondents felt that their preparation for menarche had been adequate. Subject 4 who agreed with menstruation as a natural event on the MAQ stated: *"I don't think there was sufficient explanation of how bad it would be, how heavy it would be".* Subject 5 who did not regard menstruation as an inconvenience on the MAQ, felt she needed more information regarding both the practical and affective aspects of menstruation: *"I wished that I could have just got some more advice about how to handle it. Like when to change tampons, and to wear a panty shield with a tampon in case it leaks, and* [to be] *careful when wearing pads at night in case you have an accident and the fact that .... you might have to spend a day in bed occasionally because you were not feeling well".*

Use of sanitary pads

One striking feature of subjects' recollections of menarche was the vividness of their descriptions about the use of sanitary pads. Only Subject 9, who described her experience on menarche in positive terms, reported having initially used tampons. Over half of the subjects recollected having used sanitary pads that were kept in place with a belt. All subjects described the use of sanitary pads in negative terms, mentioning both the discomfort of wearing pads and the odour associated with them. Typical statements which reflected these feelings were: *"I hated them. They were revolting", "I used them once", "I found them very uncomfortable", "they were awful", "I thought it was a bit smelly", "I remember distinctly the strong smell of blood"*. One woman described the experience using sanitary pads in the following manner: *"I hated that wet feeling... I could understand babies not enjoying wet nappies, that feeling down and around there... wetness and that. It's not a nice feeling"*. Subject 8 who had not regarded menstruation as a disruption on the MAQ, commented on her concern about replacing sanitary pads. She recalled *"checking my pad about 50 times a day* [and thinking] *when do I change this?"*

The practicalities of disposing of used sanitary pads was also a concern for subjects. Several subjects spoke of the secrecy and embarrassment that surrounded disposing of the pads. This is highlighted by one woman who described her method of disposing of used sanitary pads: *"I would hoard them up. Sometimes I even had two or three months supplies. And then I would sneak down to the kitchen at two or three in the morning and just put the whole lot in the bin so that no one would know"*. She also recalled that her younger sister would hoard her used pads by hiding them under her mattress.

Because of the inconvenience, embarrassment and fear (e.g. *"we used to have that obsessive fear that somehow it would come out"*) involved with using sanitary pads, most subjects changed to tampons as soon as it was possible. Subject 5 recalled having asked her mother if she could use tampons initially and *"she said that I am not really keen on using tampons you know"*. She felt that this was due to the *"old thing that if you use tampons you are not a virgin*

any more". These comments illustrate the erroneous belief that tampons are a threat to virginity (Toth et al., 1981).

Subjects' recollections of using sanitary pads again illustrate the theme that evidence of menstruation must be kept secret at all costs. Subject 7, who on the MAQ, had regarded menstruation as a disruption to her performance and activities, stated: *"You didn't want people to know that you were menstruating. That would be terrible"*. The emphasis subjects placed upon secrecy may reflect the belief in menstruation as a sickness and a disease. For example Subject 5 stated: *"A friend and I, we both had to go home from school because we both felt terrible ... so when the male teacher asked why, neither of us actually said ... because the teacher would know and I guess a lot of people in the class would know as well ...* [and then they] *might look down on me. Think she is dirty or she is incapable at the moment"*. For Subject 1, who on the MAQ had regarded menstruation as causing physical, emotional and intellectual changes, menstruation was a blatantly public event due to the sanitary pads being conspicuous to others, including boys. She stated: *"We had the type of uniform that fitted right. It had very thin material and any bumps and things showed ... we used to get hell because you could see this belt through the uniform and people would pull it"*.

Recognition of menarche and sexual maturity

Most of the subjects had received some information prior to menarche regarding sex and reproduction. Subjects, however, did not necessarily understand the relationship between sex and the menstrual cycle. For example: *"I didn't link the two* [menstruation and sex], *until I was learning about birth control"*, and *"it wasn't until my 20s that I really understood totally about reproduction, contraception and menstruation"*. Only three of the informants acknowledged understanding that reaching menarche indicated sexual maturity.

For Subject 9, menarche was perceived as a symbol of her sexual maturity. She stated: *"What I'd been looking forward to was thinking I was finally a woman. I could have children. It was exactly what it was supposed to be"*. The

meaning that menarche had for Subject 9 may have been strengthened as: *"It was my school social and I met my first boyfriend I slept with later on. And it always meant that to me as well that I met him on the day of it* [menarche]*"*. In contrast, the subject who regarded menstruation as an inconvenience on the MAQ recalled being disappointed in menarche, feeling that for her it had failed to represent sexual maturity. She stated: *"I thought there would be bells and music - becoming a woman".*

Attitudes toward self

Menarche brought a change in self-perception for six of the subjects. Subject 7 was unable to define what exactly had changed although she recalled that she *"did sort of feel that something ... a milestone had happened"*. For Subject 4, menarche symbolised adult responsibilities. She stated that following menarche she had a *"feeling of responsibility ... there was something different that I actually had to take care of. My mother said 'you do not leave your pants stained. You wash them and hang them up and dry them'".*

The change that menarche signalled was not always welcomed. Subject 1 felt that *"I'm not sure who exactly ... but someone told us we had to grow up ... I still wanted to go and play leap frog and ride horses"*. Similarly Subject 5 recollected that her opinion of herself *"definitely went down. I thought of myself as being sort of dirty .... no longer a child, more of a woman I suppose and ...I thought of a loss of freedom"*. These comments illustrate the attitude of menstruation as an unwanted end to childhood (Amann-Gainotti, 1986).

Attitudes toward boys

Generally most subjects felt that their attitude toward boys was not altered as a consequence of reaching the menarche. Only one subject stated that she was more interested in boys following the menarche. She recalled being put under considerable peer pressure to become interested in boys *"In our breaks ... instead of going off and playing like young children do, we just used to sit round and talk about boys ... you do knuckle under to it because no one wanted to go and play leap frog with me anyway"*. Subject 5 reported a connection

between menarche and interest in boys that she had seen in the media. She remembered *"Seeing a movie where this lady said: After the blood comes the boys"*.

Timing of menarche

Subjects reached menarche between the ages of 11 and 14. In comparison to their friends, most of the subjects recalled being on-time or a little late for their menarche.

Subjects who felt they began to menstruate later than their friends stated: *"I was sort of relieved in a way that I did"*. Subject 6 who agreed with menstruation being an inconvenience on the MAQ remarked *"I was just about 15 and beginning to wonder but then my best friend hadn't got hers either ... I was at boarding school during the week and girls had spoken about it and said you're lucky"*. Subject 5 recalled feeling like she *"was lagging behind them ... I was curious to know what they went through but they did not say much about it"*. When she reached menarche, this woman recalled going around to see a friend who said to her *"At last ... it was about time"*.

Subject 1, who estimated that she began menstruating a year before her friends remembered feeling *"older"* than her friends. One subject recalled feeling different from her friends, as a result of the physical changes that had occurred prior to menarche: *"I had put on a lot of weight, I developed an enormous bust ... just preceding that first period"*.

Description of menstruation to a premenarcheal girl

Subjects' descriptions of menstruation to a premenarcheal girl were similar to the responses obtained by Rierdan et al (1983). Subjects suggested that menarche be presented as a symbol of womanhood and a natural event: *"It's part of being a woman"*, *"it's a natural fact you have to accept"* and that *"it's a sign that your body is still normal"*.

Subject 3, who was selected on the basis of disagreeing with menstruation as a natural event on the MAQ, stated: *"I don't think it is womanhood as such"*. Alternatively, Subject 4 who endorsed the items making up the menstruation as a natural event scale on the MAQ stated: *"I would emphasise the positive aspects of it ... your womanhood, your fertility. And also its a good way of telling how healthy and how well you are"*.

Three subjects considered it important to present the practical aspects involved in menstruating: *"You have to talk about the hygiene. And you have to talk about the disposal of things"*. One subject who reported having been ill-prepared to handle the practical aspects of menstruation stated that she *"would show her in a glass of water how a tampon works"*.

Subjects mentioned the need to discuss the inconvenience that may accompany menstruation. Subject 7 who was selected on the basis of seeing menstruation as disrupting her usual performance and activities, was inconsistent with her responses on the MAQ. She stated that she would tell a premenarcheal girl that menstruation *"doesn't really stop you from doing anything"*. Subject 9, who did not agree with the premenstrual tension scale on the MAQ stated that *"it's a bit of blood that's all it is ... I think you've got to take it and not get all flustered and think you're irritable and that sort of thing"*.

The need to prepare a girl for the changes in affect that may be associated with menstruation was also discussed. Subject 3, who had not supported menstruation as a natural event on the MAQ, stated that *"she could expect some emotional changes in her life. She could expect fluctuations in mood. She could expect perhaps not to cope with life quite as easily"*. Similarly Subject 7 stated that *"there could be mood swings"*. Both of these subjects reported experiencing mood changes themselves. Preparation for menstrual cramps was also discussed by three subjects who experienced dysmenorrhoea including Subject 2 who had disagreed with physical, emotional and intellectual changes on the MAQ: *"It can be painful for some people"*.

CURRENT MENSTRUAL ATTITUDES

Euphemisms

All subjects reported that they used the word period to describe menstruation. Subject 1 also reported using the phrase *"that time of the month"* which is a reference to the time element of menstruation.

It appears that the use of euphemisms may be more popular among younger women as the three youngest subjects all recalled having used other names for menstruation when they were younger. These involved references to a visitor such as *"my friend is here"* or *"your mate"* and references to a male as in *"Charlie's here"* or *"your George"*. The use of euphemisms among younger subjects was illustrated by Subject 5 who reported that girls at school who *"would clutch their stomachs and say I've got a terrible headache"*.

It seems likely that euphemisms have altered over time. The eldest woman to be interviewed, recalled her mother having referred to menstruation as her *"affair"*. Euphemisms may also be specific to each culture as illustrated by Subject 2 who had grown up in France. She recollected a friend saying *"the English are coming"*, an expression that she felt had negative connotations.

Knowledge

The questions from Snow and Johnson's (1977) study formed the basis of the knowledge section in each interview. The three questions asked were: 1. Where does menstrual blood come from? 2. Why do menstrual periods begin when they do? and 3. Why do menstrual periods stop when they do? Only Subject 9, who described menstruation in positive terms, felt that she lacked a clear understanding of the physiological basis of menstruation stating that: *"I'm not interested in that side of things. I'm just content to think that it's there"*. Subject 9's responses were inconsistent with the literature which suggests a positive relationship between knowledge and attitudes toward menstruation (Snow & Johnson, 1977).

In response to the question regarding where menstrual blood comes from, all but one of the subjects mentioned *"the blood that's lining the uterus"* or *"the wall of the womb"*. Subject 4 who endorsed the menstruation as a natural event factor on the MAQ, gave a detailed account of the basis for menstruation: *"It actually comes from the endometrium which peels off during menstruation. The endometrium is the lining of the uterus and that builds up"*. Subject 10 who endorsed the items making up the premenstrual tension scale on the MAQ erroneously believed that the menstrual fluid *"comes from the unfertilized eggs falling off the ovaries every 20 odd days"*. Although Subject 1 mentioned that the menstrual fluid came from the *"womb"* she inaccurately stated that menstrual blood *"is made by your body and it comes through into your muscles to get the womb ready for a baby if it comes in. And if it doesn't then it squeezes and squeezes the blood out from the womb"*.

Only one subject recognised that the onset of bleeding occurred because it was 14 days since ovulation. Subject 4 also gave an accurate account, stating that the *"the corpus luteum doesn't go on proliferating it actually starts to regress"*. Typical accounts of the cause of menstrual bleeding, involved references to hormones and the egg not being fertilised. The remaining subjects stated that they did not know what was responsible for the onset of menstrual bleeding or gave vague explanations e.g *"It's just how your body cycle is, with your uterus, mucus and everything's all tied up"*.

Only two subjects recognised that each menstrual period was part of a cyclical process, in which the menstrual bleeding signals the end of one cycle and the beginning of the next. Subject 6 stated that the menstrual period stopped because *"the whole cycle is beginning again. The old linings come away and its starting to be built up to be replaced with new lining"*.

Four subjects made reference to the old cycle having been finished without mention of a new cycle beginning. Typical responses were *"because the excess blood has gone the wall of the womb is just there again as always"*, and *"because it's run out. The lining has all been expelled"* and *"the womb must*

just be cleared out". Two subjects referred to hormones being responsible for the cessation of the menstrual flow. In the remaining instances one subject stated that she did not know and Subject 10 erroneously believed that menstrual bleeding ceased because *"there's only a limited number of eggs that come away"*.

Subjects were asked two further questions dealing with the fertile period in the menstrual cycle and the cause of dysmenorrhoea. Again Subject 4 was able to correctly explain when the fertile period in the menstrual cycle occurred. Four of the subjects felt that there was no safe time in their menstrual period when a woman could not conceive. The remaining subjects considered that a woman was infertile during the menstrual flow as well as directly before and immediately after menstruation.

Subjects disagreed about the cause of dysmenorrhoea. Despite evidence to the contrary (Abplanalp, 1983), half of the subjects felt that dysmenorrhoea was caused by psychological factors. This is consistent with the findings of Golub (1981). Subject 9 who was selected on the basis of not agreeing with the premenstrual tension scale stated: *"I don't believe it. I don't know what could hurt ... I do think they're putting it on. They may have it in their head but I don't know if it's actually hurting them because a lot of people who do get cramps are people who don't like their periods. For them it's horrible and dirty and yukky"*. On the other hand, Subject 10, who had agreed with the premenstrual tension scale, felt that menstrual cramps were caused by *"a hormonal imbalance"*.

Eliminating menstruation

Given that it was safe and reversible, three subjects felt they would be willing to eliminate their menstrual periods for a period of time. In comparison to Miller and Smith's (1975) study, subjects in this sample were less likely to take into consideration their male partner's preference in deciding whether to eliminate menstruation. Subject 6 who agreed with menstruation being an inconvenience on the MAQ stated: *"I just think for convenience sake ... it is an inconvenience*

and it isn't cheap either. Tampons are really expensive and it's something you have to prepare for each month, so if you could eliminate it, it would make things easier". Both the subjects who were selected as representing the extreme factor scores for Factor 1 on the MAQ (physical, emotional and intellectual changes) were willing to eliminate menstruation. Subject 1 stated: *"I am having terrible trouble with my periods and they want to do a hysterectomy ... I can't have any more children anyway, so getting a period is no use to me anyway".* Subject 2 felt that eliminating menstruation would remove *"the hassle".* She stated: *"I find the loss of blood quite a hassle because you need toilets available, because I lose so much".*

The two subjects who were beginning to go through the menopause stated that they would prefer to retain their periods. Subject 3 reasoned that *"it's been with me such a long time now in my life it's something that's part of me".* Subject 4 said *"I think the periods are good because it's a sign your life is still good, things are still going on".*

Subject 5 who also did not want to eliminate her menstrual periods reflected the sentiments expressed in Anne Frank's diary (1967): *"It's nice to know there is something sort of secret happening inside of you, nobody else, hardly anybody else knows about".* She went on to state *"it makes me know that I have got something similar to other women that men don't have ... so it is something in common I suppose".* In the remaining instances subjects felt that they would retain their periods because it was *"part of being a woman", "not that inconvenient"* or not a *"worry".* Subject 7 felt that it was *"ridiculous to tamper with that kind of process".* One subject suggested that eliminating menstruation would *"be good for my sex life".*

Advantages and disadvantages of menstruation

Subjects were asked to consider if they felt menstruation brought any advantages to women. Most subjects referred to the fact that only women could conceive. Subject 3 felt that menstruation gave women an advantage in that it could be used as an excuse: *"If you feel that you wanted to manipulate*

situations you could do it within that framework - 'I'm sorry. I'm in pain. I'm bleeding. You'll have to cook the meal tonight'". Subjects also continued the theme that menstruation was something special for women: *"I think a woman's period is something close to her"*, *"I guess it's something that we know about that men just can't appreciate"* and *"I feel special that I'm a woman. I'd rather be a woman than a man"*.

On the other hand, subjects felt that men had several advantages because they did not menstruate. In particular men were seen to have a financial advantage in that they did not have to spend money paying for sanitary products: *"They certainly don't have to worry about paying for tampons and pads ... it costs a fortune to supply yourself with tampons and pads, especially if you're bleeding heavily"* and *"If men menstruated rather than women, I think that tampons and all kinds of sanitary protection would be absolutely free"*. Sanitary protection was considered important enough for one subject for it to take precedence over paying for food. Subject 2 recalled a time when: *"I was unemployed and had very little money and that* [purchasing tampons] *was a problem. I couldn't see any other way around it. I'm not prepared to use home made pads and cotton ones that you wash like my grandmother probably did. So I would rather eat less than not having those tampons"*.

Subjects also felt that men don't experience the inconvenience and embarrassment that may occur with menstruation. In particular men were seen as not having to worry *"about accidents or any sorts of smells or feeling unwell"* or *"remembering to take some protection with them when they go away"*. In general, subjects felt that menstruation both advantaged and disadvantaged women. Subject 2 expressed it in this way: *"I guess the hassle is not that important compared to the advantage we have to conceive"*.

Likes and dislikes of menstruation

Three subjects felt that there was nothing they liked about menstruating. Other subjects continued the theme outlined in item 31 of the MAQ - that menstruation was a welcome symbol of not being pregnant. Some responses emphasised

the womanhood and naturalness aspects of menstruating: *"It's nice to get a period once a month. It's part of life for me"*, *"it's a nice feeling"* and that it was reassuring that *"everything's normal"*.

All subjects were able to describe aspects of menstruation that they disliked. Five of the subjects referred to the inconvenience, including Subject 5 who had disagreed with the menstruation as an inconvenience factor on the MAQ. She stated that she disliked *"having to run to the loo every two hours to change my tampon"*.

The attitudes toward menstruation that Subject 6 expressed in the interview situation reflected her responses on the MAQ. She stated that she disliked *"the inconvenience at times. You go out and you have to make sure you take enough tampons"*. Subject 7 who had obtained a positive factor score on the acceptance of premenstrual tension factor on the MAQ, stated that she disliked how menstruation *"can affect your mood"*. Other unfavourable evaluations of menstruation included references to the financial cost of menstruating *"it's a waste of money having to buy those pads and tampons that just get flushed away"* and to the pain *"I hate the pain. I absolutely hate the pain"*.

Ovulation

Five subjects reported that they were able to tell when they had ovulated. This was either through feeling *"a sort of short sharp pain"* or through recognising a change in the texture of the cervical mucus: *"You get a sort of sticky, stretchy type of mucus"*. One subject also stated that she was aware of *"a smell which other people wouldn't smell but me and my partner do"*. Two subjects reported that they noticed an increase in their sexual interest *"I just get a damn site hornier than what I am at any other time in my whole cycle"*. It is difficult, however, to untangle the role that variables such as religious beliefs (Paige, 1977) play in increasing sexual arousal during the mid-point of the menstrual cycle. Subject 9 erroneously believed that while she was *"on the pill I can* [know when I'm ovulating] *'cos I can count the days"*. The effectiveness of the pill comes in part from preventing or inhibiting ovulation (Calvert, 1982).

Discussing menstruation with others

Most subjects felt that they would be able to discuss the topic of menstruation with others. There were, however, situations in which subjects recalled it having been difficult to talk to others. Subject 5's experiences on Bible class camps were consistent with the findings of Paige (1977). She stated that *"we would go on a camp and then one girl would get her period and every other female in Bible class would find out and then say Jane has got her period poor thing ... At a school camp it would be more sort of laughed about and joked about"*. She felt that the reason for the difference was because *"people don't sort of equate religion with sex I guess. Menstruation is under the heading of sex and I think perhaps more religious people see sex and menstruation as dirty. More of a sin"*.

Generally most subjects felt that it was more difficult to discuss menstruation with men than it was with other women. Typical reasons for this difficulty were: *"You could sense their uncomfortableness"*, *"because they're more embarrassed"* and *"they have no understanding"*. Subject 10 recalled being a shed official at a Freezing Works and having to negotiate when *"management refused to put an incinerator in one of the women's toilets"*. She stated that all the other delegates were men who *"were just making really sick comments ... Some of them were very embarrassed"*. Subject 4 who is employed as a practice nurse stated that in her experience it was *"difficult talking to young women who are about to start. A lot of them are quite embarrassed about having to talk about it"*.

Sex during menstruation

All subjects felt that it was appropriate for a woman to have sex during menstruation if she so chooses. Subjects were evenly divided upon whether they themselves would have sex while they were menstruating. A wide range of reasons were given for choosing not to have sex while they were menstruating. Despite discussing menstruation with her boyfriend, Subject 5 stated that she would not want him to see the menstrual fluid: *"Just actually seeing the blood ... like it means one thing being told and one thing actually seeing it"*.

Subject 8, who on the MAQ had disagreed with menstruation disrupting usual performance and activities, stated that although she occasionally had sex when she menstruated it was *"just not as exciting for me as it is at other times of the month ... I like to feel myself getting wet and lubricated and that never happens when I've got my period"*. Generally most subjects were put off sex because of the mess: *"If that's what you like but it's very messy"*, and *"the hassle of blood everywhere I don't like"*.

Several of the women stated that they had been involved in relationships with men who had objected to sex during menstruation. One woman recalled a partner stating *"I'm not into that. That's disgusting"*. Another woman recalled a partner stating *"that he didn't do that or his mates didn't do that"*. One of the younger subjects interviewed described an incident where: *"I had a boyfriend once and we had sex and I had my period and he was really upset about it ... He was really disgusted with me. He said it's dirty and horrible. I said it's just a bit of blood. It's not dirt"*. Subject 10 felt that attitudes toward sex during menstruation had changed over time. She stated that her friends who had initially told her that it wasn't appropriate to have sex during menstruation *"were the same ones who later on told me it was alright"*.

Several subjects reported that they were aware of changes in their sexual interest when they were menstruating. These changes either involved an increased interest in sex (e.g. *"Once I get my period it increases quite strongly"*, *"although it sounds funny, sometimes I did feel more sexual desire"*, *"I actually enjoy sex more when I've got my period"*) or a decrease in sexual interest (e.g. *"I usually just sort of push my boyfriend away. I don't want a kiss or anything. I just don't feel like it. It feels like the worst possible thing in the world"*).

Sex-role orientation

Sex-role orientation was ascertained by subjects' responses to two questions regarding the use of the title Ms and the labelling of oneself as a feminist (Smith & Self, 1981). With the exceptions of Subjects 5 and 9, all of the women felt they would label themself a feminist or hold feminist values. Only four of the

women felt they would use the title Ms. Subject 3, who had disagreed with menstruation as a natural event on the MAQ, reported that: *"I don't think its important* [using the title Ms.] *because I am married and I don't mind being married".* On the otherhand Subject 4, who had agreed with the natural event factor stated: *"You're not somebody elses chattel if you're Ms".* Subject 9 who expressed positive attitudes toward menstruation was neither a feminist or used the title Ms (unless it was to annoy her boyfriend). In the present study no clear patterns emerged between sex-role orientation and attitudes toward menstruation.

Attitudes toward advertising on television

Only two of the ten subjects did not agree with advertising sanitary products on television stating that *"menstruation is a very private matter"* and that *"it's* [not] *entirely necessary to go splashing it over a TV screen that women get periods and need to have something".* The other subjects agreed with advertising of sanitary products on television although mentioned that the advertisements at times may cause embarrassment: *"The first time I saw a tampax ad on TV was when I was about 14. I was really embarrassed .. there was dead silence.* [Everyone] *looked at the ceiling or at the floor when that one came on".*

Cultural attitudes

Two women felt that their attitudes had been influenced by the traditions of the Maori culture. Subject 1 who had grown up in a Pakeha family but identified herself as being Maori, felt that the subject area of menstruation was tapu saying that *"it is an unspoken thing".* She had however *"been told about* [how] *a woman's not allowed to step over anyone when she has got her period ... not supposed to go on the marae".* Subject 10 who was married to a Maori man stated: *"I don't transgress on some of their tapus of menstruating women ... I am really quite conscious of trying not to break those tapus and things like that ... like planting of crops, and also being in certain places, around certain carvings and things and touching things. I can respect it and it doesn't worry me".*

This woman also described her impressions of the Irish culture in which she grew up. She felt that Irish people were not as open as New Zealanders in discussing menstruation: *"It was a real hidden secret and men didn't know about it from their mothers and their sisters. They only found out about it when they got married or from their fathers. You just don't talk about it".* Subject 2 who had spent her childhood in France felt that the main difference she had found between the French and Pakeha cultures were that the *"French are a bit more open about it".*

In the remaining instances subjects were unable to identify any distinctive pakeha attitudes toward menstruation although one subject felt that the experiences of the early pioneer life may have shaped attitudes: *"My mother came from sort of pioneer stock. Life was quite tough for those people and if you didn't get on with it you didn't survive".*

Intellectual performance

Research evidence has failed to demonstrate that menstruation has a negative effect on intellectual performance (Golub, 1976). In this study which relies on self-report, four subjects felt that their academic performance suffered as a result of menstruation, including Subject 1 who agreed with Factor 1 on the MAQ (physical, emotional and intellectual changes). Subject 2 who had disagreed with this factor felt that her academic performance was unchanged. She did, however, acknowledge that *"pain could effect my performance, so in that case if I know I have an exam I would take painkillers".*

One subject described her poorer performance as *"my brain doesn't seem to be working quite as quickly and as sharply".* She reported adopting strategies to counteract the effects of menstruating: *"I will go over the information more carefully ... I'll rehearse it more in my mind. I may not write as much".* Subject 5, who on the MAQ had not regarded menstruation as an inconvenience, reported making allowances for the effects of menstruation *"by having early nights for weeks in advance rather than two or three nights in advance and ... perhaps taking pain killers as a precaution rather than only taking* [them] *when*

the pain appears". Subject 7, who on the MAQ had the attitude that menstruation disrupted her usual performance and activities, also felt that her academic performance was effected by her period. She recalled *"actually having to come out of an exam when I was at varsity which really upset me because I got my period"*.

Weight gain

Item 5, dealing with weight gain, which failed to load significantly into any factor on the MAQ was explored in more detail in the interview. The majority of subjects had not noticed any changes in their weight prior to menstruation. Only one women reported a weight change that was able to be directly measured: *"I've gained as much as three kilos before a period"*. Several women described changes in their body which they generally described as *"a bloated feeling"*. Closer investigation of item 5 suggests that this item may not accurately reflect women's premenstrual experiences. As one subject described: *"You feel a bit bloated but you don't really gain weight"*.

Expectations of friends

Item 13 on the MAQ, dealing with whether friends showed extra consideration when they were menstruating, was also investigated in the interview setting. Six subjects stated that they would expect friends to show them consideration. The remaining subjects felt that extra consideration was unnecessary. Subject 9 who disagreed with the premenstrual tension scale on the MAQ stated that she *"wouldn't do that for them"*.

Premenstrual experiences

Most subjects had some indication that they were about to menstruate. Indications ranged from pronounced changes in behaviour and affect (e.g. *"I change completely. I am not even anything like the person I am after I have had my period"*) to relatively slight changes (e.g. *"on the same day that it comes I usually just feel a heaviness inside of me"*). For those subjects who reported premenstrual changes, descriptions were able to be grouped into the three categories proposed by Abplanalp (1983). Emotional changes were described

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as feeling *"scratchy"*, *"irritable"*, *"short tempered"*, *"depressed"* and *"really tense"*. Somatic changes included *"putting on weight around my tummy"*, *"crampish feeling"* and *"breasts are a bit tender"* and behavioural changes included such statements as *"I'll take things far more slowly"* and *"I'm very, very careful how I drive the car"*. The woman who had agreed with the Premenstrual Tension scale on the MAQ described the changes she experienced prior to menstruation as being a *"slight stomach pain and a bit of a headache ... kind of a nagging sort of thing but not too distressing"*. She stated that these feelings varied *"from almost unnoticed to just being there. Slight to not quite so slight"*.

Not every subject relied upon emotional, behavioural or somatic cues to indicate when their menstrual period was due. The subject who had disagreed with the Premenstrual tension scale reported having no indication other than going by the calender: *"Usually they come on the end of the month and I know"*. Similarly Subject 2 reported having *"to check the dates to be prepared"* as did Subject 5 who also stated that *"probably the only real indication is that it is the right date"*.

Not all subjects supported the concept of premenstrual tension. Subject 8 felt that premenstrual tension was caused by women who were *"unhappy with their own lives and they have to blame something for the way they're feeling at that time and PMT is the latest craze ... like they can have PMT for about two weeks a lot of those women"*. Subject 6 stated that you are *"expected to feel pain when you've got your period so it can be an excuse. Or you're expected to feel depressed so it can be an excuse in some cases"*. Both of these subjects reported experiencing few associated symptoms either prior to or during menstruation. Subject 9's responses were consistent with the way she had responded to the MAQ. She stated: *"My sister reckons she gets headaches and that, when she gets it, but I don't believe her ... It's like rubbish that she has headaches"*. She also said: *"I've always scorned girls who said "I can't go swimming 'cos I've got my mate'. I think that's stupid"*.

Several subjects provided support for the arguments developed by Laws (1985) that premenstrual tension provides an explanation for unfeminine behaviour.

Subject 1 described how she *"would hit them* [her children] *a lot more when I was due for my period"* and then feel guilty for *"reacting so horribly and violently to the kids and then you know a week later just loving them so much"*. Similarly Subject 4 remembered *"being quite unkind to one of my kids. He was naughty but I probably over reacted more than I would have done normally"*. One subject stated that *"there are some times when I can analyse it* [feeling irritable] *and say what the hell I'm going to be like that anyway - this is my time to be like that"*.

Subjects also recalled being told by men that their behaviour was different prior to their menstrual period. Subject 5 stated: "[My boyfriend] *says I am less tolerant and more tired and I get more snappy"*. Subject 7 also stated that her husband *"always knows when I'm getting it. Usually he knows before I do. I think he just goes by my mood swings"*. Not all subjects agreed with the interpretations given by men to explain changes in their behaviour. Subject 6 reported that: *"Male flatmates, every time you're grumpy* [say] *it's 'cos it's that time of the month"*. Subject 9 felt that men believed *"if you're grumpy it must be your time of the month"*. Subject 8 described an incident where *"I started getting niggly at him and he said to me 'you've got bloody PMT'. I just turned around and said look mate I've never had it in my life"*.

Subjects identified a number of benefits that can be made as a result of menstruating. Subject 5 stated: *"In this book it said you should always tell your boyfriend or your husband so that they can understand you better during these times. He* [my boyfriend] *thought it was a good idea and so did I, so I always tell him. He usually fusses over me more when I tell him. He is quite understanding. He says 'I am glad I am not female'"*. Similarly menstruation was commonly regarded as having secondary gains for women. Typical statements that reflected this sentiment were: *"I'm more inclined to spoil myself and have a long day off"*, *"have a rest because I'm menstruating"* and *"I would quite like to pamper myself during those days and actually shut myself away sometimes"*. One subject acknowledged that she would *"try to feign illness sometimes and lie in bed but I'm only using that as an excuse for something else"*.

Experience of menstruation

The experience of menstruation varied among subjects. Subject 1 who agreed with physical, emotional and intellectual changes described her menstrual periods as being a *"total disruption to my life, the pain, the embarrassment of the heavy bleeding. I really can't carry on a normal life. My whole life revolves around my period and how it interrupts me doing something"*. Although Subject 2, who on the MAQ had disagreed that there were physical, emotional and intellectual changes, reported having *"occasionally painful periods"* she stated: *"I refuse to be stopped by this"*.

Six subjects felt that their energy levels were slightly lower when they were menstruating. The remaining four subjects described their energy levels as remaining unchanged. A recurring theme referred to by all subjects was the inconvenience of menstruating. Subject 6 who on the MAQ had agreed with menstruation as an inconvenience: *"It's the inconvenience at times. You go out and you have to make sure you take enough tampons or you're away on holiday"*. Subject 6 regarded her own experiences as being: *"Very lucky in that getting my period doesn't really disrupt my life and very rarely do I get period pain or know that I'm going to get my period"*. This woman also reported being able to minimize the inconvenience as when she *"first started on the pill the doctor said to me if you don't ever want to get your period cos you're going away or something just go onto the next stage. So I'm sort of able to have quite a lot of control although I don't use it unless it really matters"*.

In contrast, Subject 5 who was selected on the basis of disagreeing with menstruation as an inconvenience stated that *"just last month I took a couple of panadol but it did not work. It was only the electric blanket and a hottie and a sleep that made it* [the pain] *go away"*. She reported that she would spend a day in bed because of menstruating *"usually once every three or four months"*. In addition this subject stated: *"I usually just try to get to bed a bit earlier. I find that I have to get up a bit earlier in the morning - sort of organise how many tampons I will get through in a day. Whether I will need any panadol or you know bits and pieces"*.

Both subjects who were selected on the basis of their responses to Factor 4 on the MAQ (disruption to usual performance and activities) had not menstruated recently. Subject 7 reported the benefits of not menstruating as being *"Never having to worry. Never having to cross a date off on a calendar and think on no I'm going to get my period and if you go somewhere and you haven't got a tampon"*. Subject 8 who on the MAQ disagreed with menstruation disrupting her usual performances and activities stated that *"the whole thing is just not a problem ... Some women do have a lot more of a difficult time. I think I'm one of the lucky ones that didn't have any problems"*. She felt that *"it's nice to get a period once a month"*.

The two women selected on the basis of the premenstrual tension scale on the MAQ appeared to base their attitudes at least partially upon the experiences of their friends. Subject 9, who did not accept premenstrual tension stated: *"None of my friends get sick or cramps or irritable and they're the people I talk about it with or have talked about it with. So I'd think that the average woman doesn't have any problems with it"*. On the other hand, Subject 10 stated: *"Most of my friends have very bad premenstrual tension and have lots of problems associated with their periods. So in my small circle of friends I think I'm quite well off"*.

SUMMARY

The aim of the second stage of the study (refer to page 38) was to explore the attitudes of women toward menstruation using a qualitative methodology. Several recurring themes were identified from the interviews. These themes suggest that menstruation is both a positive and negative experience for subjects. On the positive side, subjects generally referred to menstruation as a sign of womanhood and a natural event. In a more negative light, subjects made frequent references to the embarrassment and inconvenience associated with menstruation.

There was considerable variation among subjects in the attitudes they held about menstruation. This individual variation was most likely heightened by the fact that the subjects interviewed were those who had obtained extreme scores on the MAQ. For some subjects there was a discrepancy between the way they had endorsed items on the MAQ and the attitudes they expressed in the interviews. Possible reasons for this inconsistency in responding are discussed in the following chapter.

CHAPTER 9

OVERALL DISCUSSION

The first aim of the present study was to identify the factor structure underlying the MAQ. The five factors identified were labelled: Physical, emotional and intellectual changes, Menstruation as a natural event, Menstruation as an inconvenience, Disruption to usual events and activities and Acceptance of premenstrual tension. The full factor and composite scales were both shown to meet the criteria for internal consistency reliability.

Five robust factors emerged consistently across extraction and rotation methods. The factors identified were orthogonal, suggesting an absence of a higher order factor.

Minimal differences were found between the varimax and oblique solutions, irrespective of the extraction technique used. The only factors to obtain a moderate negative correlation were the first factor (physical, emotional and intellectual changes) and the fifth factor (acceptance of premenstrual tension). This moderate correlation can most likely be accounted for by the fact that symptoms associated with premenstrual tension involve either emotional, somatic or behavioural changes (Abplanalp, 1983).

When five factors were extracted, less than half of the variance was accounted for. Consequently a substantial amount of information was lost when item scores were replaced with factor scores. Thus the factors identified, may not be a valid representation of the range of attitudes toward menstruation that exist.

The identification of five attitudinal factors underlying the MAQ supports Brooks-Gunn and Ruble's (1980) conceptualization of attitudes toward menstruation being multidimensional. The multidimensional nature of women's attitudes

toward menstruation means that subjects can express both positive and negative feelings about menstruation concurrently. Regarding menstruation as an inconvenience does not exclude subjects from also perceiving menstruation as a natural event. The findings further support Parlee's (1973) argument against using a single continuum to conceptualise women's menstrual experiences.

The limited range of standard deviation values obtained indicates that the MAQ is not detecting variation among subjects' responses. The low standard deviation values may be explained in two ways. Firstly, the homogeneous nature of the sample may mean that the range of attitudes toward menstruation is quite limited with most subjects having fairly similar attitudes. Alternatively, it is possible that a wide range of attitudes do in fact exist, but the way in which the questions are asked on the MAQ prevents this from being accessed. Thus the presentation of items and instructions on how to complete the questionnaire may have affected the range or responses obtained. If there is in fact a weakness in the presentation of the MAQ, it may be addressed in a number of ways. For example modifications could be made to the scale anchors (by using the word "support" rather than "agree"), increasing the rating scale from seven points to eleven points (Nunnally, 1978), and altering the double negative phrasing of items.

Those items which failed to reach salient loadings were generally found to have low communality estimates. The failure of these items to load into a composite scale may relate to some conceptual confusion on the part of the subjects about the content of the item, or indicate a psychometric difficulty with the MAQ. For example item 6 on the MAQ dealing with weight gain, may not have accurately reflected the bloated feeling that subjects described in the interviews. Alternatively, the content of this item may be unrelated to the attitudinal dimensions identified in this current analysis of the MAQ. Although the MAQ is able to identify some of the attitudes that women have about menstruation, it is by no means a comprehensive measure of the range of attitudes that exist.

The second aim of the study was to use the MAQ to identify the attitudes of New Zealand university women to menstruation and to compare this with available United States data. In general the results suggested that these university women perceived menstruation as: Marginally causing physical, emotional and intellectual changes, a natural event, an inconvenience, slightly disrupting their usual performance and activities and accepted the existence of premenstrual tension. It is not possible to compare the attitudes of this sample with the attitudes of the students sampled by Brooks-Gunn and Ruble (1980) on those factors that were not replicated. Of the two factors that remained unchanged, the American students sampled by Brooks-Gunn and Ruble reported menstruation as being more natural and less inconvenient than did the New Zealand sample.

The factor structure identified in this study differed slightly from that obtained by Brooks-Gunn and Ruble (1980). Two factors remained relatively unchanged. These were labelled menstruation as a natural event and menstruation as an inconvenience. The remaining three factors represented somewhat different underlying attitudes to those obtained in the original analysis. These differences may be accounted for in a number of ways. Firstly, in the present study the data analytic technique differed from that used in the original study. The original factor structure, however, was still not replicated even when the data was subjected to the same factor analytic techniques used by Brooks-Gunn and Ruble. Secondly, differences between the two samples may have affected the factors identified. For example specific differences between the American and New Zealand cultures in areas such as religious beliefs, education and the media presentation of menstruation may have influenced the resultant solutions. The meaningfulness of particular items within the questionnaire may therefore have varied for the two samples due to cultural differences. Thirdly, the fact that a decade had elapsed since the original data was collected may mean that a real change has occurred in women's attitudes toward menstruation.

The third aim of the study was to explore the attitudes of women toward menstruation using a qualitative interview technique. In summarizing the findings

of the interviews the following picture emerges. The attitude that an individual woman has about menstruation appears to be comprised of a number of beliefs. These beliefs may be derived from a number of attitudinal dimensions. For example menstruation may be regarded as a natural event, a sign of womanhood and fertility, a routine event, a financial disadvantage, an indication of good health, an embarrassment, an inconvenience, as influencing sexuality, a secret, a disruption and finally as a sickness. It is likely that there are other attitudes that have yet to be identified. Finally, the way in which these beliefs are combined are highly individualised such that no two women are likely to feel exactly the same about menstruation.

Attitudes toward menstruation may not always be acquired through direct personal experience. For example the woman who strongly believed in premenstrual tension, as measured by the MAQ and the interview, actually had few symptoms herself. Attitudes toward menstruation may therefore reflect stereotyped beliefs about menstruation (Sherif, 1980; Ruble, 1977). These beliefs are likely to be learned from the familial and social group of which a woman is a part.

Although the experience of premenstrual symptoms was not uncommon, not all subjects had indications that they were about to menstruate. A disturbing finding was that subjects reported using menstruation to explain out-of-character or unfeminine behaviour such as hitting the children, getting angry or not cooking the tea at night. Subjects also reported having known men to use menstruation as an explanation of a woman's behaviour (Laws, 1985). These beliefs highlight a woman's biology as the source of fluctuations in mood and behaviour. Environmental and situational factors are ignored and a woman's behaviour is ultimately seen as being biologically determined.

The subjects selected for the interview had expressed strong agreement or strong disagreement with the items having high loadings in each factor. Comparisons of the responses subjects made in the interview situation with the content of the particular factor on which they were selected showed that

subjects responses were generally consistent across the two descriptions of attitudes. The MAQ would therefore appear to be a valid way of distinguishing women who strongly agree or strongly disagree with each of its five factors.

Occasionally, however, subjects expressed attitudes contrary to their profiles on the MAQ. According to Fishbein (1967), while each belief suggests an attitude, it is necessary to consider the many beliefs an individual holds. Fishbein argued that it is not necessarily "inconsistent" for an individual to have a favourable attitude toward some "object", and to believe that the "object" has some negative characteristics, qualities or attributes (p.480). Therefore a woman may view menstruation as having both positive (e.g. a sign of good health) and negative (e.g. as causing physical discomfort) characteristics.

The contrary statements made by subjects, also tended to be inconsistent with the other attitudes they expressed in the interview. Part of this inconsistency may be the difficulty in predicting attitudes from behaviour. That is, a woman's verbal statement of belief about menstruation may differ from the behavioural description of what she does when she is menstruating. For example one woman stated that menstruation was not an inconvenience although she reported getting up earlier in the morning so as she could organise her sanitary protection for the day and taking days at home sick. Alternatively inconsistencies may arise from subjects responding in what they perceive as a socially desirable manner. Social desirability factors may have affected responses given in both the interview and questionnaire situations.

This study supported research demonstrating that cultural beliefs and societal expectations play an important role in the attitudes a woman has about menstruation (Ruble, 1977; Brooks-Gunn & Ruble, 1980). Direct experience of menstruation does not always determine a woman's attitude. Instead, a woman may learn to evaluate menstruation in a manner that is consistent with the beliefs of the individuals and groups which make up her social environment. Sources of learning about menstruation identified in the present study included

friends and family, male partners, the media, school, the Church, and the medical profession.

Both the interview and survey research findings presented a multidimensional picture of women's attitudes toward menstruation. Each subject was shown to have her own individual configuration of beliefs about menstruation. The way in which beliefs about menstruation were combined varied among subjects such that no consistent relationships among beliefs about menstruation emerged. The lack of a structure capable of explaining the way in which subjects combined their beliefs about menstruation was also evident in the analysis of the MAQ. Consequently the configuration of attitudes described by each subject was unable to be situated within any underlying attitudinal structure. Given that menstrual attitudes are highly individualised it is not possible to predict, for instance, whether a woman who regards menstruation as embarrassing will also regard it as causing physical and emotional changes.

METHODOLOGICAL LIMITATIONS

In considering the attitudes toward menstruation of women sampled in this study, possible methodological limitations should be noted. Firstly, the subjects of this study are largely white middle class women. It is likely that the attitudes of women from other cultural groups and religious traditions differ to those obtained in this study (Paige, 1977). Furthermore this sample was taken from women attending University and who consequently are likely to have been well-informed about the physiological basis of menstruation. Accurate knowledge about the true function of menstruation has been shown to be related to attitudes toward menstruation (Snow & Johnson, 1978). These factors therefore place limitations upon the generalisability of this study.

Breckler (1984) argued that the validity of the tripartite model is increased if the attitude object is currently present. Given this reasoning, there may be a difference in subjects' responses depending on whether they were menstruating

or not. During the interviews, all subjects were asked the date of their most recent menstrual period. Three subjects reported that they had not menstruated within the last six months. One women reported that she had not menstruated since April of 1987 due to two pregnancies and breastfeeding. It is possible that the absence of menstruation may have effected these women's reported attitudes.

During the interview stage of the study a large part of the data collection was based on retrospective accounts. In particular subjects reports of menarche could have been altered by information and experiences acquired about menstruation subsequent to their menarche (Rierdan et al., 1985).

Furthermore, inconsistencies between subjects' attitudes as measured by the MAQ and the self-reports obtained in the interview setting could reflect a real change that had taken place in subjects' attitudes. It is possible that during the four month interval between the administration of the MAQ and the interviews, subjects acquired new information about menstruation. This change in evaluations could have occurred through direct experience or as a result of discussions with others about menstruation.

CHAPTER 10

CONCLUSION

This study used two complementary methodologies in order to explore women's attitudes toward menstruation. Similar conclusions about the nature of women's attitudes toward menstruation were obtained by both the group and individual descriptions. Attitudes toward menstruation were shown to be multidimensional, involving a configuration of positive, negative and neutral beliefs which did not have clear relationships with each other.

PRACTICAL IMPLICATIONS

Given that societal attitudes are important in determining a woman's evaluations of menstruation, it is necessary to confront the misconceptions and myths about menstruation currently being promoted in society. The media's presentation of menstruation has been identified as one area in which misconceptions prevail. In an effort to sell their products, advertisers not only reinforce feelings of secrecy and embarrassment but deny the emotional and physical aspects that may accompany menstruation (Havens & Swenson, 1988; Whisnant et al., 1975). Whisnant et al. (1975) state that the materials accompanying sanitary products "tend to depict what a girl *should* feel rather than helping her to honestly explore and validate her subjective responses" (p.819).

It would appear that the belief that menstruation effects academic performance may still be widespread, at least among university women. If left unchallenged, the misconception that women perform less effectively when they are menstruating has the potential to become a self-fulfilling prophecy.

Given the negative feelings evoked by the use of sanitary pads, it would appear that adequate preparation for their use is important. Rierdan et al. (1985/86) suggest one way to reduce the stressfulness of the first period would be to encourage girls to put on napkins prior to menarche. Preparation for menarche should also acknowledge the negative, uncomfortable aspects of menstruation along with the positive enhancing effects of menstruation (Rierdan et al., 1983; Rierdan et al., 1985/86).

FURTHER RESEARCH

Future research should explore the attitudes of non-university women. Asso (1983) states that "it is unfortunate that virtually all self-report studies, of the menstrual cycle have been of women in higher education or closely connected with it" (p.153). It would therefore be useful to carry out a study into women's attitudes toward menstruation using a more representative sample of women from the general population.

Given that people learn to evaluate an object as favourable or as unfavourable (Fishbein, 1967) future research needs to focus upon *where* women learn their beliefs about menstruation. Qualitative research may help in identifying the way in which attitudes about menstruation are formed. Longitudinal studies may also identify whether attitudes change over time, and if so, what is responsible for any shift in attitudes.

One area that has been neglected by researchers is the attitudes that men have about menstruation. The need for an investigation into male attitudes was alluded to by subjects when discussing sex and menstruation. As subjects reported difficulties when discussing menstruation with men, male attitudes may need to be addressed in future research.

The present study demonstrated the contribution that qualitative research could make in understanding women's attitudes toward menstruation. By using a

qualitative approach it was possible to elaborate upon the attitudes underlying the MAQ and to identify further beliefs that subjects had about menstruation. Future research should continue to explore the thoughts, feelings and beliefs that women have about menstruation using a qualitative methodology.

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APPENDIX A

THE MENSTRUAL ATTITUDE QUESTIONNAIRE

AND CONSENT FORM

To whom it may concern

The aim of this research is to explore women's attitudes to menstruation. In the following questionnaire you will be asked to respond to questions about your experience of menstruation.

The information which you supply in the questionnaire will be kept in the strictest confidence. The person analysing your responses will have no idea of your identity and your responses will be grouped anonymously with others for analysis.

If you are prepared to participate in this research please sign you name below. This cover sheet will be detached from the questionnaire so as to ensure your anonymity.

I agree to participate in this study by completing this questionnaire.

SIGNATURE..... DATE.....

Thank you

BRIDGET FITZGERALD.

1 2 139

(for office use only)

In the box next to each statement, please write the number from the following scale, which best approximates how much you disagree or agree with the following statement.

1	2	3	4	5	6	7
disagree strongly			neither disagree nor agree			agree strongly

1. A woman's performance in sports is not affected negatively by menstruation. 4

2. I feel as fit during menstruation as I do during any other time of the month.

3. Menstruation is something I just have to put up with.

4. The recurrent monthly flow of menstruation is an external indication of a woman's general good health.

5. Most women show a weight gain just before or during menstruation.

6. Cramps are bothersome only if one pays attention to them.

7. Women are more tired than usual when they are menstruating. 10

8. Women just have to accept the fact that they may not perform as well when they are menstruating.

9. Menstruation provides a way for me to keep in touch with my body.

10. Menstruation is a recurring affirmation of womanhood.

11. My own moods are not influenced in any major way by the phase of my menstrual cycle.

12. I barely notice the minor physiological effects of my menstrual periods.

13. I expect extra consideration from my friends when I am menstruating.

14. I realize that I cannot expect as much of myself during menstruation compared to the rest of the month. 17

131

1 2 3

(for office use only)

1 2 3 4 5 6 7

disagree strongly — neither disagree nor agree — agree strongly

18

15. In some ways, I enjoy my menstrual periods. ☐

16. I can tell my period is approaching because of breast tenderness, backache, cramps, or other physical signs. ☐

17. Others should not be critical of a woman who is easily upset before or during her menstrual period ☐

18. The physiological effects of menstruation are normally no greater than other usual fluctuations in physical state. ☐

19. I don't believe my menstrual period affects how well I do on intellectual tasks. ☐

20. Men have a real advantage in not having the monthly interruption of a menstrual period. ☐

24

21. Menstruation is an obvious example of the rhythmicity which pervades all of life ☐

22. I am more easily upset during my premenstrual or menstrual periods than at other times of the month. ☐

23. A woman who attributes her irritability to her approaching menstrual period is neurotic. ☐

24. I don't allow the fact that I'm menstruating to interfere with my usual activities. ☐

25. I hope it will be possible some day to get a menstrual period over within a few minutes. ☐

26. Menstruation allows women to be more aware of their bodies. ☐

27. I have learned to anticipate my menstrual period by the mood changes which precede it. ☐

28. Women who complain of menstrual distress are just using that as an excuse. ☐

32

29. Menstruation can adversely affect my performance in sports. ☐

1 2 3

(for office use only)

1 2 3 4 5 6 7

disagree strongly — neither disagree nor agree — agree strongly

30. Avoiding certain activities during menstruation is often very wise. 33

31. The only thing menstruation is good for is to let me know I'm not pregnant.

32. Most women make too much of the minor physiological effects of menstruation.

33. Premenstrual tension/irritability is all in a woman's head. 36

34. How old are you? (please specify in the box) 37

The second stage of this research involves interviewing individual women about their own attitudes to menstruation. If you would like to be selected to participate in a one hour interview please leave your name and contact phone number below.

If you would like to receive a summary of the results from this study, leave your name and address in the space provided below. This will be detached from the rest of the questionnaire.

I would like to be selected for an interview: 38

(for office use only)

NAME _____ CONTACT PHONE NUMBER _____

I would like to receive a summary of the results of the study

NAME _____

ADDRESS _____

_____

APPENDIX B

INTERVIEW SCHEDULE

AND CONSENT FORM

Facsimile

MASSEY
UNIVERSITY

Palmerston North
New Zealand
Telephone (063) 69-099

FACULTY OF
SOCIAL SCIENCES

DEPARTMENT OF
PSYCHOLOGY

In the interview in which you are being asked to participate you will be questioned on your attitudes towards menstruation. This interview will follow up some of the areas covered in the questionnaire that you filled out earlier. The information which you supply will be kept in the strictest confidence.

With your permission, the interview will be tape recorded. This is to aid in analysing the information you supply. This recording will be available only to the researcher and will be erased after the analysis is completed. For the purpose of writing up the study, your name will be changed so as to ensure complete anonymity.

The total time for which you will be required will be one hour. You are free to withdraw from the interview at any stage.

If you are prepared to participate in the interview please sign below. If you would like to receive a summary of the results of the study please print your name and address below.

Thank you for your co-operation.

BRIDGET FITZGERALD

I agree to participate in the interview outlined above.

SIGNATURE:..... DATE:.....

I would like to receive a summary of the results of the study.

NAME:.....

ADDRESS:.....

.....

INTERVIEW SCHEDULE

** By what name do you refer to menstruation?

** What is the reason for referring to menstruation in this way?

** When did you first learn about menstruation? Who told you? What were you told?

** What do you think was the attitude of the person who told you about menstruation?

** What was your first menstrual experience like? How old were you? Who did you tell?

** Was your first menstrual period the same or different to what you had expected?

** In comparision to your friends at that time, did you menstruate before them, after them, or about the same time?

** Did you feel any different from your friends who were/weren't menstruating?

** What sort of sanitary protection did you initially use? How did you feel about this?

** When you learnt about menstruation, did you know "how babies were made"? Did you understand the relationship between sex and reproduction?

** Did you feel any different about youself when you began to menstruate?

** Did your attitudes towards boys change?

** Are their any incidents during your initial menstrual experiences that stand out in your memory?

** How would you describe the experience of menstruating to a girl who was about to start her periods?

** Do you think you understand the biological reasons for menstruation?

** Where does the menstrual blood comes from?

** Why does a menstrual period begin when it does?

** Why does a menstrual period stop when it does?

** Is there any time in the menstrual cycle when a woman can't conceive?

** What do you think causes some women to experience menstrual cramps?

** When was the last time you menstruated?

** If it could be done safely and reversibly, would you be interested in completely eliminating your menstrual cycle for a period of time? Why/why not?

** Do you believe that menstruation brings any special advantages to women? Do you believe that men have any special advantages because they do not menstruate?

** What do you enjoy, if anything, about menstruation?

** What do you dislike, if anything, about menstruation?

** Are you able to tell when you are ovulating? How?

** Are you able to discuss menstruation with others?

** Is there anyone or group of people, you find it difficult to discuss menstruation with?

** People have different opinions regarding sex during menstruation. Do you believe that it is appropriate for a woman to have sex during menstruating? Has any partner ever objected to sexual activity with you when you were menstruating? Do you object to sex when you are menstruating? If yes, why?

** Would you call yourself a feminist? Would you use the title Ms?

** How do you feel about advertising of sanitary products on television?

** Are there any traditions in your family or culture which you observe concerning menstruation?

** Does it concern you if you have your period when you are sitting an exam or test? Do you believe that menstruation makes a difference in your intellectual performance?

** Some women find that they gain weight prior to menstruating? Have you ever found this?

** Would you expect your friends to show you extra consideration because you are menstruating?

** Do you have any indication that you are about to start menstruating? What?

** Do you experience any difficulties associated with your menstrual periods?

** How would you describe your energy level when you are menstruating?

APPENDIX C

CORRELATION MATRIX FOR

THE 33 MAQ ITEMS

Item No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1	1.00																																
2	.51	1.00																															
3	.08	.16	1.00																														
4	.05	.08	.10	1.00																													
5	-.03	-.11	.10	.25	1.00																												
6	.20	.33	.10	.05	-.04	1.00																											
7	-.14	-.38	-.04	-.07	.25	-.13	1.00																										
8	-.23	-.29	.03	.04	.08	-.00	.28	1.00																									
9	.01	.09	-.18	.35	.13	.09	-.07	-.04	1.00																								
10	.01	.06	-.02	.41	.11	-.01	-.01	.11	.54	1.00																							
11	.26	.37	.03	.01	-.16	.30	-.29	-.11	-.40	-.02	1.00																						
12	.31	.48	.08	-.01	-.20	.28	-.31	-.05	-.07	-.07	.50	1.00																					
13	-.14	-.21	-.19	-.05	.12	-.15	.21	.14	.13	.04	-.25	-.32	1.00																				
14	-.29	-.42	-.08	-.07	.16	-.13	.30	.33	-.02	-.01	-.21	-.32	.38	1.00																			
15	.08	.15	-.23	.22	.00	.11	-.14	-.02	.46	.41	.05	.03	.12	-.04	1.00																		
16	-.12	-.24	-.06	-.00	.26	-.24	.31	-.00	.11	.06	-.38	-.38	.11	.18	.05	1.00																	
17	-.12	-.10	.04	-.05	.02	-.12	.10	.01	.03	-.02	-.17	.20	.19	.10	-.00	.12	1.00																
18	.26	.38	.07	.01	-.14	.33	-.22	.00	.06	.03	.39	.43	-.27	-.19	.03	-.23	-.12	1.00															
19	.22	.34	.06	.03	-.13	.19	-.29	-.19	.04	.07	.36	.32	-.29	-.31	.04	-.16	-.09	.43	1.00														
20	-.17	-.19	.18	-.07	.09	-.06	.20	.05	-.19	-.14	-.10	-.12	-.00	.15	-.38	.11	.08	-.01	-.13	1.00													
21	-.05	.01	-.03	.33	.08	.06	.01	-.06	.43	.38	-.04	-.02	-.05	-.03	.24	.13	.03	.08	.10	.03	1.00												
22	-.25	-.41	.02	.05	.25	-.19	.35	.09	.05	.01	-.62	-.58	.30	.31	-.02	.43	.24	-.36	-.32	.10	.05	1.00											
23	.10	.26	.07	.01	-.09	.30	-.13	.01	-.05	.01	.28	.34	-.21	-.19	-.05	-.16	-.34	.34	.18	.07	-.01	-.34	1.00										
24	.22	.25	.09	-.01	.08	.13	-.07	-.10	.07	.06	.12	.26	-.15	-.22	.13	.02	-.11	.16	.18	-.10	.05	-.12	.10	1.00									
25	-.02	-.10	.14	-.07	.09	-.01	.05	.01	-.27	-.26	.02	.00	-.08	.03	-.42	-.03	-.08	.03	.03	.42	-.14	.05	.10	-.02	1.00								
26	.03	.10	-.05	.28	.11	.02	-.03	-.05	.62	.45	-.08	.01	.08	-.12	.35	.13	-.01	-.00	.05	-.12	.32	.05	.05	.15	-.23	1.00							
27	-.15	-.26	-.04	.07	.28	-.12	.25	.09	.18	.09	-.45	-.44	.29	.24	.06	.44	.21	-.30	-.29	.13	.13	.55	-.29	-.04	.01	.20	1.00						
28	.16	.29	.08	.05	-.09	.30	-.15	-.06	.07	-.01	.31	.33	-.20	-.20	-.06	-.14	-.34	.28	.16	.05	.02	-.34	.54	.14	.05	.01	-.25	1.00					
29	-.43	-.46	-.19	-.07	.01	-.21	.18	.19	.08	-.00	-.14	-.32	.21	.20	.03	.16	.02	-.23	-.16	.02	.05	.25	-.17	-.18	-.05	-.02	.17	-.23	1.00				
30	-.15	-.18	.05	.10	-.01	-.17	.15	.20	-.03	.02	-.06	-.15	.09	.20	-.01	.03	.07	-.02	-.12	.10	.07	.07	.01	-.36	.05	-.05	.08	-.01	.23	1.00			
31	-.05	-.02	.20	-.12	.03	.08	.07	.05	-.33	-.26	-.00	.02	-.09	.04	-.37	-.07	.03	.09	.05	.29	-.16	-.01	.11	-.01	.41	-.30	-.00	.10	-.08	.04	1.00		
32	.12	.35	.11	.12	-.04	.34	-.12	.04	-.00	.11	.32	.34	-.31	-.24	-.04	-.11	-.19	.43	.27	.12	.11	-.35	.52	.10	.05	.06	-.22	.56	-.26	-.02	.18	1.00	
33	.12	.27	.03	-.04	-.20	.34	-.12	-.03	-.01	.02	.34	.34	-.19	-.17	.00	-.25	-.25	.23	.14	-.03	-.00	-.39	.46	.09	-.01	-.02	-.32	.56	-.15	-.02	.08	.46	1.00

APPENDIX D

THE COMPOSITE FACTOR SCALES OBTAINED BY

BROOKS-GUNN AND RUBLE (1980)

Item Number	Description
	Factor 1. Menstruation as a Debilitating Event
1	A woman's performance in sports is not affected
2	I feel as fit
7	Women are more tired than usual
8	Women may not perform as well
13	Expect extra consideration
14	I can not expect as much of myself
18	Physiological effects no greater than usual
19	Doesn't affect my intellectual tasks
22	More easily upset
24	Doesn't interfere with my usual activities
29	Can affect my performance in sports
30	Avoiding certain activities wise
	Factor 2. Menstruation as a Bothersome Event
3	Something I just have to put up with
9	A way to keep in touch with my body
15	I enjoy my menstrual periods
20	Men have an advantage
25	Possible to get it over within a few minutes
31	Only good to let me know I'm not pregnant
	Factor 3. Menstruation as a Natural Event
4	An indication of good health
9	A way to keep in touch with my body
10	Recurring affirmation of womanhood
21	Example of the rhythmicity of life
26	Allows women to be aware of their bodies

Item Number	Description
	Factor 4. Anticipation and Prediciton of the Onset of Menstruation
5	Weight gain
11	My moods are not influenced
16	Can tell my period is approaching
22	more easily upset
27	Learned to anticipate it by mood changes
	Factor 5. Denial of any Effect of Menstruation
6	Cramps are bothersome only if one pays attention
12	Barely notice the effects
17	Others should not be critical
23	Attributing irritability to period is neurotic
28	Menstrual distress is just an excuse
32	Make too much of the effects
33	PMT is all in a woman's head

APPENDIX E

PRINCIPAL COMPONENTS ANALYSIS: EIGENVALUES

AND PERCENTAGE VARIANCE FOR ALL COMPONENTS

Component	Eigenvalue	Percent of Variance	Cumulative Percent
1	6.34	19.2	19.2
2	3.68	11.1	30.3
3	2.27	6.9	37.2
4	1.96	5.9	43.2
5	1.42	4.3	47.4
6	1.27	3.9	51.3
7	1.12	3.4	54.7
8	1.10	3.3	58.0
9	.97	2.9	61.0
10	.95	2.9	63.9
11	.87	2.6	66.5
12	.80	2.4	68.9
13	.75	2.3	71.2
14	.73	2.2	73.4
15	.70	2.1	75.5
16	.68	2.1	77.6
17	.66	2.0	79.6
18	.58	1.7	81.4
19	.56	1.7	83.1
20	.54	1.6	84.7
21	.53	1.6	86.3
22	.49	1.5	87.7
23	.47	1.4	89.2
24	.46	1.4	90.6
25	.43	1.3	91.9
26	.39	1.2	93.1
27	.38	1.2	94.2
28	.37	1.1	95.3
29	.36	1.1	96.4
30	.34	1.0	97.4
31	.31	.9	98.4
32	.28	.8	99.2
33	.26	.8	100.0

APPENDIX F

ROTATED FACTOR MATRICES

Principal components analysis: Factor loadings from a five factor solution using varimax rotation.

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	-.21	.10	.02	**.60**	-.02
2	**-.42**	.23	.15	**.59**	-.00
3	-.08	-.03	.11	.16	**.56**
4	-.03	-.01	**.68**	-.02	.10
5	**.48**	-.01	.26	.11	.21
6	-.14	**.48**	.09	.23	.03
7	**.57**	.05	-.07	-.26	.10
8	.16	.18	.03	**-.51**	.03
9	.09	.00	**.72**	.04	**-.37**
10	.03	.05	**.73**	-.05	-.22
11	**-.63**	.32	-.02	.10	-.04
12	**-.57**	.37	-.03	.30	.01
13	**.40**	-.14	-.06	-.24	-.30
14	.39	-.06	-.10	**-.49**	-.03
15	-.02	.01	**.43**	.09	**-.61**
16	**.64**	-.11	.14	.05	.02
17	.06	**-.50**	.08	-.04	.11
18	**-.47**	.34	.17	.15	.17
19	**-.50**	.07	.19	.29	.12
20	.20	.07	-.04	-.19	**.63**
21	.02	.00	**.68**	-.05	.00
22	**.69**	-.36	.07	-.11	.08
23	-.17	**.74**	.02	.02	.12
24	.11	.22	.04	**.60**	-.07
25	.06	.04	-.21	-.02	**.64**
26	.16	.07	**.64**	.15	-.28
27	**.67**	-.23	.21	-.02	.05
28	-.14	**.77**	.01	.10	.10
29	.16	-.16	-.02	**-.57**	-.20
30	-.11	-.07	.17	**-.62**	.17
31	.02	.11	-.24	-.03	**.62**
32	-.22	**.67**	.22	.08	.27
33	-.24	**.71**	-.05	.00	-.05

Principal components analysis: Factor loadings from a five factor solution using oblique* rotation

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.13	.00	.00	**.59**	-.03
2	.34	.14	.03	**.53**	-.14
3	.05	.12	**.57**	.12	.08
4	.03	**.69**	.15	-.08	.04
5	**-.53**	.24	.23	.14	-.02
6	.05	.08	.02	.19	**-.46**
7	**-.57**	-.08	.07	-.20	-.14
8	-.14	.05	.00	**-.52**	-.24
9	-.09	**.71**	-.32	.01	-.01
10	-.03	**.73**	-.17	-.10	-.05
11	**.60**	.00	-.03	.02	-.25
12	**.50**	-.02	.01	.22	-.30
13	-.36	-.07	-.31	-.18	.07
14	-.34	-.09	-.06	**-.45**	-.03
15	.03	**.42**	**-.58**	.08	-.02
16	**-.66**	.11	.03	.13	.05
17	.01	.08	.14	-.02	**.52**
18	**.41**	.19	.18	.07	-.27
19	**.48**	.20	.15	.21	.02
20	-.22	-.04	**.62**	-.20	-.08
21	-.02	**.68**	.05	-.10	.01
22	**-.65**	.05	.08	-.03	.29
23	.06	.02	.10	-.04	**-.74**
24	-.22	.01	-.06	**.62**	-.20
25	-.09	-.20	**.63**	-.02	-.02
26	-.19	**.63**	-.24	.13	-.07
27	**-.66**	.19	.06	.06	.17
28	.01	.00	.07	.04	**-.77**
29	-.06	-.00	-.22	**-.56**	.10
30	.19	.21	.17	**-.67**	.05
31	-.05	-.23	**.60**	-.04	-.10
32	.11	.23	.27	-.00	**-.65**
33	.14	-.05	-.08	-.06	**-.71**

* Loadings taken from the Pattern Matrix

Principal components analysis: Factor loadings from an eight factor solution using varimax rotation.

Item No	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1	.18	.08	-.04	-.13	**.64**	-.16	.20	.02
2	.35	.25	.09	-.12	**.61**	**-.29**	.13	.15
3	.06	-.06	.07	**.46**	**.47**	.06	-.11	-.17
4	.02	-.04	**.65**	.02	.26	.08	-.19	.33
5	-.33	-.13	.27	.20	.20	.36	.23	-.24
6	.22	**.43**	.06	-.03	.30	.15	.17	.32
7	**-.44**	-.01	-.05	.14	-.15	**.47**	.06	-.00
8	.07	.01	.04	.05	**-.16**	**.79**	-.10	-.06
9	-.08	.01	**.72**	-.37	-.05	-.02	.07	.15
10	.01	.02	**.72**	-.24	.03	.11	-.04	-.09
11	**.70**	.23	-.02	-.05	.10	**-.01**	.06	.04
12	**.65**	.27	-.04	-.02	.23	**-.05**	.20	.00
13	**-.41**	-.12	-.10	-.33	-.02	.34	-.16	.27
14	-.27	-.12	-.10	-.02	-.20	**.60**	-.17	.15
15	.04	-.01	**.41**	**-.63**	.04	.05	.08	.10
16	**-.63**	-.05	.18	.09	-.18	-.05	.22	.06
17	-.16	**-.42**	.03	.07	.12	.00	-.21	**.59**
18	**.57**	.27	.17	.17	.11	.04	.17	.35
19	**.55**	.02	.22	.16	-.00	**-.26**	.27	.21
20	-.21	.12	-.02	**.66**	-.12	.04	-.11	.13
21	-.03	.04	**.70**	.03	-.15	-.12	-.01	.12
22	**-.71**	-.30	.07	.09	-.08	.12	-.02	.08
23	.21	**.74**	.03	.12	.03	-.02	.03	-.09
24	.09	.06	.10	-.01	.15	-.01	**.76**	-.07
25	-.02	.02	-.18	**.67**	-.02	.01	.05	-.07
26	-.16	.09	**.64**	-.28	.02	-.10	.13	.02
27	**-.68**	-.17	.21	.06	-.01	.11	.04	.20
28	.13	**.80**	-.00	.06	.13	-.09	.01	-.11
29	-.10	-.17	.05	-.06	**-.71**	.16	-.12	-.05
30	-.01	.02	.12	.12	-.13	.17	**-.69**	-.10
31	.03	.10	-.24	**.62**	.06	.10	-.00	.17
32	.25	**.68**	.22	.25	.12	-.02	.04	.10
33	.23	**.74**	-.07	-.08	.05	-.05	-.06	-.01

Principal components analysis: Factor loadings from an eight factor solution using oblique* rotation

Item No	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1	.09	.01	-.00	**.67**	-.07	-.11	.04	-.00
2	.20	.13	.17	**.61**	-.01	-.24	.01	.13
3	-.01	-.15	-.06	**.41**	**.51**	.03	.08	-.17
4	.03	**.56**	-.04	.17	**.50**	.03	-.07	-.30
5	-.33	.14	-.10	.22	.11	.33	.16	-.38
6	.11	.08	**.40**	.34	-.13	.23	.16	.21
7	-.37	-.10	.07	-.10	-.06	**.46**	-.04	-.08
8	.24	.03	.00	-.18	.10	**.79**	.06	-.12
9	-.11	**.81**	.02	-.04	-.04	-.01	.10	.09
10	.02	**.76**	.01	-.01	.17	.10	.03	-.12
11	**.67**	.01	.12	.05	-.02	.03	.15	.01
12	**.57**	-.02	.15	.20	-.01	-.01	.19	-.08
13	-.26	.07	-.07	.06	-.15	.38	-.27	.32
14	-.11	-.07	-.07	-.16	.01	**.61**	-.06	.14
15	.11	**.65**	-.07	.07	-.24	.09	-.12	.10
16	**-.71**	.11	.05	-.11	-.16	-.08	.13	-.04
17	-.15	.01	-.38	.17	.17	.03	.16	**.62**
18	**.43**	.10	.21	.09	.01	.09	**.47**	.21
19	**.40**	.12	-.05	-.03	-.03	-.24	**.54**	.08
20	-.35	-.30	.24	-.14	.33	-.00	-.28	.08
21	-.13	**.62**	.09	-.19	.20	-.14	.27	.06
22	**-.68**	.01	-.19	-.02	.03	.10	-.02	.07
23	.06	-.01	**.76**	-.01	-.02	-.01	-.04	-.12
24	-.03	.07	-.02	.23	**-.49**	.03	**.45**	-.34
25	-.14	**-.46**	.08	-.06	.25	-.04	.32	-.14
26	-.23	**.70**	.11	.02	-.05	-.10	.06	-.04
27	**-.71**	.16	-.06	.07	-.01	.10	.05	.15
28	-.03	-.01	**.83**	.09	-.02	-.07	-.16	-.12
29	.04	.09	-.13	**-.73**	-.08	.12	.03	-.03
30	.09	.09	.09	-.23	**.59**	.13	-.30	.19
31	-.09	**-.48**	.16	.06	.22	.10	.32	.09
32	.05	.11	**.71**	.08	.12	-.00	.18	.02
33	.12	-.00	**.75**	.02	-.09	-.01	-.20	.02

* Loadings from the Pattern Matrix

Principal factors analysis: Communality estimates and factor loadings from a five factor solution using varimax rotation.

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.34	-.19	.10	.02	**.54**	-.02
2	.59	**-.36**	.24	.13	**.62**	-.01
3	.18	-.04	.02	.04	.14	**.40**
4	.31	-.01	.01	**.55**	.01	.04
5	.22	.37	-.06	.22	.02	.17
6	.23	-.17	.38	.09	.22	.04
7	.29	**.45**	-.02	-.04	-.28	.10
8	.19	.10	.09	.03	**-.42**	.04
9	.63	.08	-.01	**.71**	.04	-.35
10	.51	.02	.04	**.68**	-.04	-.21
11	.48	**-.61**	.29	-.01	.14	-.02
12	.51	**-.55**	.33	-.02	.32	.02
13	.25	.34	-.17	-.03	-.24	-.23
14	.32	.31	-.10	-.07	**-.45**	-.01
15	.49	-.02	.00	**.41**	.10	**-.56**
16	.34	**.56**	-.12	.13	-.02	.02
17	.15	.13	-.36	.03	-.05	.05
18	.36	**-.43**	.30	.15	.19	.16
19	.31	**-.43**	.10	.15	.29	.10
20	.38	.17	.06	-.05	-.20	**.55**
21	.33	.03	.02	**.57**	-.03	-.02
22	.61	**.69**	-.33	.06	-.14	.06
23	.51	-.19	**.67**	.02	.05	.12
24	.22	.02	.14	.08	**.44**	-.03
25	.36	.04	.02	-.19	-.04	**.57**
26	.46	.14	.06	**.60**	.13	-.26
27	.49	**.63**	-.22	.19	-.06	.04
28	.60	-.13	**.75**	-.01	.12	.08
29	.34	.14	-.17	-.01	**-.51**	-.16
30	.22	-.02	-.02	.09	**-.45**	.10
31	.35	.00	.10	-.23	-.04	**.53**
32	.59	-.22	**.65**	.21	.11	.27
33	.50	-.24	**.66**	-.05	.03	-.05

Principal factor analysis: Communality estimates and factor loadings from an eight factor solution using varimax rotation

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1	.39	-.19	.06	-.01	-.07	**.53**	-.15	.19	.01
2	.70	-.33	.21	.08	-.10	**.65**	-.27	.11	.14
3	.23	-.05	.01	.05	.39	.25	.02	.01	-.10
4	.52	-.03	.00	**.63**	.05	.16	.06	-.10	-.28
5	.29	.32	-.09	.24	.18	.09	.21	.15	-.13
6	.29	-.18	.34	.05	-.01	.29	.07	.09	.20
7	.33	**.41**	-.04	-.04	.12	-.16	.34	.00	-.02
8	.44	.02	.04	.04	.05	-.16	**.63**	-.09	-.02
9	.65	.10	-.01	**.68**	-.38	-.01	-.03	.03	.17
10	.51	.01	.03	**.66**	-.23	.02	.10	-.01	-.04
11	.49	**-.62**	.25	-.02	-.04	.15	-.01	.05	.10
12	.55	**-.59**	.27	-.03	-.01	.26	-.03	.21	.07
13	.34	.37	-.17	-.07	-.26	-.04	.26	-.18	.06
14	.43	.30	-.13	-.09	-.01	-.18	**.48**	-.20	.06
15	.51	-.02	-.02	.38	**-.59**	.08	.04	.06	.06
16	.38	**.56**	-.10	.14	.04	-.15	-.03	.13	.06
17	.25	.18	-.38	-.00	.02	.07	.02	-.16	.20
18	.53	**-.46**	.24	.13	.13	.20	.04	.10	**.42**
19	.39	**-.44**	.07	.15	.09	.10	-.23	.18	.26
20	.39	.19	.08	-.05	**.55**	-.12	.05	-.11	.10
21	.36	.04	.03	**.57**	-.03	-.08	-.08	-.01	.12
22	.61	**.69**	-.31	.06	.08	-.11	.09	-.05	-.00
23	.51	-.21	**.66**	.03	.12	.06	-.01	.04	.05
24	.48	-.05	.10	.08	-.03	.16	-.03	**.66**	.03
25	.37	.03	.03	-.17	**.58**	-.03	.00	.02	-.00
26	.46	.14	.07	**.58**	-.28	.02	-.09	.12	.06
27	.52	**.65**	-.21	.18	.03	-.02	.08	-.00	.11
28	.64	-.13	**.77**	.00	.08	.14	-.08	.02	-.03
29	.42	.13	-.14	.01	-.11	**-.58**	.13	-.14	.02
30	.28	.02	.00	.08	.10	-.15	.17	**-.46**	-.01
31	.36	-.00	.09	-.23	**.53**	.05	.07	-.03	.11
32	.60	-.22	**.63**	.20	.24	.16	-.01	.01	.20
33	.51	-.24	**.66**	-.06	-.06	.08	-.03	-.04	.03

Principal factors analysis: Communality estimates and factor loadings from an eight factor solution using oblique* rotation

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1	.39	.07	-.04	.01	**.50**	-.04	-.11	.15	.01
2	.70	.13	.07	.15	**.61**	-.05	-.24	.03	.14
3	.23	.02	.01	-.03	.23	**.41**	.03	-.02	-.07
4	.52	.07	**.64**	-.03	.16	.24	.05	-.14	-.28
5	.29	-.28	.19	-.07	.10	.22	.23	.17	-.13
6	.29	.07	.03	.31	.25	-.03	.11	.08	.19
7	.33	-.34	-.08	.03	-.11	.05	.34	.05	-.01
8	.44	.16	.03	.01	-.12	.02	**.66**	-.02	-.01
9	.65	-.10	**.71**	-.01	-.02	-.22	-.02	.02	.13
10	.51	.03	**.70**	.01	.01	-.06	.11	-.01	-.06
11	.49	**.59**	-.00	.13	.07	-.02	.03	.05	.09
12	.55	**.53**	-.03	.14	.16	.02	.04	.21	.06
13	.34	-.30	-.06	-.09	.07	-.32	.24	-.16	.07
14	.43	-.15	-.10	-.08	-.09	-.09	**.47**	-.15	.07
15	.51	.04	**.41**	-.03	.10	**-.49**	.06	.06	.03
16	.38	**-.58**	.11	.00	-.13	.03	-.05	.14	.05
17	.25	-.12	-.00	-.37	.12	.03	-.01	-.16	.24
18	.53	**.40**	.12	.12	.10	.14	.10	.11	**.41**
19	.39	.38	.16	-.05	-.02	.16	-.18	.19	.25
20	.39	-.22	-.08	.12	-.13	**.49**	.03	-.10	.13
21	.36	-.06	**.59**	.03	-.12	.10	-.08	-.02	.11
22	.61	**-.65**	.02	-.19	-.02	.04	.05	-.04	.02
23	.51	.05	.02	**.68**	-.01	.06	.01	.01	.01
24	.48	-.01	.02	.01	.05	.01	.06	**.69**	-.01
25	.37	-.04	-.21	.02	-.07	**.52**	-.00	.03	.03
26	.46	-.19	**.59**	.08	-.00	-.14	-.08	.11	.02
27	.52	**-.65**	.14	-.10	.05	.02	.06	-.00	.12
28	.64	-.09	-.01	**.83**	.08	-.00	-.07	-.03	-.07
29	.42	.01	.06	-.10	**-.55**	-.12	.10	-.09	.01
30	.28	.05	.12	.05	-.09	.09	.12	**-.47**	.02
31	.36	-.03	-.27	.08	.03	**.44**	.08	-.02	.14
32	.60	.04	.18	**.62**	.07	.21	.02	-.02	.17
33	.51	.07	-.05	**.69**	.04	-.13	-.02	-.08	-.01

* loadings from pattern matrix

Minres analysis: Communality estimates and factor loadings from a five factor solution using varimax rotation.

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.51	-.19	.08	.00	**.57**	-.06
2	.68	-.35	.24	.11	**.65**	-.06
3	.39	-.01	.03	-.01	.19	**.40**
4	.47	.00	.02	**.54**	.03	.07
5	.36	.34	-.06	.22	.02	.18
6	.47	-.16	.39	.09	.23	.01
7	.48	**.43**	-.01	-.05	-.30	.12
8	.49	.06	.09	.05	**-.47**	**.09**
9	.77	.06	-.04	**.78**	.02	-.31
10	.58	.02	.04	**.68**	-.04	-.18
11	.62	**-.67**	.25	-.01	.12	-.03
12	.60	**-.58**	.30	-.03	.31	-.00
13	.45	.33	-.17	.01	-.25	-.23
14	.51	.28	-.11	-.05	**-.48**	.03
15	.55	-.02	-.01	**.42**	.07	**-.54**
16	.52	**.59**	-.08	.13	-.02	.03
17	.35	.14	-.37	.04	-.02	.08
18	.55	**-.45**	.29	.17	.21	.18
19	.45	**-.43**	.08	.15	.30	.11
20	.52	.16	.07	-.05	-.17	**.59**
21	.42	.04	.03	**.57**	-.02	.01
22	.73	**.74**	-.30	.04	-.13	.07
23	.54	-.20	**.66**	.02	.06	.11
24	.42	-.00	.13	.07	**.43**	-.06
25	.53	.02	.01	-.19	-.02	**.60**
26	.61	.13	.05	**.65**	.12	-.23
27	.56	**.64**	-.20	.20	-.06	.06
28	.66	-.13	**.76**	-.03	.12	.04
29	.54	.12	-.18	.02	**-.57**	-.13
30	.46	-.02	-.00	.08	**-.44**	.14
31	.41	.00	.12	-.24	-.01	**.52**
32	.69	-.21	**.68**	.18	.13	.26
33	.57	-.25	**.67**	-.05	.03	-.08

Minres analysis: Communality Estimates and factor loadings from a five factor solution using oblique* rotation.

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.51	.12	-.01	.02	**.56**	.01
2	.68	.25	.11	.15	**.58**	.02
3	.39	.00	.03	-.02	.15	**.43**
4	.47	.02	**.56**	-.03	-.04	.09
5	.36	**-.35**	.21	-.03	.05	.19
6	.47	.05	.09	.38	.17	.02
7	.48	**-.44**	-.06	.08	-.24	.07
8	.49	-.02	.06	.13	**-.50**	.03
9	.77	-.03	**.76**	-.04	-.02	-.27
10	.58	-.00	**.67**	.03	-.10	-.16
11	.62	**.66**	.03	.14	-.02	-.01
12	.60	**.53**	.00	.20	.19	.03
13	.45	-.30	-.03	-.09	-.16	-.26
14	.51	-.23	-.06	-.04	**-.43**	-.03
15	.55	.01	.38	.01	.09	**-.52**
16	.52	**-.62**	.08	.02	.09	.02
17	.35	-.05	.05	-.39	.02	.10
18	.55	**.41**	.21	.19	.07	.21
19	.45	**.43**	.19	-.03	.19	.16
20	.52	-.15	-.01	.06	-.22	**.57**
21	.42	-.02	**.58**	.00	-.08	.03
22	.73	**-.72**	.00	-.18	.02	.05
23	.54	.04	.01	**.68**	-.03	.08
24	.42	-.08	.05	.12	**.43**	-.02
25	.53	-.00	-.13	-.04	-.07	**.59**
26	.61	-.16	**.62**	.06	.10	-.20
27	.56	**-.64**	.16	-.11	.05	.05
28	.66	-.08	-.05	**.81**	.06	.02
29	.54	-.02	.02	-.12	**-.54**	-.19
30	.46	.09	.11	-.00	**-.48**	.10
31	.41	-.02	-.20	.09	-.05	**.51**
32	.69	.05	.20	**.66**	.01	.25
33	.57	.08	-.06	**.70**	-.04	-.11

* from the pattern matrix

Maximum Likelihood analysis: Communality estimates and factor loadings from a five factor solution using oblique* rotation.

Item No	Communality Estimates	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.38	.08	-.03	.03	**.58**	-.01
2	.63	.21	.09	.16	**.61**	-.00
3	.17	-.01	.01	-.01	.16	.39
4	.26	.00	**.52**	-.01	-.02	.06
5	.19	-.34	.20	-.04	.05	.18
6	.23	.05	.08	.35	.18	.03
7	.27	**-.40**	-.05	.06	-.23	.09
8	.18	-.02	.06	.09	**-.43**	.03
9	.66	-.03	**.73**	-.04	-.02	-.26
10	.49	.00	**.66**	.02	-.09	-.16
11	.51	**.65**	.04	.12	-.01	-.01
12	.53	**.53**	.01	.17	.20	.03
13	.24	-.32	-.04	-.07	-.12	-.24
14	.29	-.22	-.05	-.05	**-.40**	-.02
15	.48	-.00	.37	.01	.10	**-.52**
16	.34	**-.59**	.09	.01	.06	.03
17	.16	-.05	.05	-.38	.03	.09
18	.37	**.41**	.20	.16	.09	.20
19	.31	**.44**	.19	-.05	.17	.15
20	.40	-.12	.00	.05	-.23	**.56**
21	.33	.01	**.58**	-.01	-.10	.03
22	.64	**-.71**	-.00	-.17	.01	.05
23	.49	.04	.02	**.67**	-.03	.08
24	.17	-.05	.07	.09	.38	-.00
25	.37	.01	-.14	-.03	-.08	**.57**
26	.48	-.15	**.61**	.06	.09	-.19
27	.50	**-.65**	.16	-.10	.07	.06
28	.63	-.10	-.05	**.82**	.06	.01
29	.37	-.00	.04	-.13	**-.54**	-.16
30	.14	.04	.08	.02	-.39	.06
31	.35	-.01	-.20	.07	-.05	**.51**
32	.59	.07	.20	**.62**	.02	.25
33	.51	.07	-.06	**.69**	-.04	-.11

* loadings from pattern matrix

APPENDIX G

FACTOR CORRELATION MATRICES FROM THE OBLIQUE SOLUTIONS

Principal components analysis: Factor correlation matrix from a five factor solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00				
Factor 2	-0.00	1.00			
Factor 3	0.04	-0.08	1.00		
Factor 4	0.25	0.12	0.02	1.00	
Factor 5	-0.28	-0.04	-0.10	-0.16	1.00

Principal components analysis: Factor correlation matrix from an eight factor solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Factor 1	1.00							
Factor 2	0.00	1.00						
Factor 3	0.31	-0.03	1.00					
Factor 4	0.20	0.05	0.14	1.00				
Factor 5	-0.10	-0.09	0.05	-0.08	1.00			
Factor 6	-0.23	-0.02	-0.09	-0.13	0.08	1.00		
Factor 7	0.02	-0.03	0.21	0.16	0.12	-0.09	1.00	
Factor 8	0.02	-0.01	-0.05	-0.09	-0.03	0.04	-0.07	1.00

Principal factors analysis: Factor correlation matrix from an eight factor solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Factor 1	1.00							
Factor 2	-0.03	1.00						
Factor 3	0.43	0.01	1.00					
Factor 4	0.26	0.10	0.17	1.00				
Factor 5	-0.03	-0.18	0.15	0.05	1.00			
Factor 6	-0.29	0.00	-0.08	-0.16	0.06	1.00		
Factor 7	0.14	0.11	0.20	0.28	-0.01	-0.25	1.00	
Factor 8	0.10	0.01	0.13	0.04	0.03	-0.07	0.05	1.00

Minres analysis: Factor correlation matrix from a five factor solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00				
Factor 2	-0.05	1.00			
Factor 3	0.43	0.07	1.00		
Factor 4	0.32	0.14	0.20	1.00	
Factor 5	0.00	-0.12	0.14	0.01	1.00

Maximum Likelihood analysis: Factor correlation matrix from a five factor solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00				
Factor 2	-0.07	1.00			
Factor 3	0.46	0.08	1.00		
Factor 4	0.36	0.15	0.21	1.00	
Factor 5	-0.01	-0.14	0.15	0.02	1.00