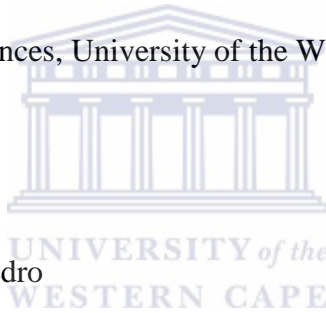


**Attitudes and beliefs of the experience of menstruation in female students  
at the University of the Western Cape**

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A mini-thesis submitted in partial fulfillment of the requirements for the M.A Psychology  
(Research) Degree in the Department of Psychology, in the Faculty of Community and  
Health Sciences, University of the Western Cape.



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Preparedness, Population group, Social control, Biopsychosocial.

## Abstract

Menstruation is a normal physiological process that has been distorted and riddled with negative connotations. The purpose of this study was to determine whether the biological factor, age at menarche, influences the attitudes and beliefs of the experience of menstruation; whether the psychological factor, preparedness, has an impact on the attitudes and beliefs of the experience of menstruation; and whether the socio-cultural factor, population group, affects the attitudes and beliefs of the experience of menstruation. The biopsychosocial model was used to guide this study as it examined the biological, psychological and socio-cultural factors that impact the attitudes and beliefs of the experience of menstruation. In this quantitative study, simple random sampling was used to recruit a sample of 200 female students from the University of the Western Cape, ages 18-21 years. Surveys containing biographic information as well as questions from the Beliefs and Attitudes Towards Menstruation questionnaire (BATM) were administered. The results indicated that there were significant associations between population group and level of secrecy as well as level of preparedness and level of pleasantness, annoyance and disability associated with menstruation. Results also revealed significant differences between normal and late onset of menarche on the level of disability associated with menstruation. Ethical guidelines stipulated by the University of the Western Cape were strictly adhered to. Research focusing on the attitudes and beliefs of the experience of menstruation will contribute to the knowledge base of menstruation in the South African context, as well as informing interventions which focus on educating women about menstruation so as to promote positive attitudes and prevent forms of social control imposed on women because of menstruation.

## Declaration

The author hereby declares that the following thesis, unless specifically indicated to the contrary in this text, is her own work.

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Signature: Megan van Gesselleen

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Date



## **Acknowledgments**

Firstly, I would like to thank my supervisor, Dr. Athena Pedro, and co-supervisor, Dr. Michelle Andipatin, for their support in my endeavour to complete my thesis.

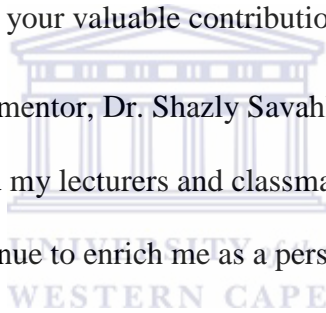
I would like to thank my Mom and Dad for their unconditional love and unwavering support as I soldiered through my Masters year. Without you two, this year would not have been possible.

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## Chapter 1: Introduction

### 1.1 Background

Menstruation is a biological phenomenon laden with cultural implications. Individuals do not experience the body in a socio-cultural vacuum. In turn, women's interpretations of the physiological and hormonal changes associated with menstruation cannot be understood outside of the social and historical context in which they live, which is influenced by the meaning ascribed to these menstrual changes by westernised medical discourses (Ussher, 2006). Throughout history, menstruation has been assigned roles that ranged from defining a woman's status and social role to being seen as a curse that all women had to endure (Anjum, Zehra, Haider, Rani, Siddique & Munir, 2010). It is this positioning of the female reproductive body as inadequate and needing to be controlled, and of menstruation as a site of madness and debilitation, which provide the framework for women to interpret changes associated with menstruation as pathological symptoms (Ussher, 2006). For centuries, both medicine and religion have methodically devalued the roles assigned to females and excluded women from power in society through patriarchal beliefs about the female reproductive body (Cahill, 2001). This is still evident in many cultures and religions today (Tiwari, Oza & Tiwari, 2006; Umeora & Egwuatu, 2008).

All over the world women are encouraged by culture and religion to avoid certain activities such as cooking, working, praying and having sexual intercourse while menstruating, as they are considered to be in a state of uncleanliness (Buckley & Gottlieb, 1988). In many societies menstruation also encompasses an element of secrecy, where, although menarche may be celebrated as a developmental milestone, menstruation is regarded as something about which women should always be discreet (Marván & Molina-Abolnik, 2012). These restrictions during, and the secrecy surrounding menstruation, may in turn, impact negatively on womanhood by essentially assaulting the women psychologically, degrading their self-image



and self-esteem, creating a feeling of shame and undermining the physiological significance of menstruation (Umeora & Egwuatu, 2008).

As early as the 1980's, menstrual taboos have been seen as evidence of a primitive irrationality of the understood universal dominance of men over women in society (Buckley & Gottlieb, 1988). A view endorsed by western medicine and science is that being male is considered 'normal' and therefore the male body is ideal. This results in most women internalising the idea that something is fundamentally wrong with their bodies (Northrup, 2010). The term medicalisation refers to 'subordinating certain practices, experiences and behaviours to the authority of medicine' (Cindoglu & Sayan-Cengiz, 2010, pp. 226).

Women's natural life processes (particularly those concerning reproduction) are more likely to be medicalised than men's life processes, due to the western understanding of the male body being the 'normal' body, therefore highlighting gender as an important factor in understanding medicalisation (Conrad, 1992). The result has been that women's bodies, specifically biological processes such as menstruation, have been pathologised and construed as diseased (Chadwick, 2006).

The medicalisation of the female reproductive body, therefore, is loaded with implications of control over those bodies and experiences (Cindoglu & Sayan-Cengiz, 2010). It is also argued that the medicalisation of the female reproductive body is closely connected to patriarchy, because defining natural biological processes, such as menstruation and pregnancy, as abnormal and pathological reflects the perception that women are, by nature, victims of their own reproductive systems (Cindoglu & Sayan-Cengiz, 2010). The power of social control comes from having the authority to define certain behaviours, practices and experiences (Conrad, 1992), and as men have that authority in western society, the medicalisation of menstruation can be seen as a direct form of social control of women. There

are very few things in western society that have been more effective in keeping women in their place than the degradation of the menstrual cycle (Northrup, 2010).

The dominant medical view of the female body has also led to stereotypical expectations regarding menstruating women that continue to be prevalent in western societies today (Marván, Cortés-Iniestra & González, 2005). For example, there is a belief that menstruation affects the performance of women, in that the menstruating woman is said to have difficulty concentrating, displays poor judgement, lacks physical coordination, exhibits decreased efficiency, and performs less well at school or at work (Chrisler & Caplan, 2002). There is very little scientific evidence to support this belief; however subscribing to this belief may cause many women to detach themselves from their responsibilities. If this belief is widespread, it could also lead to a restriction of women's opportunities in the workplace and as contributors to society in general, and this could be another important source of discrimination against women and a form of social control (Chrisler & Caplan, 2002).

Perceptions about menstruation, both negative and positive, are constructed primarily by young women's introduction to menstruation and are perpetuated by the influences of their culture, religion, peers, family members, and the media (Rembeck, Möller & Gunnarsson, 2006; Roberts, 2004). These perceptions, in turn, create attitudes towards menstruation that may negatively affect a woman's body image, views on disease causation, diet, willingness to take medication, the use of contraceptives and the ability to plan a family (Anjum et al., 2010).

Women's attitudes towards, and their behaviours associated with menstruation, are the result of a complex interaction of cultural beliefs, socialization factors and actual experiences (Morrison, Larkspur, Calibuso & Brown, 2010; Rembeck et al., 2006; Wong & Khoo, 2011). Attitudes towards menstruation can be affected by a woman's age at menarche, her cycle length, and the intensity and duration of her menstrual flows (Morrison et al., 2010).

Research has been conducted on the attitudes and beliefs surrounding menstruation in a number of countries such as India, Pakistan, Mexico and Nigeria (Anjum et al., 2010; Marván et al., 2005; Marván & Molina-Abolnik, 2012; Patil et al., 2011; Shanbhag et al., 2012; Tiwari et al., 2006; Umeora & Egwuatu, 2008). du Toit (1988) conducted a study exploring the attitudes and experiences of menstruation of Indian South African women; and Cronje and Kritzinger (1991) conducted a study documenting the attitude towards menstruation in Afrikaans speaking university students. The use of such dated sources does present a problem, as the results may not be indicative of the current attitudes and beliefs of South African women. However, a paucity of information was found for the South African context and therefore the sources are included.

## **1.2 Rationale**

The purpose of this quantitative study is to determine whether there are significant differences between the groups under each independent variable (age at menarche, population group and preparedness) with regard to the attitudes and beliefs of experience of menstruation in a sample of female students from the University of the Western Cape (UWC), who are between the ages of 18 and 21 years. This study will fill a gap in the literature within the South African context by investigating the attitudes and beliefs of the experience of menstruation thereby, adding to the body of knowledge. Furthermore, this study will provide a contextual and theoretical understanding of menstruation in South Africa, particularly South African women's attitudes and beliefs of the experience of menstruation. Literature highlights how the negativity surrounding menarche and menstruation is a product of socio-cultural processes and cultural attitudes, possibly resulting in a form of social control over women (Chadwick, 2006). The medicalisation of the female reproductive body also raises issues of social control, negative attitudes towards menstruation, as well as restrictions and secrecy surrounding menarche and menstruation.

These issues are, in turn, assaulting women psychologically, degrading their self-esteem, and creating a feeling of shame, thus highlighting the need to explore the factors associated with the attitudes and beliefs of the experience of menstruation within the South African context. Studying menstruation may provide the opportunity to trace the patterns of modernised patriarchal domination over women's reproductive bodies and experiences (Cindoglu & Sayan-Cengiz, 2010). It may also provide an understanding of the factors that contribute to the attitudes and beliefs associated with menstruation, and the implications of menstrual symptoms on emotional and physical wellbeing, which is fundamental to the promotion of menstrual health (Wong & Khoo, 2011). Since very little attention has been given to the South African context, this study aimed to bring to light the factors present in South African women's attitudes and beliefs of the experience of menstruation.

### **1.3 Aims and Objectives**

#### **1.3.1 Aim of the study and research questions**

The aim of this research study was to determine whether there are significant differences between the groups under each independent variable (age at menarche, population group and preparedness) with regard to the attitudes and beliefs of experiences of menstruation in female students, between the ages of 18 and 21 years, at UWC. The research questions that were explored were: Is there a relationship between the biological factor, age at menarche, and the attitudes and beliefs of the experience of menstruation? Is there a relationship between the psychological factor, preparedness, and the attitudes and beliefs of the experience of menstruation? Is there a relationship between the socio-cultural factor, population group, and the attitudes and beliefs of the experience of menstruation?

### **1.3.2 Objectives and theoretical hypotheses of the study**

The objectives of this research study consider the following:

- To describe the attitudes and beliefs of the experience of menstruation.
- To determine if there are significant associations between age at menarche, population group and level of preparedness on the level of annoyance, the level of proscriptions and prescriptions, the level of secrecy, the level of disability and the level of pleasantness associated with menstruation.
- To determine if there are significant differences within groups based on a.) Age at menarche, b.) Population group and c.) Level of preparedness on the level of annoyance, the level of proscriptions and prescriptions, the level of secrecy, the level of disability and the level of pleasantness associated with menstruation.

The theoretical hypotheses of this research study are as follows:

- 1.) There are significant associations between the independent variables: age at menarche, population group, religion and level of preparedness, on the levels of annoyance, disability, proscriptions and prescriptions, secrecy and pleasantness associated with menstruation.
- 2.) There will be significant differences between groups, based on a.) Age at menarche, b.) Population group c.) Religion and d.) Level of preparedness, on the levels of annoyance, disability, proscriptions and prescriptions, secrecy and pleasantness associated with menstruation.

The following section will give a brief overview of the chapters present in this thesis.

## **1.4 Overview of chapters**

Chapter 2: Literature Review

This chapter will focus on literature relevant to this study, looking specifically at the attitudes and beliefs of the experience of menstruation and highlighting the biological, psychological

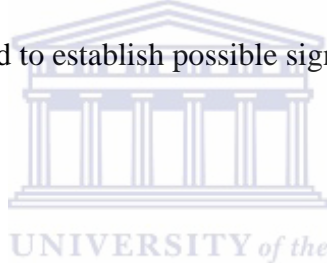
and socio-cultural contributing factors. This chapter also presents the theoretical framework underpinning the study, namely the biopsychosocial model.

### Chapter 3: Methodology

This chapter encompasses the quantitative methodology utilised in the study, with a focus on the hypotheses of the study, a description of the sample, the measuring instruments, the methods of data collection and analysis, as well as the ethical considerations.

### Chapter 4: Results and Analyses

The data of the study was analysed by means of the Statistical Package in the Social Sciences (SPSS) to provide information in terms of frequencies, percentages, means and standard deviations. Correlations were used to determine possible associations relating directly to hypothesis 1. MANOVA was used to establish possible significant group differences, in testing hypothesis 2.



### Chapter 5: Discussion

The answers to the research questions, aims and hypotheses are revealed in this chapter, with the main findings of the study being discussed in relation to the literature as well as the theoretical framework underpinning the study.

### Chapter 6: Conclusion

This final chapter concludes and summarises the main findings of the study. An outline of the limitations of the study, as well as recommendations for further research is also posited.

## **Chapter 2: Literature Review**

The following section will provide a context for the phenomenon of menstruation by outlining the medicalised discourse of menstruation, which is the foundation for social control over women in a patriarchal western society. The reviewed literature on the attitudes and beliefs of the experiences of menstruation will also be discussed, specifically highlighting the biological, psychological and socio-cultural contributing factors thereof.

### **2.1 Menstruation**

The onset of menstruation, also referred to as menarche, signals that the female body is now ready to bear children (Rice, as cited in Aflaq & Jami, 2012). Menarche is a unique biological marker of female maturation, which represents a young girl's transition from childhood into womanhood (Rembeck et al., 2006). Early onset of menarche is said to occur any time before the age of 10 years old, with late onset of menarche occurring after the age of 16 years. A normal onset of menarche is considered to occur between the ages of 11 and 15 years (Glueck, Morrison, Wang & Woo, 2013). Although biological in nature, menstruation has consistently been portrayed, by both western civilisation and patriarchal authorities, as a socio-culturally and psychologically formed phenomenon (Rembeck et al., 2006).

Western civilisation has rested on the patriarchal authority of men and therefore the view of female bodies and even the medical system as following male-oriented rules (Northrup, 2010). This culture gives girls and women the message that their bodies, their lives and their femaleness demand an apology (Northrup, 2010; Ussher, 2006).

Health practitioners and women alike tend to view normal biological processes, such as menstruation, as medical conditions requiring treatment (Northrup, 2010). This medical surveillance of women's reproductive bodies has transformed the taboos and rituals that were used to position menstruating women as polluted and dangerous, into medical, legal or scientific truths (Ussher, 2006). The mere fact that Premenstrual Syndrome (PMS) and

Premenstrual Dysphoric Disorder (PMDD) are included in the DSM II-R (Diagnostic and Statistical Manual of the American Psychiatric Association) and the DSM IV respectively (A.P.A, 2000) clearly indicates how the medical world has pathologised the reproductive body and has legitimised attributing distress or deviance from the 'norm' to factors located within the female body (Ussher, 2006).

Psychologists have followed suit, with the consequence that the female body only features in psychological discourse as the reproductive, biological body, and therefore a site of mental illness and disease (Stoppard, 2000). Women have started to internalise this notion that their psychological problems perpetually stem from their female, reproductive bodies and have been found to attribute their own personal and relational difficulties to natural processes, such as menstruation (Ussher, 1992).

Women have also been socialised to believe that their bodies are essentially dirty because they are 'abnormal' compared to the male body. Throughout western history the menstrual cycle has been associated with shame and degradation, with women's dark and uncontrollable nature (Northrup, 2010). Menstruating women are thought of as unclean and therefore they require close monitoring for 'freshness' so that their bodies do not 'offend' and therefore women are encouraged to engage in self-surveillance (Northrup, 2010, pp. 13).

Self-surveillance of the reproductive body starts at menarche, with menstrual blood signifying contamination, and requiring careful concealment and adherence to hygiene rules (Ussher, 2006). Menstruation is thus seen as a cause of debilitation, and may lead to women being seen as erratic, emotional and unreliable (Ussher, 2006). The only option remaining for women is to manage their reproductive bodies in shameful silence (Ussher, 2006). The attitude that women's bodies are 'accidents waiting to happen' seems to be internalised at a very young age and therefore sets the stage for women's future attitudes towards and beliefs



about their bodies, specifically the experience of normal biological processes, such as menstruation (Northrup, 2010).

## **2.2 Attitudes towards, and beliefs about menstruation**

Attitudes and beliefs about menstruation are found to be either positive or negative, with the majority of the literature reporting that both men and women hold mostly negative attitudes towards menstruation (Rembeck et al., 2006). These negative attitudes include feeling embarrassed (Tang, Yeung & Lee, 2004), seeing menstruation as annoying, disabling and as having prescriptions (certain things that women should do while they are menstruating) and proscriptions (certain things that women should not do while they are menstruating) (Marván et al., 2005). In western culture, women also tend to view monthly menstruations as disgusting or shameful (Roberts, 2004) and ensure that a level of secrecy surrounds menstruation (Çevirme, Çevirme, Karaoglu, Ugurlu & Korkmaz, 2010). Furthermore, negative attitudes also include seeing menstruation as a monumental physical and psychological burden that women have to bear (Shanbhag et al., 2012). For example, the belief that menstruation affects the performance of women may lead to a restriction of women's opportunities in society, and may also result in many women to detaching themselves from their responsibilities (Chrisler & Caplan, 2002). This belief could be an important source of discrimination against women and a form of social control that could further affect women's attitudes towards menstruation negatively (Chrisler & Caplan, 2002).

Research has been done on the differences in attitudes towards menstruation between different groups, such as older and younger participants, males and females, pre-menarcheal and post-menarcheal girls and pre-menopausal and post-menopausal women. These differences will be outlined below.

Marván et al. (2005) conducted a study that investigated the beliefs and attitudes towards menstruation in a sample of Mexican men and women of different ages. A main effect was found for age on the annoyance subscale of the Beliefs and Attitudes Towards Menstruation scale (BATM) indicating that younger participants reported that menstruation was more annoying than older participants (Marván et al., 2005). It was also suggested that men were more likely than women to view menstruation as having proscriptions and prescriptions and to see menstruation as disabling. This may be due to the fact that men's knowledge of menstruation is inferential, and men are largely influenced by cultural stereotypes that, in western societies, are quite negative (Marván et al., 2005). Results further indicated that middle-aged participants indicated a greater need for secrecy with regard to menstruation than older participants (Marván et al., 2005). This may be a consequence of these participants having been brought up in a culture of concealment of menstruation, and they therefore feel that menstruation should be hidden (Marván et al., 2005). Similarly, Roberts (2004) conducted a study, which investigated the relationship between self-objectification and women's menstrual self-evaluation, in a sample of women between the ages of 12 and 61 years. Age was found to be marginally correlated with menstrual attitudes and emotions, indicating that as women age, they show less negative attitudes towards menstruation, owing to a decrease in self-objectification (Roberts, 2004). Due to the cultural pressures that encourage women to engage in self-objectifying practices to change their female bodies in order to meet the cultural standards of femininity, normal, biological processes, such as menstruation, may be viewed as disgusting and shameful. This may result in women who have more self-objectified views of their bodies, indicating more negative attitudes towards menstruation (Roberts, 2004). Similarly, Johnston-Robledo, Sheffield, Voigt and Wilcox-Constantine (2007) found that women who scored higher on measures of self-objectification held especially negative attitudes towards menstruation.

Pre-menarcheal and post-menarcheal girls' expectations of, and attitudes towards menarche were also investigated with differing results. Tang et al. (2004) conducted a study on early adolescents' expectations and experiences of menarche in China. Comparisons between pre-menarcheal and post-menarcheal girls revealed that pre-menarcheal girls expected to feel embarrassed and scared, and expected more negative symptoms at menarche than those which were actually experienced by post-menarcheal girls (Tang et al., 2004). These negative expectations may have been relative to their selective attention to the negative aspects of the information that they received about menstruation from their mothers, peers, and menstrual product advertisements (Tang et al., 2004). Chinese cultural stereotypes and myths about menstruation and the related symptoms may also tend to emphasise the debilitating and embarrassing nature of menstruation, therefore impacting young girls beliefs about what to expect from menarche and menstruation (Tang et al., 2004).

In contrast Rembeck et al. (2006) found that, in their sample of 12-year-old girls living in Sweden, post-menarcheal girls had a less positive attitude towards menarche than pre-menarcheal girls did. These results indicate that even though many girls had information about menstruation and believed that they were prepared to start menstruating, actually experiencing menarche may worsen a girl's attitude towards menstruation. This could be due to the fact that the girls were not as properly prepared for the experience of menarche, as they had previously believed. Insufficient or incorrect information received prior to menarche could result in this discrepancy. Experiencing menarche as a negative event may affect the attitudes and beliefs surrounding the experience of menstruation late into adulthood (Rembeck et al., 2006).

In a study conducted by Firat, Kulakaç, Öncel and Akcan (2009), that compared female students from high school and university in Turkey, it was found that high school students perceive menstruation as more debilitating than university students. However, the university

students found menstruation to be more bothersome than the high school students. Firat et al. (2009) attributes these differences to experience, suggesting that experience with menstruation may lessen the perception of menstruation as debilitating. However, as indicated by Rembeck et al. (2006), the nature of the experience may further affect a girl's attitude toward menstruation.

In a South African study by du Toit (1988), which compared the attitudes of pre-menopausal and post-menopausal women, it was found that most pre-menopausal women in the study look forward to menopause, as this would mean that they would not have the monthly 'bother' of menstruation. Only 65.5% of pre-menopausal women thought that they had an advantage because they menstruate, this advantage referred to the fact that menstruating women can have children, menstruation cleanses the body leaving the system healthy and it indicates a woman's youthfulness (du Toit, 1988). In comparison, 81.5% of post-menopausal women (for whom menstruation had ceased) viewed menstruation as an advantage as they felt that the cessation of menstruation was associated with the onset of ailments and signs of old age (du Toit, 1988).

Although menstruation is significant for womanhood, very few studies have found positive attitudes towards menstruation (Aflaq & Jami, 2012). However, Morrison et al., (2010) examined the relationships between attitudes towards menstruation, health, and behaviour characteristics in a sample of Hawaiian women age 18 to 40 years. This study found that the majority of the participants held a positive attitude towards menstruation, with 83% stating that it is natural, and only 32% regarding it as a nuisance (Morrison et al., 2010). When the women were compared in this study, those with heavy blood flow were more likely to regard menstruation as a curse, and those with shorter, lighter flows regarded menstruation as natural (Morrison et al., 2010). The results from this study primarily show a positive attitude towards menstruation and this could be due to the fact that the majority of participants were

women with light blood flows that had a short duration. The fact that participants may have been health orientated and open-minded about their menstrual cycles, and thus willing to speak about them openly, could also have had an impact on the results of this study (Morrison et al., 2010).

In order to investigate effectively the attitudes and beliefs of the experience of menstruation one needs to consider all of the contributing factors. These positive and negative attitudes towards and beliefs about menstruation are formed by a combination of biological, psychological and socio-cultural factors (Tiwari et al., 2006).

### **2.2.1 Menstruation and biological factors**

A purely biomedical view of menstruation is no longer viable considering the other factors involved in the construction of the phenomenon (du Toit, 1988). The biomedical model views health as an absence of disease, therefore a normal body is a healthy body (Annandale, 1998). This view has led to the idea that women's bodies, specifically biological processes such as menstruation, are ultimately diseased and require treatment (Chadwick, 2006). There are, however, a number of biological factors that contribute to the attitudes and beliefs of the experience of menstruation. These factors include the age at menarche, symptoms associated with menstruation, and mental disability.

The age at menarche is an important factor as to how young girls feel about menstruation (Allison & Hyde, 2013). A number of biological, psychological and socio-cultural factors contributing to early menarche have been determined. These include a number of biological developments, and how this impacts on the environmental context (Allison & Hyde, 2013).

In a study that reviewed existing research on the biology, psychology and socio-cultural contexts of early menarche, it was found that environmental stressors, particularly stressors within the family environment, were significant antecedents of early-onset menarche (Allison & Hyde, 2013). Stressors within the family, such as family conflict, divorce, and the absence

of the biological father, have been shown to be predictors of early menarche (Allison & Hyde, 2013). In addition, early menarche plays an important role in shaping the context of a girl's social environment. Adolescents who reach puberty and begin to develop secondary sexual characteristics (such as breasts and body hair) before their peers are more likely to become the target of sexual harassment (Allison & Hyde, 2013). This was confirmed by Rembeck et al. (2006) who stated that many girls who started to menstruate before their peers were exposed to and frustrated by verbal insults with negative sexual connotations. This psychological assault could, in turn, negatively influence a girl's attitude towards her experience of menstruation and her body image.

Tang et al.'s (2004) study on Chinese girls found that those who started to menstruate early (i.e. before the age of 11 years) reported greater menstrual pain and discomfort, more behavioural changes and more negative autonomic reactions at menarche. Similarly, Morrison et al. (2010) found that age at menarche was positively correlated with regarding menstruation as a nuisance or monthly 'bother'. Overall, a girl's psychological reaction to menarche is a result of a complex interplay of biological, psychological and social influences. Genes and environmental factors influence the menarcheal experience, however, peer-relations and self-esteem determines how the adolescent adapts to the biological, psychological and social changes imposed by menarche (Tiwari et al., 2006). If a girl is unprepared for menarche because of its early onset, this may also result in feelings of shame, guilt, fear and anxiety, therefore a younger age at menarche could result in more negative attitudes towards and beliefs about menstruation (Tiwari et al., 2006).

Another biological factor that may contribute to the attitudes and beliefs of the experience of menstruation are the severe symptoms that are associated with menstruation. South African researchers, Cronje and Kritzinger (1991) conducted a study on the attitudes towards and management of menstruation in Afrikaans speaking university students. They found that

severe symptoms (leading up to and during menstruation) were important factors contributing to women's attitudes towards menstruation. In particular, women with severe symptoms indicated not wanting to menstruate at all (Cronje & Kritzinger, 1991). Leading up to menstruation, severe symptoms (with a prevalence of more than 20%) included irritability, moodiness, breast tenderness, skin changes and an increased appetite. During menstruation severe abdominal pain and backache were the most prevalent symptoms reported (Cronje & Kritzinger, 1991).

A third factor that could influence attitudes towards menstruation is one that can be classified as both biological and psychological. Chou, Lu, Wang, Lan and Lin's (2008) study on the meanings and experiences of menstruation in institutionalised women with an intellectual disability speaks directly to this factor. As a biological factor, intellectual disability could be caused by a genetic or congenital defect (Arvio & Sillanpää, 2003). Chou et al. (2008) carried out a study on women with an intellectual disability from three public health institutions in Taiwan. Results indicated that many participants reported that the tasks associated with managing menstruation each month were neither bothersome nor difficult for them.

Participants viewed menstruation as a normal and natural part of a woman's life that is necessary for both the individual and her reproductive life (Chou et al., 2008). For those few who did not like their monthly periods, this was a result of symptoms, such as abdominal pain, breasts swelling and dizziness. Managing the menstrual period by changing pads often or keeping particularly clean was seen as a bother. The use of inefficient sanitary pads also contributed to a negative view of menstruation, the ones that were available were uncomfortable and not sufficiently absorbing (Chou et al., 2008). As mentioned above, intellectual disability could also be considered a psychological factor if the disability were caused by any psychopathology.

### **2.2.2 Menstruation and psychological factors**

Two of the psychological factors contributing to attitudes and beliefs of the experience of menstruation are preparedness and self- perception.

Preparedness includes the amount and quality of information provided to a girl prior to menarche; the sources of this information; and how prepared a girl feels at the time of her menarche (Marván & Molina-Abolnik, 2012; Tiwari et al., 2006). Most girls get information from their mothers, or other significant women in their lives, prior to menarche, if they are informed at all (Çevirme et al., 2010; du Toit, 1988; Liu, Chen & Peng, 2012; Rembeck et al., 2006; Shanbhag et al., 2012; Stubbs, 2008; Tiwari et al., 2006; Umeora & Egwuatu, 2008; Wong & Khoo, 2011). The female informants' attitudes towards menstruation and their body-esteem will directly affect the content of the information passed on to those girls seeking advice. Adult informants, mothers in particular, should be aware of their importance and their role in transferring knowledge and should be encouraged to obtain adequate information so as to ensure that positive and realistic expectations are handed down to younger girls (Rembeck et al., 2006). Shanbhag et al. (2012) found that 73.7% of the girls, participating in their study on the perceptions and practices related to menstruation in India, knew that menstruation was a natural process. However, 13.4% of the girls believed menstruation was a curse from God, a belief instilled in them by their mothers (Shanbhag et al., 2012).

The quantity and quality of information provided to a young girl before her first menstrual experience contributes to how prepared she will feel when experiencing menarche. This, in turn, will affect the attitudes and beliefs that girls will have towards the experience of menstruation (Marván & Molina-Abolnik, 2012; Shanbhag et al., 2012). Chang, Chen, Hayter and Lin (2009) found that the psychological impact of menarche was linked to how well informed and prepared participants felt. The majority of their participants indicated



receiving little or no information that would help them feel prepared for menarche, leaving them feeling afraid that they were seriously ill or going to die (Chang et al., 2009).

Demirbag and Güngörmüs' (2011) study assessing the knowledge about the menstruation period among female students in Turkey indicated a significant relationship between age and how well participants were able to describe the process of menstruation. According to this finding, 70.3% of the female students felt that they did not have appropriate knowledge about menstruation, which resulted in them feeling inadequately prepared for their experience of menarche. However, Marván and Molina-Abolnik (2012) found that despite being informed about menstruation, most of their participants still admitted to feeling completely unprepared for menarche. This may be due to the fact that the information they received was insufficient and inadequate in properly preparing them for menstruation, and it focused on negative aspects, which may in turn result in negative attitudes towards menstruation in general (Marván & Molina-Abolnik, 2012).

Tiwari et al.'s (2006) study surveying knowledge, attitudes and beliefs towards menstruation was conducted on a sample of adolescent girls in the Gujarat district of India. It was found that two thirds of the participants (37.2%) had no prior knowledge about menarche.

Similarly, Marván and Molina-Abolnik (2012) found that less than half of their participants had discussed emotional aspects or physical sensations of menarche prior to its occurrence. Furthermore, in a study conducted in India by Bhattacharjee, Ray, Biswas and Chakraborty (2013) it was found that the majority (48.8%) of their early adolescent participants (10-13 years) had a poor knowledge of menstruation. 48.8 % of the mid-adolescent (14-16 years) and 52.9% of the late adolescent (17-19 years) participants had only fair knowledge of menstruation (Bhattacharjee et al., 2013). This lack of knowledge could account for the fact that 16.9% of Tiwari et al.'s (2006) sample initially believed that menarche was a life-threatening disease or symptoms of an illness. This could result in the experience of a variety

of emotions at menarche, including shame, guilt, fear and anxiety, and these emotions could continue to be associated with menstruation throughout a woman's reproductive years (Shanbhag et al., 2012; Tiwari et al., 2006). Therefore, the less accurate knowledge girls have about that which menstruation entails and the less prepared a girl is to start menstruating, the more secretive and negative they may feel toward the menstrual experience (Marván & Molina-Abolnik, 2012).

Stubbs (2008) argues that not much more information is available today on what constitutes good preparation for menstruation than what there was in the past. Even though girls describe themselves as being well prepared for menstruation, they still report feeling shame, disgust, and apprehension about menstruation (Stubbs, 2008). This is not surprising, considering that girls' knowledge of menstruation is still largely inaccurate, incomplete and negatively biased (Koff & Rierdan, 1995).

Menstruation education must not only address the physical impact of menarche; it must also address the emotional, social and psychological impact thereof, so that girls will feel emotionally prepared for the experience of menstruation and have fewer negative reactions. Education about menstruation needs to start at an early age, before puberty, so that girls can be better prepared psychologically for the experience of menstruation and may therefore have fewer negative reactions (Anjum et al., 2010). Addressing the subject of menstruation in the context of a calm, supportive, and reassuring environment may also improve how prepared a girls feels for menstruation (Stubbs, 2008).

Self-perception is the second psychological factor that could contribute to beliefs and attitudes towards menstruation. Self-perception has been referred to in the literature as the level of self-esteem, self-objectification, physical attractiveness, and the sex and gender roles one has or ascribes to (Rembeck et al., 2006; Tang et al., 2004).

Roberts (2004) found, in a study that explored the relationship between self-objectification and women's menstrual self-evaluation, that self-objectification was significantly correlated with more negative attitudes. Similarly, Tang et al. (2004) investigated the self-perceptions of pre-menarcheal and post-menarcheal girls from Hong Kong. The two groups were compared on three measures of self-perception, namely; self-esteem, gender-role identity, and perceived physical attractiveness. It was found that there was no significant main effect for self-perception and menarcheal status when overall group differences were compared on the three measures (Tang et al., 2004). Rembeck et al. (2006) also found that self-esteem, especially body-esteem, was low throughout their sample of 12-year-old pre-menarcheal and post-menarcheal Swedish girls. During puberty, awareness of the body and its development may contribute to the formation of self-esteem (Rembeck et al., 2006). Furthermore, the dominant western culture prefers girls and women to be small, petite and feminine and developing a more rounded mature body collides with this prevailing culture perpetuating a lower level of self-esteem in young girls. The images portrayed in the media (television, movies, magazines, etc) of the ideal female body shape may also further compound these young girls' non-conformity to the prevailing culture and could therefore result in low levels of self-esteem (Rembeck et al., 2006).

### **2.2.3 Menstruation and socio-cultural factors**

Culture, religion and society are probably the most widespread factors that may affect the attitudes and beliefs of the experience of menstruation of women today. Families, the media, and the lack of readily available information and education perpetuate the large amount of secrecy surrounding the phenomena of menstruation (Marván & Molina-Abolnik, 2012; Umeora & Egwuatu, 2008; White, 2013; Yeung, Tang & Lee, 2005). In a South African study conducted by du Toit (1988), 85.7% of all participants felt that men had an advantage over women because they do not menstruate at all. Participants felt that men are not restricted

in the practices of religion or sex, and they do not have the monthly ‘bother’ of menstruation (du Toit, 1988). It is also a common belief and practice to hide the fact that one is menstruating from other people, especially men, as it is shameful to reveal such things. A study conducted by Çevirme et al. (2010) in Turkey found that 48.8% of their participants felt this way. Menstrual bleeding is considered as shameful, dirty, and disgusting and therefore must be hidden so as to avoid potential embarrassment of both the menstruating woman and the men in her company (Çevirme et al., 2010). This stereotype of secrecy and ‘hiding’ further perpetuates the dominant view of menstruation as a process that women should be ashamed of, as opposed to celebrating it as a natural biological indication of fertility and health.

Socio-cultural factors such as religion, culture, education, and socio-economic status have all been found to impact the attitudes and beliefs surrounding the experience of menstruation in some way or another (Çevirme et al., 2010; Cooper & Koch, 2007; du Toit, 1988; Dunnivant & Roberts, 2013; Johnston-Robledo & Chrisler, 2013; Kumar & Kundan, 2011; Marván & Trujillo, 2010; Orringer & Gahagan, 2010; Shanbhag et al., 2012; Tiwari et al., 2006; Umeora & Egwuatu, 2008; White, 2013; Wister, Stubbs & Shipman, 2013; Wong & Khoo, 2011; Yeung et al., 2005).

Different religions may have differing attitudes and beliefs towards the experience of menstruation. Different religious restrictions of the menstruating woman may contribute to the largely negative attitudes and beliefs people have towards menstruation. Many world religions place prohibitions on and prescribe purifying rituals for menstruating women (Dunnivant & Roberts, 2013). Some of the restrictions include not being allowed to worship (Umeora & Egwuatu, 2008; Wong & Khoo, 2011), avoiding sexual intercourse (Çevirme et al., 2010), and avoiding certain foods during menstruation (Shanbhag et al., 2012). Tiwari et al. (2006) found that 36.2% of respondents reported social restrictions being observed in their

families, including the custom of not being allowed to hold prayers, go to the temple or enter the kitchen while menstruating. A study conducted by Bhattacharjee et al. (2013) also found that 93.1% of the participants avoided religious practices and 76.6% restricted certain foods during menstruation.

Wong and Khoo's (2011) study on the menstrual-related attitudes and symptoms among multi-racial Asian adolescent females revealed a statistically significant difference in attitudes in women from different religions. 90.1% of Muslim participants and 82.8% of Hindu participants reported restricted religious activity and prayer during menstruation, compared with 45.9% of Buddhist and 17.2% of Christian participants. Despite the religious restriction, 48.6% of the Muslim participants were happy with their monthly menstruation, compared with 34.2% of Buddhist, 11.3% of Hindu, and only 7.8% of Christian participants (Wong & Khoo, 2011).

Many of the religious rituals enforced on menstruating women seem to reinforce the negative stereotypes of women as weak, dirty, and as beings that should be secluded (Dunnavant & Roberts, 2013). These authors conducted a study that focused on the attitudes and experiences of menstruation in religious and non-religious women in America. Jewish, Hindu, and Muslim participants were categorised in the prescriptive religious group, due to the commonalities in the rituals prescribed for menstruating women (these prescriptions included abstaining from sexual intercourse, abstaining from religious expression, and a ritual bath). Buddhism and Christianity offer more leniencies towards menstruating women than the aforementioned religions and were therefore placed in the non-prescriptive religious group (Dunnavant & Roberts, 2013). Participants who reported that they did not identify with a religious group were included in the non-religious group. Results revealed that the prescriptive religious group scored highest on the secrecy/shame factor, as well as embarrassment (Dunnavant & Roberts, 2013). Prescriptive groups also rated highest and

significantly different from the two other groups in the case of prescriptions, prohibitions, seclusion and community factors. However, the community factor indicated that women in the prescriptive religious group felt a significantly stronger sense of community and connection with other women regarding their monthly menstruation than those in the other groups (Dunnivant & Roberts, 2013). This may be due to the fact that women in the proscriptive religion group found that their religious traditions offered a space for menstruating women to identify with each other, to share experiences, and to form a community. In groups where menstruation involves rituals and certain rules, menarche becomes a time to welcome young girls into a community of menstruating women who will go on to teach the prescriptions and prohibitions specific to their religion (Dunnivant & Roberts, 2013).

Another factor contributing to the attitudes and beliefs of the experience of menstruation is culture. This may include the stereotypes surrounding menstruation in the western culture, sub-cultural differences within a larger culture and population group. In the western culture, the 'perfect' female body is defined by ideals of beauty, which has been identified as generally unattainable and yet women continue to strive towards this ideal in order to please the 'dominant' male (Roberts, 2004). One of the obligations that women have in a culture that sexually objectifies their bodies is to conceal the biological functioning of their bodies, such as menstruation (Roberts, 2004). As advocates of feminism have argued, a patriarchal society that struggles to accept female bodies, requires that the female body be contained, controlled, and pure or unsoiled, this is particularly evident in the socio-cultural discourse surrounding menstruation (Roberts, 2004). These sentiments form part of how female bodies are constructed, and these constructions thus influence women's attitudes and beliefs of their experience of menstruation.

du Toit's (1988) study on the menstrual attitudes of Indian South Africans revealed that the Indian culture in South Africa is characterised by male dominance and the domesticity subordination of women. Menstruation is therefore a clear social marker associated with womanhood, adulthood, reproduction, and health (du Toit, 1988). Similarly, Burrows and Johnson (2005) found that the meanings attached to menarche and menstruation were constructed by developing and changing, context specific, socio-cultural representations and practices.

Early theorists viewed the 'menstrual taboo' as both a reflection and source of female oppression, where the interpretation of menstrual taboos in both the popular and professional literature equated the notion of taboo with oppression and therefore menstrual taboos with the suppression of women in society (Buckley & Gottlieb, 1988). An example of this in society today is the mass media. Media acts as one of the instruments responsible for the construction of meaning through language, and in turn contributes towards maintaining and perpetuating power structures by reproducing identities that lie at the core of existing social relationships (Del Saz-Rubio & Pennock-Speck, 2009). The media therefore further perpetuates the patriarchal form of social control that women, in general, experience even though they may experience menstruation differently.

Despite the difference in each woman's experience of menstruation, the dominant menstrual discourse is one of pain, impurity and unpredictability, as the onset of the menstrual period is sometimes sudden, painful and unexpected (Marván & Trujillo, 2010). Menstrual blood has also been seen as a stigmatising mark, and as only girls and women menstruate, menstrual blood also marks the tribal identity of femaleness (Johnston-Robledo & Chrisler, 2013), which is seen as abnormal in comparison to men (Northrup, 2010). This stigma of menstruation is maintained and perpetuated by many world religions, men and women themselves, and has negative consequences for women's health and sexuality (women should

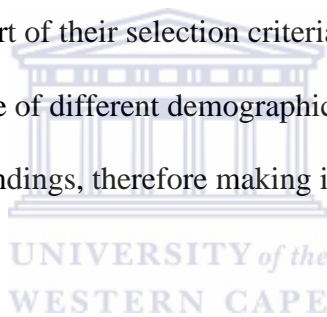
avoid sexual acts and should not be seen as sexual beings while they are menstruating). Women's wellbeing, and social status is also affected as they become more self-conscious and hyper-vigilant to ensure that they do not reveal their menstrual status, again perpetuating the stereotype of secrecy (Johnston-Robledo & Chrisler, 2013), which can lead to the stereotype of menstruation as a threat. Wister et al. (2013) investigated menstruation as a stereotype threat that could have the effect of diminishing cognitive performance. Results indicated that menstruation threat can be elicited by asking participants to answer descriptive questions about their own menstrual cycles, and this threat diminishes performance in at least one area of cognition. The study also provided evidence that positive priming (which is absently calling attention to one's own menstruation) moderates the relationship between closeness to menstruation and performance on a cognitive task (Wister et al., 2013). It was evident from the study that merely mentioning menstruation can serve as a stereotype threat among women and girls, which places them at risk of conforming to the negative stereotype surrounding menstruation (Wister et al., 2013). In contrast, a study conducted by Rose, Chrisler and Couture (2008) found that women who were positively primed were less likely to agree with the myths and stereotypes about the proscriptions and prescriptions surrounding menstruation than women who were negatively primed. The discrepancy in results between Wister et al. (2013) and Rose et al.'s (2008) studies could be attributed to the use of different questionnaires. Rose et al. (2008) made use of a more recent scale (Beliefs and Attitudes Towards Menstruation (BATM) questionnaire; Marván, Ramírez-Esparza, Cortés-Iniestra & Chrisler, 2006), whereas Wister et al. (2013) made use of the Menstrual Attitude Questionnaire (MAQ; Brooks-Gunn & Ruble, 1980). The MAQ does not contain a subscale that measures proscriptions and prescriptions regarding menstruation (Rose et al., 2008). Negative stereotypes and attitudes surrounding menstruation are in turn affected by culture. Marván and Trujillo (2010) focused on menstrual socialisation, beliefs, and attitudes



concerning menstruation in a sample of rural and urban Mexican women. This study indicated the differences in beliefs and attitudes concerning menstruation of sub-cultural groups within a largely homogenous culture. Results found that 92.4% of urban women had been somewhat prepared for menarche, compared to only 66% of the rural women (Marván & Trujillo, 2010). With regard to attitudes and beliefs about menstruation, significant differences were found between the two groups on three subscales (namely 'secrecy', 'proscriptions and prescriptions' and 'disability') of the BATM. Rural women were more likely to believe that menstruation should be handled with secrecy and they were also more likely to view menstruation as having proscriptions and prescriptions (Marván & Trujillo, 2010). These results may be due to the fact that rural women could be more resistant to changes in their traditions, and they tend to preserve cultural beliefs and customs that are passed on from generation to generation (Marván & Trujillo, 2010). Despite this, more rural women were found to believe that the menses is associated with fertility and health and therefore scored higher on the 'pleasantness' subscale of the BATM (Marván & Trujillo, 2010).

Another socio-cultural factor that has been found to influence attitudes towards menstruation is population group. In a study done by White (2013) it was found that ethnicity and income levels were significantly related with regard to knowledge about menstruation and level of preparedness. Culture and ethnicity are believed to have strong influences on the life events of individuals, and the experience of menarche is no exception (White, 2013). European Americans were found to be more knowledgeable and felt more prepared than African Americans, which may in turn lead to different attitudes towards and beliefs about the experience of menstruation (White, 2013). Similarly, Cooper and Koch (2007) found that African American women were more likely to experience a lack of informative and positive communication around menstrual events than women in other population groups in the

United States. This could possibly have resulted in the African American participants' negative attitudes towards menstruation (Cooper & Koch, 2007). These results could be due to the cultural differences, as well as the differences in income level, between African and European Americans (White, 2013). In contrast, Yeung et al. (2005) found that for both positive and negative emotional expectations of menarche, demographic characteristics were insignificant predictors. These two studies yield differing results regarding demographic characteristics as a factor influencing attitudes and beliefs of the experience of menstruation. This difference could be attributed to the fact that the studies were conducted in different countries, with the first study, an American study, specifically focusing on demographic differences as a contributing factor. The second study, one conducted in China does not use demographic characteristics as part of their selection criteria, which could have resulted in a sample that was not representative of different demographic backgrounds. Both studies report limited generalisability of their findings, therefore making it difficult to compare their results with accuracy.



Traditional societies have recognised the significance of menstruation for a long time, and they have isolated women during flow either by limiting their activities or restricting them through isolation, further perpetuating the social control of the menstruating woman (du Toit, 1988). This has happened throughout the history of western culture and continues to have a negative affect on women's attitudes and beliefs surrounding the experience of menstruation. Reasons for these taboos are based on diverse interpretations of cause and effect, and these interpretations are based on biogenic, psychogenic and sociogenic explanations (du Toit, 1988). From the studies outlined above it is clear that a number of biological, psychological and socio-cultural factors have an influence on the way menstruation is viewed and ultimately the attitudes and beliefs women hold of the experience of menstruation. The biopsychosocial model as a theoretical framework can therefore guide these biological,

psychological and socio-cultural factors.

### **2.3 Theoretical framework**

The biopsychosocial model, also known as the mind-body connection, is an extension of the biomedical model of medicine (Ritter & Lampkin, 2012). It proposes that biological, psychological, and socio-cultural processes operate in a matrix of embedded and inextricably connected subsystems that influence all aspects of mental and physical health (Suls, Krantz & Williams, 2013). Biological factors include all genetic, physiological and health related factors. Psychological factors include all internal perceptual, cognitive, emotional and personality factors. Socio-cultural factors include interpersonal, societal, cultural, and ethnic factors (Cavanaugh & Blanchard-Fields, 2011).

In 1977, George Engel expressed the view of a biopsychosocial model as a challenge to the traditional and dominant biomedical model of the time, in which biological or psychological processes were thought to be sufficient to explain disease and its treatment (Suls et al., 2013). The need for a new model was suggested because psychology researchers and clinicians realised that the traditional biomedical model fell short of adequately explaining many health outcomes (Suls et al., 2013). In proposing the biopsychosocial model, Engel challenged the health care field to broaden its approach to include the biological, psychological and socio-cultural effects on patient welfare. This was proposed because biomedicine could not adequately account for the effect that practitioners had on the outcomes of their patients (Suls et al., 2013).

Social constructionists also acknowledge the role that the social environment plays in the process of creating attitudes and beliefs, as it replaces the concept of cognition with conversation (Talja, Tuominen & Savolainen, 2005). Therefore what people perceive as ‘truth’ significantly depends on the social relationships that they engage in (Gergen, 1999). This framework speaks directly to the socio-cultural factors focused on in the present study. However,

it does not include the biological and psychological processes, which are also considered to play a role in the development of attitudes and beliefs toward the experience of menstruation. Moreover, social constructionism places significant emphasis on language (Augustine, 2002), which does not tie in with a study that is quantitative in nature. Therefore the biopsychosocial model was used.

The menstrual cycle is a perfect example of a biopsychosocial process as it is a normal aspect of physiology that both affects behaviour and is affected by behaviour (Chrisler, 2013).

Women's behaviour is affected by beliefs and attitudes, which are in turn affected by psychological experiences (Chrisler, 2013). Attitudes and beliefs about other female biological processes, such as menopause are similarly viewed as affecting and being affected by behaviour. Women's cyclic, menarcheal, and menopausal experiences occur, their beliefs about them are learned and their attitudes toward them are formed within a cultural context (Chrisler, 2013). Therefore, although many women around the world may share the same physiology of menstruation and menopause, each woman will experience it differently.

Biopsychosocial factors contribute to women experiencing the menstrual cycle and menopause differently because women are products of their inner biological and psychological environment as well as their external, contextual, socio-cultural environment (Tiwari et al., 2006).

Conducting research on menstruation is an opportunity to explore what young women know about their bodies, to investigate myths and misinformation they may have learned, and explore the extent of the impact of culture and social cognition on elements of biological processes, such as menstruation (Chrisler, 2013).

The investigation of a complex phenomenon such as menstruation demands a multidimensional perspective that employs a multivariate approach to data analysis. This theory is therefore appropriate for my research as it will assist in understanding how age at

menarche, religion, population group, and preparedness, are associated with attitudes and beliefs towards the experience of menstruation. In particular this theory will frame our understanding in terms of biological (age at menarche), psychological (preparedness) and socio-cultural (religion and population group) factors, and how these factors affect the attitudes towards the experience of menstruation. The following section will outline the methodology used to carry out the proposed study.



## Chapter 3: Methodology

The central focus of this study was to determine the attitudes and beliefs of the experience of menstruation in female students, between the ages of 18 and 21 years, at UWC specifically focusing on the biological, psychological and socio-cultural factors that may affect attitudes and beliefs towards menstruation. The hypotheses that were addressed in this study were:

- 1.) There are significant associations between the independent variables: age at menarche, population group and level of preparedness, on the levels of annoyance, disability, proscriptions and prescriptions, secrecy and pleasantness associated with menstruation;
- 2.) There will be significant differences between groups, based on a.) Age at menarche, b.) Population group and c.) Level of preparedness, on the levels of annoyance, disability, proscriptions and proscriptions, secrecy and pleasantness associated with menstruation.

These specific research hypotheses guided the methodology for the study and therefore a quantitative design was employed using an instrument to measure attitudes and beliefs of the experience of menstruation. The following chapter outlines the methodology employed in conducting this study.

### 3.1 Research design

The research design used in this study was a cross-sectional survey design. A cross-sectional survey collects data to make inferences about a population of interest at one point in time and has been described as a snapshot of the population about which they gather data (Lavrakas, 2013). This design allowed for the collection of data regarding the samples' attitudes and beliefs of the experience of menstruation. The use of a self-administered structured questionnaire was best suited for this study as it allowed for a process that is completely confidential and not time consuming.

### 3.2 Sample

The final sample consisted of 200 females students between the ages of 18 and 21 years from UWC. The sample comprised females who were mostly 20 years old (46%). The largest group of participants came from the Arts faculty (57%) and then the Community and Health Sciences (CHS) (13%) and Economic Management Sciences (EMS) faculty (13%). The Natural Science faculty (7%), Law faculty (6%) and Education faculty (4%) made up the remainder of the participants. The distribution of the sample from this study may have been due to the method of sampling used and the areas where the students were located, and this could have resulted in a larger number of students from the Arts faculty being included in the study.

Eighty five percent of participants experienced menarche at a 'normal' age (11-15 years old), 9% had a late onset menarche ( $\geq 16$  years old), and 6% experienced an early onset of menarche ( $\leq 10$  years old). With regard to population group, most of the participants (59%) fell into the 'coloured' category, with the second largest group being 'african' (37%). The remaining categories ('indian/asian'; 'white' and 'other') constituted 4% of the sample. However, for the purpose of this study, only the african and coloured population groups will be compared in further analyses as these categories yielded the largest groups in the sample. This exclusion therefore reduced the sample size to 192. According to Hair, Black, Babin and Anderson (2010) in MANOVA with group sizes of fewer than 30 participants, obtaining desired power levels could be problematic. Any outlying values should be eliminated, as their impact will be disproportionate in the overall results, due to MANOVA being especially sensitive to outliers (Hair et al., 2010).

With regard to religion, the majority of the sample subscribed to Christianity (87.5%). Islam was the second largest group (11%), with only 1.5% of the sample comprising of Hinduism and 'other'. Due to the fact that religion was asked as a single question in the questionnaire,

and extent of religious practice was not examined, the results obtained from the questionnaire may not accurately indicate the true religiosity of the participants. This could have resulted in the majority of participants indicating that their religious affiliation was 'Christianity'.

Therefore, these results will be used for descriptive purposes only, and group differences will not be examined. When exploring the level of preparedness it was found that 68% of the sample felt that they were unprepared for menarche, and only 32% felt that they were prepared for menarche.

Female students were chosen as they have first-hand experience of menstruation, as opposed to males who would only be able to give a second-hand account of knowledge surrounding menstruation. Women between the ages of 18-21 years should still be able to recall their experiences of menarche with some accuracy as well as provide a retrospective view of how the experience of menarche has shaped their attitudes and beliefs towards the experience of menstruation. Koff, Rierdan and Sheingold (1982) suggest that girls in this age group were thought to be distanced enough from the emotional aspect of menarche to be able to reflect and respond appropriately to questions regarding their experiences of menarche, as well as being able to reconstruct the circumstances reliably.

### **3.3 Sampling procedure**

Simple random sampling was used to recruit female students from UWC. Simple random sample means that each unit in the population has the same inclusion probability and all the units are independent (Berger & Zhang, 2005). Students were accessed through the Centre for Student Support Services (CSSS) on campus. The managers of each of the five departments in CSSS were consulted with at a managers meeting and permission was obtained to access students through each of these respective departments. The departments included the office for academic support, leadership and responsibility, the office for student



development, therapeutic services, and the office for students with disabilities. The researcher accessed participants through CSSS by attending a workshop for the mentors of the Peer Mentoring Programme, as well as by attending two Emerging Leaders Programme meetings to gain access to participants.

Since difficulty was experienced in recruiting the full sample of 200 participants from CSSS, further recruiting was done in lectures and the student cafeteria during the lunch break. The researcher gained permission from the respective lecturers to speak to the students during the last 15 minutes of the lecture and asked students to participate in the study. Any students who were willing to participate stayed behind with the researcher.

The questionnaire was administered in English, so it is for this reason that participants needed to be able to read and write in English so as to answer the questionnaire fully and accurately.

Initially a sample of 200 participants was specified as it met the requirements for the original proposed method of data analysis, which was multiple regression. In order to utilise multiple regression as a method of data analysis the dependent variable (namely the attitudes and beliefs of the experience of menstruation) needed to be measured at an interval level and only one dependent variable can be included in the analysis at a time (Field, 2013). For this reason a composite score of all of the subscales in the instrument (BATM) needed to be calculated in order to have one dependent variable measuring the attitudes and beliefs of the experience of menstruation. It was unclear in the original article whether or not this score could be calculated (Marván et al., 2006), therefore, contact was made with the authors of the questionnaire to determine if it was possible to develop a composite score for the measure. It was communicated that subscales had to be analysed separately and for this reason, the method of data analysis was changed to MANOVA and the data collected from the original sample of participants was used.

### 3.4 Data Collection

#### 3.4.1 Procedure

Permission to conduct the proposed study was obtained from the UWC Higher Degrees and Senate Research Committees.

**3.4.1.1 Pilot study.** A pilot study was conducted with 20 participants, randomly selected on the UWC campus, to determine the relevance of the instrument in the South African context, as well as determining the psychometric properties. The researcher approached female students between the ages of 18 and 21 years from the CSSS Emergent Leaders Program (ELP) on campus, as well as students in the cafeteria on campus, and asked them to complete the questionnaire. Questions were then asked about the wording of the items on the questionnaire, the difficulty and the sensitivity of the questions. Participants were also asked how they found the experience of answering the questionnaire and to provide any suggestions that may improve the questionnaire. The pilot study revealed the following Cronbach's alpha reliability coefficients for each of the subscales in the questionnaire: Secrecy (12 items: Cronbach's alpha = .60), Annoyance (13 items: Cronbach's alpha = .61), Proscriptions and prescriptions (9 items: Cronbach's alpha = .35), Disability (5 items: Cronbach's alpha = .66), and Pleasantness (6 items: Cronbach's alpha = .66). These values are based on a sample of 20 participants included in the pilot study, and this could be the reason for the values being so low. However, the psychometric properties of the entire sample were explored and are reported under the instrument. The wording of items was reported as being easy to understand and respond to, and therefore no changes were made to the original items in the questionnaire.

**3.4.1.2 Data collection.** Following the pilot study, the researcher accessed students as outlined in the sampling procedure section. The aims of the study, the participant's role in the research project, as well as what the researcher intended to do with the findings of the study,

were explained to each participant. Each participant was given an information sheet explaining the details of the study and after reading it they were required to complete an informed consent form before they answered the questionnaire (See Appendix A for information sheet and Appendix B for informed consent form). The participants were informed that participation in the study was completely voluntary and they were allowed to withdraw at any point during the completion of the questionnaire. The questionnaire was given to students to complete immediately and handed back to the researcher; this did not take more than 15 minutes. The researcher was available to answer any questions that the participants may have had or to help in answering the questions if assistance was needed. Minor questions were asked relating to process of answering the questionnaire, however, participants seemed to have no difficulty with the content of the questionnaire.

### **3.5 Measuring Instrument**

The first section of the self-administered questionnaire (See appendix C) included demographic information such as age, age at menarche (Allison & Hyde, 2013), religion (Wong & Khoo, 2011), population group (White, 2013), faculty and level of preparedness for menarche (Marván & Molina-Abolnik, 2012). These particular variables were chosen due to their predominance in the literature and the documented effect they seem to have on the attitudes and beliefs of the experiences of menstruation. For the purpose of this study, age at menarche was the age at which menstruation was first experienced. This was divided into three categories, namely: early onset of menarche, normal onset of menarche and late onset of menarche. The 5th and 95th percentiles for age at menarche were 10 and 16 years in this cohort (See table 8), so ‘early onset’ was classified as  $\leq 10$  years old, and ‘late onset’ was classified as  $\geq 16$  years old, with ages 11–15 years considered ‘normal onset’. This classification is supported by a study conducted by Glueck et al. (2013).

Religion was defined as ‘a particular system of belief or worship’ (Brookes, Munro, O’Donoghue, Neill & Thomson, 2004, p.1015). For the purpose of this study religion included Christianity, Hinduism, Judaism, Islam, African Traditional or Other (Statistics South Africa, 2011). Population groups included african, coloured, indian/asian, or white (Statistics South Africa, 2011). This classification system was used, not as a legal definition, but rather as a method of self-classification.<sup>1</sup>

Level of preparedness for menarche includes perceived adequacy of preparation. This was measured by two questions. The first question addressed to what degree the participant recalled feeling prepared for menstruation. This was measured on a 4-point Likert scale (with 1 being totally unprepared and 4 being totally prepared). The second question addressed preparation in terms of prior knowledge: Did the participant have knowledge about the cause of bleeding, the sensation of menstruation, the frequency of menstruation, the amount of bleeding per day, the duration of menstruation and how to ensure menstrual hygiene (Koff et al., 1982). This was also measured on a 4-point Likert scale (with 1 being no information and 4 being enough information). For the purpose of this study, two groups were defined under level of preparedness, namely, ‘prepared’ and unprepared’. The scores were added together and a total score of 5 and lower indicated the participant was unprepared for menarche and a score of 6 or higher indicated the participant was prepared for menarche.

The second section of the questionnaire consisted of the Beliefs and Attitudes Towards Menstruation Questionnaire (BATM). This questionnaire was developed in a developing country and yielded reasonably high reliability and validity (Marván et al., 2006). The questionnaire contains 45 items measuring attitudes towards menstruation on five subscales (secrecy, annoyance, proscriptions and prescriptions, disability and pleasantness). Each item

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<sup>1</sup> Statistics South Africa continues to classify people into population groups, since moving away from the past apartheid-based discrimination. This classification uses a population group-based classification system that is no longer based on a legal definition, but rather on self-classification (Statistics South Africa, 1996).

was measured on a 5-point Likert scale, with 1 indicating a low score and 5 indicating a high score. Items 1, 5 and 39 were reverse scored on a scale of 5 to 1 (Marván et al., 2006). The items that comprise the secrecy factor assess the importance of keeping menstruation a secret as well as feelings of embarrassment surrounding menstruation. The annoyance factor refers to menstruation as bothersome and includes items that suggest a desire to reject menstruation (Marván et al., 2006). The proscriptions and prescriptions factor includes certain activities that women should not engage in, and other activities that they should adhere to, when they are menstruating. The disability factor looks at the belief that menstruation is a source of discomfort for women, which keeps them from normal activities. Lastly, the pleasantness factor includes feelings of well-being and pride associated with menstruation (Marván et al., 2006).

The BATM was developed in Mexico by Marván et al. (2006). The five factors measured by the BATM yielded the following Cronbach's alpha values: Secrecy (12 items: Cronbach's alpha = .82), Annoyance (13 items: Cronbach's alpha = .83), Proscriptions and prescriptions (9 items: Cronbach's alpha = .76), Disability (5 items: Cronbach's alpha = .75), and Pleasantness (6 items: Cronbach's alpha = .71). Pearson correlations were significant for the following factors: 'Secrecy' was positively correlated with 'annoyance' ( $r = .26$ ,  $p < .0001$ ), 'proscriptions and prescriptions' ( $r = .46$ ,  $p < .0001$ ), and 'disability' ( $r = .44$ ,  $p < .0001$ ). 'Annoyance' was also positively correlated with 'proscriptions and prescriptions' ( $r = .34$ ,  $p < .0001$ ), and 'disability' ( $r = .42$ ,  $p < .0001$ ). Finally 'proscriptions and prescriptions' was positively correlated with 'disability' ( $r = .37$ ,  $p < .0001$ ), but was negatively correlated with 'pleasantness' ( $r = -.08$ ,  $p < .01$ ). These correlations were for a Mexican sample (Marván et al., 2006).

The South African context is understood to be unique and therefore different from any other developing country because of its unique history. However, it is also understood that there

are some similarities between South Africa and developing countries, such as Mexico with regards to ethnic and cultural diversity (Fearon, 2003). The following psychometrics properties were found for the sample used in this study. The five factors measured by the BATM yielded the following Cronbach's alpha values for this sample: Secrecy (12 items: Cronbach's alpha = .77), Annoyance (13 items: Cronbach's alpha = .83), Proscriptions and prescriptions (9 items: Cronbach's alpha = .75), Disability (5 items: Cronbach's alpha = .72), and Pleasantness (6 items: Cronbach's alpha = .60). The majority of scales indicated a high level of reliability (Cronbach's alpha > .70), with the Pleasantness scale showing a lower level of reliability (Cronbach's alpha > .50). Reliability refers to the extent to which a variable or set of variables is consistent in what it is intended to measure (Hair et al., 2010). The agreed upon lower limit for Cronbach's alpha is .70 (Drasgow, 1984), although it may decrease to .60 in exploratory research (Drasgow, 1984) or when there are fewer items in the analysis (Tavakol & Dennick, 2011). Therefore, the scales used in this questionnaire can be considered reliable.

Pearson correlations were significant for the following factors: 'Secrecy' was positively correlated with 'annoyance' ( $r = .214, p < .01$ ), 'proscriptions and prescriptions' ( $r = .502, p < .01$ ), and 'disability' ( $r = .166, p < .01$ ). 'Annoyance' was also positively correlated with 'proscriptions and prescriptions' ( $r = .267, p < .01$ ), and 'disability' ( $r = .507, p < .01$ ), but was negatively correlated with 'pleasantness' ( $r = -.260, p < .01$ ). Finally 'proscriptions and prescriptions' was positively correlated with 'disability' ( $r = .331, p < .01$ ).

### **3.6 Data Analysis**

The raw data obtained from the questionnaires was entered, coded, cleaned and analysed by means of the Statistical Package in the Social Sciences (SPSS) to provide the information needed for the study.

Missing data was dealt with by: (1) replacing it with the mean (which may perhaps lead to significant results that may not otherwise be significant); (2) excluding cases listwise (i.e. any participant with missing data for any variable is excluded) or (3) excluding cases pairwise (i.e. a participant's data are only excluded from computations for which a datum is missing) (Field, 2005). Field (2005) suggests that it is safest to exclude cases listwise if it does not result in a massive loss of data. Since the missing values found were minimal and considered to be missing at random, cases were excluded from the analyses listwise.

The independent variables in this study were: age at menarche, population group, and level of preparedness. The dependent variables were: the level of annoyance, the level of proscriptions and prescriptions, the level of secrecy, the level of disability and the level of pleasantness, associated with menstruation. IBM SPSS was used to analyse the raw data obtained from the questionnaires.

Data was analysed first using univariate analysis, where tables were created and each variable was explored independently (Babbie & Mouton, 2009). Bivariate analysis was used to analyse the variables two by two. Kendall's tau, the non-parametric correlation, was used to determine if there were significant associations between the independent variables and the dependent variables. Non-parametric tests are also known as assumption-free tests because they make fewer assumptions than parametric tests (Field, 2013). Kendall's tau is a robust measure to use when the assumptions of Pearson's  $r$  correlation are violated (Field, 2013). These assumptions include that the scores are independent, and that the variables are continuous. The assumptions of normality and random sampling must also be met (Pretorius, 2007). In the case of this study, some of the variables that are being analysed are categorical, and therefore the assumption of continuous data has been violated.

Multivariate analysis of variance (MANOVA) was then used to determine whether there were significant differences between groups on the dependent variables. MANOVA is a statistical

technique used to examine several dependent variables simultaneously (Hair et al., 2010).

When studying multiple univariate questions with a number of separate dependent variables, that are to be analysed separately, some control over experiment-wide error rate is needed. In this instance, MANOVA is used to assess whether an overall difference is found between groups (Hair et al., 2010). In MANOVA the test for significance will vary. In testing hypothesis 2, the independent variable, age at menarche, will be tested using Pillai's trace.

When group sizes are unequal, the assumption of homogeneity of covariance matrices is met, and the assumption of normality is tenable, Pillai's trace can then be assumed to be accurate in measuring group differences (Field, 2013). When there are two groups and several dependent variables, the appropriate statistical test is Hotelling's trace (Pretorius, 2007). This provides a test of differences between two groups in terms of all the outcome measures simultaneously (Pretorius, 2007). Therefore Hotelling's trace statistic was used to analyse both population group and level of preparedness in testing hypothesis 2.

A Gabriel's post hoc test was then conducted to test the direction of the contrast for each significant group difference found in the MANOVA. Gabriel's post hoc test was used, as it is a robust post hoc test when the sample sizes are different for the different groups, and the population variances are equal (Field, 2013).

The following assumptions underlie multivariate techniques: independence, homogeneity of variance, and normality (Hair et al., 2010). For independence, the residuals were found to be statistically independent (Field, 2013). Data was also randomly sampled from the population of interest and measured at an interval level (Field, 2013). Homogeneity of variance was tested using Box's M test, as more than one metric variable was tested, and the comparison involved the equality of variance/covariance matrices. The Box's M test indicated non-significant results ( $p = .212$ ) and therefore the covariance matrices were assumed to be roughly equal. With regard to normality, if the dependent variables meet the assumption of



univariate normality, they are assumed to meet the assumption of multivariate normality, as there is no specific test for multivariate normality (Field, 2013). However, in most instances, as the sample size increases, the researcher becomes less concerned about non-normal variables, therefore in sample sizes of 200 or more any significant departures from normality will have negligible effects on the results (Hair et al., 2010).

### **3.7 Ethics Statement**

Ethics is the most important aspect of conducting any research project. As research psychologists we are obligated to consider seriously and adhere strictly to ethical guidelines. We should also ensure that the ethical principles enter into the design, conduct, analyses, and reporting of our research, as well as to protect the research participants (Aguinis & Henle, 2004).

The ethical guidelines stipulated by the University of the Western Cape Higher Degrees and Senate Research Committee were strictly adhered to in this study. Permission from this committee was obtained in order to proceed with the proposed study. Informed consent from all of the participants was obtained prior to data collection. Participants were fully informed about the purpose of the study, what their roles were in the study and were thereafter required to sign a consent form stating that they understood the information provided to them about the study.

Participants were also made aware that participation in this study was completely voluntary and they were allowed to leave at any point during the completion of the questionnaire, with no negative consequences for doing so. Anonymity and confidentiality of the participants was also ensured, as there was no identifying information on the questionnaires, and there was no way of information being tracked back to specific participants. Their responses to the

questionnaires were kept on a password locked computer that could be accessed only by the researcher or those directly involved in the study.

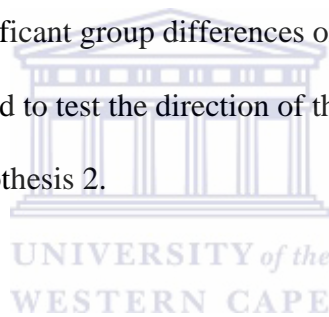
If participants felt any negative effects from participating in the research study, counselling services were made available to them, and if the participant's required any further information, assistance regarding the study, or the results of the study, the researcher's details were made available to them.

This chapter provided the methodological design of the study as well as information with regard to the various stages of the research process, such as sampling, data collection and data analysis. The following chapter provides the results of the data analysis.



## Chapter 4: Results and Analyses

This chapter contains the statistical findings of the study. It is divided into three parts: The first part presents the descriptive statistics for the dependent variables in the study as well as the mean scores for each group on the dependent variables. This provides insight into the distribution of scores on each of the dependent variables as well as an initial glance at how the mean scores of each group may differ on each of the dependent variables. The second part addresses hypothesis 1, which looks for significant associations between each independent variable and the various dependent variables, therefore giving an indication of where possible relationships may lie. The third and final part addresses hypothesis 2, which explored the significant differences between groups. This further explored the associations between variables by looking for any significant group differences on any of the dependent variables. A post hoc analysis was conducted to test the direction of the contrast for each significant result found in the testing of hypothesis 2.



#### 4.1 Descriptive statistics

This section explores the descriptive statistics of the dependent variables for the sample, as well as the mean scores for each group on each of the dependent variables.

The following table reports the descriptive statistics for the sample.

Table 1

*Descriptive Statistics for the Dependent Variables*

	Min	Max	M	SD	Skewness	Kurtosis
Annoyance	19	65	48.68	8.155	-.647	.939
Proscriptions and Prescriptions	11	38	24.11	5.845	-.112	-.399
Secrecy	20	52	31.99	6.359	.531	.038
Disability	5	24	12.25	4.084	.353	-.360
Pleasantness	8	27	17.82	3.751	-.235	-.325

Table 1 indicates the minimum and maximum scores on each subscale as well as the mean (*M*) scores and the standard deviations (*SD*). The skewness and kurtosis for each dependent variable indicate that the distributions are not all normally distributed, although some show less deviation from normality than others (for example, for level of annoyance the skewness and kurtosis is far from 0, showing a distribution that is not normal, whereas the skewness and kurtosis for level of pleasantness is closer to 0, showing a less skew distribution).

The following tables indicate the mean scores on each dependent variable, for each group under the independent variables used in the study.

Table 2

*Mean scores for Age at Menarche*

		Proscriptions and Prescriptions	Secrecy	Disability	Pleasantness	
Early Onset	<i>M</i>	50.5	24	34.33	12.75	18.92
	<i>SD</i>	8.219	7.160	6.569	3.519	3.029
	<i>n</i>	12	12	12	12	12
Normal	<i>M</i>	48.42	23.98	31.96	11.96	17.65
	<i>SD</i>	8.222	5.740	6.415	4.096	3.888
	<i>n</i>	170	170	170	170	170
Late Onset	<i>M</i>	49.83	25.44	30.67	14.56	18.67
	<i>SD</i>	7.649	6.090	5.520	3.714	2.567
	<i>n</i>	18	18	18	18	18

Table 2 indicates the independent variable, age at menarche, which has been converted into three categories (early, normal and late onset). It can be seen that women who started to menstruate early ( $M=50.5$ ) scored highest on the annoyance subscale. Women who started to menstruate late ( $M=25.44$ ) scored highest on the proscriptions and prescriptions scale. Women who reached menarche early were found to have the highest score on the secrecy scale ( $M=34.33$ ). Level of disability was found to be highest for women who started to menstruate late ( $M=14.56$ ). The level of pleasantness was found to be highest for those who reached menarche early ( $M=18.92$ ).

Table 3

*Mean scores for Population group*

		Annoyance	Proscriptions and Prescriptions	Secrecy	Disability	Pleasantness
african	<i>M</i>	48.71	25.09	33.39	12.17	17.99
	<i>SD</i>	9.076	6.2	6.770	3.926	3.790
	<i>n</i>	75	75	75	75	75
coloured	<i>M</i>	48.79	23.55	30.97	12.41	17.67
	<i>SD</i>	7.582	5.397	5.905	4.192	3.785
	<i>n</i>	117	117	117	117	117

Table 3 indicates the mean scores on each dependent variable, for each group under population group. Here it is seen that the coloured and african population groups yielded similar mean scores on most of the scales. However, african participants indicated higher mean scores on the proscriptions and prescriptions scale, as well as the secrecy scale.

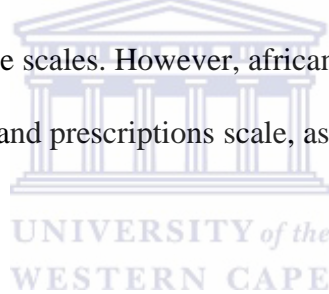


Table 4

*Mean scores for Level of Preparedness*

		Annoyance	Proscriptions and Prescriptions	Secrecy	Disability	Pleasantness
Unprepared	<i>M</i>	49.68	24.18	32.01	12.72	17.39
	<i>SD</i>	8.093	6.058	6.571	4.219	3.897
	<i>n</i>	136	136	136	136	136
Prepared	<i>M</i>	46.53	23.97	31.95	11.23	18.73
	<i>SD</i>	7.930	5.407	5.932	3.607	3.262
	<i>n</i>	64	64	64	64	64

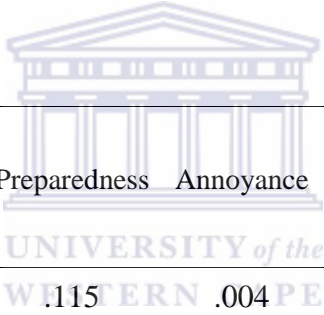
Table 4 shows that those who were unprepared for menarche had higher levels of annoyance

( $M=49.68$ ), proscriptions and prescriptions ( $M=24.18$ ), levels of secrecy ( $M=32.01$ ) and levels of disability ( $M=12.72$ ). Those who were prepared for menarche indicated higher scores on the level of pleasantness variable ( $M=18.73$ ).

#### 4.2 Hypothesis 1

Hypothesis 1 was tested to determine whether there were significant associations between the independent variables: age at menarche, population group and level of preparedness, on the levels of annoyance, disability, proscriptions and prescriptions, secrecy and pleasantness associated with menstruation. Kendall's tau correlation was used to test this hypothesis and the results are reported in the table below.

Table 5  
Kendall's tau Correlation



		Age at Menarche	Population group	Preparedness	Annoyance	Proscriptions and Prescriptions	Secrecy	Disability	Pleasantness
Age at Menarche	$\tau$	1.000	-.097	.115	.004	.037	-.080	.092	.020
	$p$		.172	.107	.950	.532	.176	.123	.737
Population group	$\tau$	-.097	1.000	.148*	-.031	-.103	-.147*	.026	-.026
	$p$	.172		.040	.604	.088	.015	.672	.669
Preparedness	$\tau$	.115	.148*	1.000	-.140*	-.008	-.010	-.134*	.131*
	$p$	.107	.040		.020	.897	.866	.028	.032

No significant associations were found between age at menarche and any of the dependent variables.

There was a significant association between population group and level of preparedness ( $\tau = .148, p = .040$ ).

Population group was also significantly correlated with level of secrecy ( $\tau = -.147, p = .015$ ).

There was a significant association between the level of preparedness and pleasantness ( $\tau = .131, p = .032$ ). This result indicates a small, positive relationship; suggesting that as level of preparedness increases, the level of pleasantness associated with menstruation also increases.

Level of preparedness was also significantly correlated with level of annoyance ( $\tau = -.140, p = .02$ ) and level of disability ( $\tau = -.134, p = .028$ ). Both of these correlations indicate a small negative relationship, which shows that as level of preparedness increases, the level of annoyance and the level of disability associated with menstruation should decrease.

### 4.3 Hypothesis 2

Hypothesis two was tested using MANOVA to determine whether there were significant differences between groups, based on a.) Age at menarche, b.) Population group and c.) Level of preparedness, on the levels of annoyance, disability, proscriptions and prescriptions, secrecy and pleasantness associated with menstruation. The following table reports the results

Table 6

*Multivariate Tests*

		Value	F	<i>p</i>
Age At Menarche	Pillai's Trace	.105	1.977	.035
Population group	Hotelling's Trace	.020	.710 <sup>b</sup>	.617
Preparedness	Hotelling's Trace	.052	1.846 <sup>b</sup>	.106

There was a significant main effect of age at menarche on the attitudes and beliefs of the experience of menarche, as measured by the dependent variables,  $p = .035$ .

There was no significant main effect of population group on the attitudes and beliefs of the experience of menstruation, as measured by the dependent variables,  $p = .617$ . There was also no significant main effect of level of preparedness on the attitudes and beliefs of the



experience of menstruation, as measured by the dependent variables,  $p = .106$ .

There were no significant interaction effects found between any of the independent variables. Interactions were examined between age at menarche and population group; age at menarche and preparedness; population group and preparedness; and age at menarche, population group and preparedness.

Gabriel's post-hoc test was conducted to test the direction of the contrast for each significant group difference. Table 7 reports these results.

*Table 7*  
*Gabriel's post hoc test*

Dependent Variable	(I) Age at Menarche	(J) Age at Menarche	Mean Difference (I-J)	<i>p</i>	95% Confidence Interval	
					Lower Bound	Upper Bound
Level of Disability	Early Onset	Normal	.71	.871	-1.81	3.23
		Late Onset	-1.81	.539	-5.40	1.79
	Normal	Early Onset	-.71	.871	-3.23	1.81
		Late Onset	-2.52*	.016	-4.67	-.36
	Late Onset	Early Onset	1.81	.539	-1.79	5.40
		Normal	2.52*	.016	.36	4.67

Table 7 indicates that on level of disability, significant differences were found between women who experienced late onset and normal onset of menarche ( $p < .05$ ). The confidence intervals for these significant results do not cross zero, therefore we can be confident that there is a genuine effect of age at menarche on the level of disability associated with menstruation.

The main findings of the analysis show that there were slight differences in mean scores between groups on all of the dependent variables, with some groups indicating greater

difference in mean scores than others. Significant associations were found between population group and level of secrecy, as well as between level of preparedness and the level of pleasantness, annoyance and disability associated with the experience of menstruation. Age at menarche yielded in no significant associations with the dependent variables. However, when exploring group differences on the dependent variables, age at menarche indicated the only significant main effect and the post hoc analysis indicated that there were significant differences between normal and late onset of menarche on the level of disability. The following chapter will further explore and discuss the results presented in this chapter in relation to the literature and the theoretical framework proposed for this study.



## Chapter 5: Discussion

### 5.1 Introduction

This chapter will present a discussion on the attitudes and beliefs that female students at the University of the Western Cape (UWC), between the ages of 18 and 21 years, have towards their experience of menstruation. The findings will be discussed in relation to the literature reviewed in this area of study as well as the theoretical framework, which underpins the current study. Each independent variable, which corresponds to each of the three factors said to directly affect the attitudes and beliefs of the experience of menstruation, namely the biological (age at menarche), psychological (level of preparedness) and socio-cultural factors (population group) will be discussed. The limitations of the study will also be outlined and discussed.

### 5.2 Biopsychosocial factors affecting the attitudes and beliefs of the experience of menstruation

With regard to the biological factor, age at menarche, the current study reveals that there were no significant associations between age at menarche and any of the dependent variables, namely the level of annoyance, level of secrecy, level of disability, level of proscriptions and prescriptions, and level of pleasantness, associated with menstruation. There were also no significant associations found between age at menarche and level of preparedness or population group. Contrary to the findings of the current study, Tiwari et al. (2006) reported finding a relationship between level of preparedness and age at menarche, stating that if a girl is unprepared to start menstruating because of its early onset, this may result in feelings of guilt shame, fear and anxiety (Tiwari et al., 2006). Therefore a younger age at menarche, and feeling unprepared at the time, could result in more negative attitudes and beliefs of the experience of menstruation (Tiwari et al., 2006). The discrepancy in results between the current study and the study conducted by Tiwari et al. (2006) could be due to the fact that the

majority of participants in the current study reported experiencing normal onset of menarche. In addition there were also more participants who experienced late onset of menarche than early onset. Had there been more participants who experienced an early onset of menarche, the current study may have yielded similar results to those of Tiwari et al. (2006).

There were, however, significant differences found between women who experienced late onset and those who experienced normal onset of menarche on the level of disability associated with menstruation. This is in contrast to the literature which reports that those who experience menarche early are more likely to have negative attitudes towards menstruation, than those who experience normal, or even late onset of menarche (Allison & Hyde, 2013; Rembeck et al., 2006; Tang et al., 2004; Tiwari et al., 2006).

The majority of the women participating in this study indicated experiencing an onset of menarche between the ages of 11 and 15 years, which has been classified as 'normal'. The significant differences found may be due to the fact that menarche is believed to provide 'proof' that a girl has reached puberty and can be a rather dramatic demarcation between girlhood and womanhood (Chrisler, 2008). Therefore, girls who start to menstruate as late as 16 years old may feel that they reached womanhood much later than their peers. This may lead to the development of more negative attitudes and beliefs towards the experience of menstruation than women who experience a 'normal' onset of menarche.

After investigating the psychological factor, level of preparedness, the current study found that there were significant associations between level of preparedness and level of pleasantness, annoyance and disability associated with menstruation. More specifically, as the level of preparedness increases, the level of pleasantness should also increase and the level of annoyance and disability should tend to decrease. These findings are supported by literature, which reports that the level of preparedness for menarche directly influences a woman's attitudes and beliefs towards menstruation (Marván & Molina-Abolnik, 2012;

Shanbhag et al., 2012). However, the current study did not reveal any significant differences between levels of preparedness on any of the dependent variables. This is in contrast to the literature, which indicates that the less prepared a girl is to start menstruating, the more secretive and negative they may feel toward the menstrual experience (Marván & Molina-Abolnik, 2012).

When considering the socio-cultural factors that influence attitudes and beliefs associated with menstruation, the current study found that there were significant associations between population group and level of secrecy associated with menstruation. Similarly, literature has reported that a woman's culture may further perpetuate the stereotype of secrecy and 'hiding' with regard to menstruation (Çevirme et al., 2010). The participants of the current study have also been exposed to western culture, particularly at university, which is known for its sexual objectification of women, and the obligation that women feel to hide the biological functioning of their bodies, specifically menstruation (Roberts, 2004). This stereotype of secrecy and 'hiding' further perpetuates the dominant view of menstruation as a process that women should be ashamed of, as opposed to celebrating it as a natural biological indication of fertility and health.

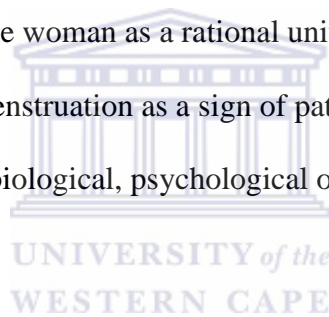
The current study also reports a significant association between population group and level of preparedness. This is consistent with the results of a study done by White (2013), which found that different population groups had different levels of knowledge, and therefore different levels of preparedness for menarche, which in turn could have led to different attitudes towards and beliefs about the experience of menstruation (White, 2013). There were, however, no significant differences found between population groups on the variables measuring the attitudes and beliefs of the experience of menstruation in the current study. This is in keeping with the findings of Yeung et al. (2005) who reported that for both positive

and negative emotional expectations of menarche, demographic characteristics were insignificant predictors.

It must be remembered, however, that only the coloured and african groups were considered in the analyses of the current study. The fact that there were no significant differences found between population groups may be attributed to possible similarities between the cultures in terms of attitudes and beliefs of the experience of menstruation. Due to the lack of knowledge concerning the specific cultural norms, beliefs and behaviours of the cultures, as well as the consideration that participants, in spite of their racial designation, all originate from different communities and areas, further investigation is necessary in this respect.

When looking at a combination of the independent variables: age at menarche, level of preparedness and population group, there were no significant interaction effects found between these biological, psychological and socio-cultural factors on the attitudes and beliefs of the experience of menstruation. This is in contention with the theoretical assumptions of the biopsychosocial model used to underpin this study. The biopsychosocial model posits that women's attitudes and beliefs towards the experience of menstruation are affected and shaped by the biological processes, psychological experiences as well as the socio-cultural context in which they find themselves (Chrisler, 2013). These three factors are believed to be inextricably connected in the way in which they affect women's attitudes and beliefs (Chrisler, 2013; Suls et al., 2013). However, only one biological, one psychological and one socio-cultural factor, said to shape women's attitudes and beliefs of the experience of menstruation, has been explored in this study. The fact that groups in the psychological and socio-cultural factors used in this study did not differ significantly does not discredit the theoretical underpinnings. However, it may indicate that different specific psychological and socio-cultural factors affect the attitudes and beliefs of the experience of menstruation in this particular sample. The choice of variables, and the way they have been measured in this study

may have resulted in the lack of significant differences found, as well as the non-significant main effect found for the interaction of the three independent variables. The biopsychosocial model is also understood to be an extension of the biomedical model. The biomedical model was the first scientific discourse concerning the individual, which subsequently transformed the human body into an object of empirical knowledge through the medical gaze (Foucault, 1980). The biopsychosocial model builds on this notion, by stating that biological factors cannot be used in isolation to explain disease and illness. It does, however, still view health as an absence of illness, therefore still viewing the human body as an object of empirical knowledge, and the menstruating female body as being in need of treatment. Feminist and post-modern critiques stand in direct opposition to the biomedical and psychological accounts of menstruation which position the woman as a rational unitary subject and changes experienced before and during menstruation as a sign of pathology, explained within an essentialist framework (whether biological, psychological or socio-cultural) (Ussher, 2006).



### **5.3 South African context**

Overall, the findings from this study are somewhat inconsistent with that which has been portrayed in the literature. The South African context is culturally diverse with a unique historical background and is therefore known to be different from other contexts. Very little research has been done in the South African context with regard to the attitudes and beliefs of the experience of menstruation and it would therefore be preferable to compare findings from this study with research done in the same or similar contexts. These differences in context could have resulted in the differences in findings between this study and previous research done in this area.

The women participating in this study have revealed very similar attitudes and beliefs of the experience of menstruation. The fact that there were only significant differences between normal and late onset of menarche with regard to the level of disability associated with

menstruation does not mean that women between the ages of 18 and 21 years at UWC have positive attitudes towards menstruation. This study has simply indicated that on most of the variables said to describe the attitudes and beliefs of the experience of menstruation, these women are similar, and therefore, very few significant differences between the groups participating in this study were found. One also needs to consider the fact that all of the participants in the study were educated young women, who have come through the school system and are now in the process of obtaining a tertiary education. This could result in the similarities found with regard to attitudes and beliefs of the experience of menstruation, as all of the women have had similar educational backgrounds. The fact that the current study also had somewhat unrepresentative samples due to selection criteria and sampling methods used could also have resulted in a fairly homogenous sample, where significant differences would not be identified.

Ultimately, the women in the current study could collectively be viewing their menstruation in a very negative light, or they could be part of a new generation that have learned to love something that is unique to women. Either way, there is a great need for further investigation with regard to the attitudes and beliefs that South African women have towards their experience of menstruation so that women can be supported in the process of shifting from a disempowering and pathologised subject position, to a position where they are not apologetic about being female, but more inclined to embrace their 'femaleness' (Ussher, 2006).



## Chapter 6: Conclusion

This study aimed to determine whether there are significant differences between the groups under each independent variable (age at menarche, population group, religion and preparedness) with regard to the attitudes and beliefs of experience of menstruation in a sample of female students from UWC, who are between the ages of 18 and 21 years.

The results of this study indicated that there was only one significant difference between the groups with regard to the attitudes and beliefs of the experience of menstruation. This indicates that the women who have participated in this study hold very similar attitudes and beliefs despite their differences in population group, age at menarche and their level of preparedness for menarche. The extent to which these attitudes and beliefs are positive or negative has not been determined in the current study, and therefore more research needs to be conducted within this area of study.

The findings from this study provide an initial exploratory basis for the examination of attitudes and beliefs of the experience of menstruation in the South African context. Attitudes towards menstruation are not just an obscure topic for academic scholars; they have a real impact on women's physical and mental health (Chrisler, 2008). Therefore, in the constant fight against the social oppression of women, further research should be conducted to establish the extent to which negative attitudes and beliefs of the experience of menstruation permeate South African women's lives. Further research is also needed to determine the factors that contribute to these attitudes and beliefs, with the hope of changing the societal norm, which ostracises women based on a biological process.

## 6.1 Limitations

The study has some noteworthy limitations, which included the sampling method used as well as the measuring instrument.

Firstly, this study made use of simple random sampling to recruit participants. This method of sampling resulted in a sample that had a number of underrepresented groups. The use of stratified random sampling could have been employed to ensure that the sample was representative of the population.

Secondly, the measuring instrument used in this study presented the researcher with a number of difficulties when it came to analysing the data obtained. The BATM was also developed in Mexico, and although the participants in this study did not report any difficulties in answering the questionnaire, it is always more ideal to make use of a questionnaire that has been developed specifically for the South African context when conducting research in South Africa. The BATM has never been utilised in the South African context and further research is thus needed to examine the validity of the instrument in this context. However, the fact that there were no available measuring instruments standardised for the South African context, the BATM was used for this study. South African research should, to a certain extent, focus on the design of valid standardised instruments to apply to its diverse population, especially with regard to a socio-culturally affected construct such as attitudes and beliefs of the experience of menstruation.

Lastly, when measuring the independent variables, the question regarding the participant's religion was also not suitably stated to determine the religiosity of the participants. The extent to which participants subscribe to their chosen religion was not explored and this could have resulted in the majority of participants indicating that they were Christian and therefore religion could not be used as an independent variable in the study.

## 6.2 Recommendations

To the researcher's knowledge this study provides the first exploration of the attitudes and beliefs of the experience of menstruation in a South African sample of university students, or any South African sample. Further studies need to be conducted in order to determine the widespread attitudes and beliefs of the experience of menstruation in South African women, as well as what factors, other than those included in this study, may contribute to these attitudes and beliefs.

There is also a need for the development of a context-specific instrument measuring the attitudes and beliefs that women have towards their menstruation. Therefore, the development of a valid and reliable instrument for the South African context will aid in future research in this area.

Education about menstruation is also of particular concern, as the majority of the sample in this study indicated feeling unprepared at the onset of menstruation. As a means to mitigate this feeling of unpreparedness, education should start at an early age, before girls reach puberty. When girls are sufficiently informed beforehand, they will be better prepared emotionally for the experience of menstruation and have fewer negative reactions or concerns (Anjum et al., 2010). Since girls' attitudes and ways of thinking change during adolescence, menstrual education needs to be an on-going process (Tiwari et al., 2006). The stereotype of secrecy and taboo surrounding menstruation needs to be abolished in order to prepare young girls properly for menarche and in turn ensure that their attitudes and beliefs of menstruation are more positive.

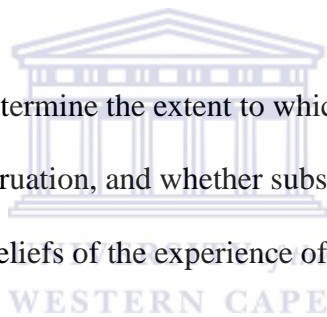
Finally, bigger sample sizes obtained through random sampling methods may also improve the generalisability of results, as well as ensuring that the sample is representative of the population by making use of the appropriate sampling method.

### **6.3 Opportunities for further research**

There is considerable opportunity for further research in the field of menstruation in South Africa. A number of opportunities have been highlighted in this study. Firstly, further research is needed in order to determine the nature of the attitudes and beliefs South African women have towards their experience of menstruation. This will provide an opportunity to explore whether the majority of South African women hold positive or negative attitudes towards and beliefs about menstruation, and whether these views are similar or different for different women.

Secondly, further research is needed to determine whether other biological, psychological and socio-cultural factors influence South African women's attitudes and beliefs of the experience of menstruation.

Lastly, research can be done to determine the extent to which religion affects the attitudes and beliefs of the experience of menstruation, and whether subscribing to different religions results in different attitudes and beliefs of the experience of menstruation in South African women.



### **6.4 Concluding Remarks**

The purpose of this study was to determine the attitudes and beliefs of experience of menstruation in a sample of female students who are between the ages of 18 and 21 years, from the University of the Western Cape (UWC). The overall findings suggest that the participants in the study have very similar attitudes to and beliefs of the experience of menstruation. This study provides an initial exploratory basis for the examination of women's attitudes and beliefs of the experience of menstruation in the South African context.

## References

- Aflaq, F., & Jami, H. (2012). Experiences and attitudes related to menstruation among female students. *Pakistan Journal of Psychological Research*, 27(2), 201-224. Retrieved from <http://www.pjprnip.edu.pk/pjpr/index.php/pjpr/article/viewFile/195/171>
- Aguinis, H., & Henle, C.A. (2004). Ethics in research. In S.G. Rogelberg (Ed.), *Handbook of research methods in Industrial and Organizational psychology* (pp. 34-56). USA: Blackwell
- Allison, C.M., & Hyde, J.S. (2013). Early menarche: Confluence of biological and contextual factors. *Sex Roles*, 68, 55-64. doi:10.1007/s11199-011-9993-5
- Annandale, E. (1998). *The Sociology of Health and Medicine: A Critical Introduction*. Cambridge: Polity Press.
- Anjum, F., Zehra, N., Haider, G., Rani, S., Siddique, A.A., & Munir, A.A. (2010). Attitudes towards menstruation among young women. *Pakistan Journal of Medical Sciences*, 26(3), 619-622. Retrieved from <http://web.ebscohost.com.ezproxy.uwc.ac.za/ehost/pdfviewer/pdfviewer?sid=7fe769f5-4b8e-4d29-bb07-dab6d1dc62df%40sessionmgr4002&vid=5&hid=4212>
- A.P.A. (2000). *Diagnostic and statistical manual of mental disorders, Edition IV*. Washington DC: American Psychiatric Association.
- Arvio, M., & Sillanpää, M. (2003). Prevalence, aetiology and comorbidity of severe and profound intellectual disability in Finland. *Journal of Intellectual Disability Research*, 47(2), 108-112. doi: 10.1046/j.1365-2788.2003.00447.x

- Augustine, C. S. (2002). *The social construction of the South African male identity* (Doctoral dissertation, Rand Afrikaans University). Retrieved from <http://hdl.handle.net/10210/1405>
- Babbie, E., & Mouton, J. (2009). *The practice of social research*. Cape Town: Wadsworth.
- Berger, V.W., & Zhang, J. (2005). Simple Random Sampling. *Encyclopedia of Statistics in Behavioral Science*. doi:10.1002/0470013192
- Bhattacharjee, S., Ray, K., Biswas, R., & Chakraborty, M. (2013). Menstruation: Experiences of adolescent slum dwelling girls of Siliguri City, West Bengal, India. *Journal of Basic and Clinical Reproductive Sciences*, 2(2), 85-91. doi:10.4103/2278-960X.118646
- Brookes, I., Munro, M., O'Donoghue, E., O'Neill, M., & Thomson, M. (Eds.) (2004). *Chambers Concise Dictionary*. USA: Chambers Harrap Publishers Ltd.
- Buckley, T., & Gottlieb, A. (1988). A critical appraisal of theories of menstrual symbolism. *Blood magic: The anthropology of menstruation*. USA: University of California Press.
- Burrows, A., & Johnson, S. (2005). Girls' experiences of menarche and menstruation. *Journal of Reproductive & Infant Psychology*, 23(3), 235-249. doi:10.1080/02646830500165846
- Cahill, H.A. (2001). Male appropriation and medicalization of childbirth: An historical analysis. *Journal of advanced nursing*, 33(3), 334-342. doi:10.1046/j.1365-2648.2001.01669.x
- Cavanaugh, J.C., & Blanchard-Fields, F. (2011). *Adult development and aging* (6<sup>th</sup> ed.). USA: Wadsworth.
- Çevirme, A.S., Çevirme, H., Karaoglu, L., Ugurlu, N., & Korkmaz, Y. (2010). The perception of menarche and menstruation among Turkish married women: Attitudes,

experiences, and behaviors. *Social Behavior & Personality: An International Journal*, 38(3), 381-393. doi: 10.2224/sbp.2010.38.3.381

Chadwick, R. (2006). Pathological wombs and raging hormones: Psychology, reproduction and the female body. In T. Shefer, F. Boonzaier and P. Kiguwa (Eds.), *The gender of psychology* (pp. 223-248). SA: UCT Press.

Chang, Y., Chen, Y., Hayter, M., & Lin, M. (2009). Menstrual and menarche experience among pubescent female students in Taiwan: Implications for health education and promotion practice. *Journal of Clinical Nursing*, 18(14), 2040-2048. doi:10.1111/j.1365-2702.2008.02545.x

Chou, Y.C., Lu, Z.Y.J., Wang, F.T.Y., Lan, C.F., & Lin, L.C. (2008). Meanings and experiences of menstruation: Perceptions of institutionalised women with an intellectual disability. *Journal of Applied Research in Intellectual Disabilities*, 21, 575-584. doi:10.1111/j.1468-3148.2008.00430.x

Chrisler, J.C. (2008). Chapter 13: The menstrual cycle in a biopsychosocial context. In F.L. Denmark & M. Paludi (Eds.), *Psychology of women: Handbook of issues and theories* (2<sup>nd</sup> ed) (pp. 400-439). UK: Praeger.

Chrisler, J.C. (2013). Teaching taboo topics: Menstruation, menopause and the psychology of women. *Psychology of Women Quarterly*, 37(1), 128-132. doi:10.1177/0361684312471326

Chrisler, J.C., & Caplan, P. (2002). The strange case of Dr. Jekyll and Ms. Hyde: How PMS became a cultural phenomenon and a psychiatric disorder. *Annual Review of Sex Research*, 13, 274-306. doi:10.1080/10532528.2002.10559807

- Cindoglu, D., & Sayan-Cengiz, F. (2010). Medicalization discourse and modernity: Contested meanings over childbirth in contemporary Turkey. *Health Care for Women International*, 31(3), 221-243. doi:10.1080/07399330903042831
- Conrad, P. (1992). Medicalization and social control. *Annual Review of Sociology*, 18, 209-232. Retrieved from [http://66.199.228.237/boundary/addiction/medicalization\\_and\\_social\\_control.pdf](http://66.199.228.237/boundary/addiction/medicalization_and_social_control.pdf)
- Cooper, S.C., & Koch, P.B. (2007). "Nobody told me nothing": Communication about menstruation among low-income African American women. *Women & Health*, 46(1), 57-78. doi:10.1300/J013v46n01\_05
- Cronje, H.S., & Kritzinger, I.E. (1991). Menstruation: Symptoms, management and attitudes in university students. *International Journal of Gynecology and Obstetrics*, 35, 147-150. doi:10.1016/0020-7292/91/90818-P
- Del Saz-Rubio, M. M., & Pennock-Speck, B. (2009). Constructing female identities through feminine hygiene TV commercials. *Journal of Pragmatics*, 41(12), 2535-2556. doi:10.1016/j.pragma.2009.04.005
- Demirbag, B.C., & Güngörmüs, Z. (2011). An investigation into the knowledge about the menstruation period among the female university students at Eastern Black Sea region of Turkey. *HealthMED*, 5(6), 1643-1646. Retrieved from <http://www.healthmed.ba/articles.htm>



- Drasgow, F. (1984). Scrutinizing psychological tests: Measurement equivalence and equivalent relations with external variables are the central issues. *Psychological Bulletin*, 95, 134-135. doi:10.1037/0033-2909.95.1.134
- Dunnavant, N.C., & Roberts, T.A. (2013). Restriction and renewal, pollution and power, constraint and community: The paradoxes of religious women's experience of menstruation. *Sex Role*, 68, 121-131. doi:10.1007/s11199-012-0132-8
- du Toit, B.M. (1988). Menstruation: Attitudes and experience of Indian South Africans. *Ethnology*, 27(4), 391-406. Retrieved from <http://www.jstor.org/stable/3773400>
- Fearon, J. (2003). Ethnic and cultural diversity by country. *Journal of Economic Growth*, 8, 195–222. doi:10.1023/A:1024419522867
- Field, A. (2005). *Discovering statistics using SPSS* (2<sup>nd</sup> ed.). USA: SAGE.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4<sup>th</sup> ed.) USA: SAGE
- Firat, M.Z., Kulakaç, Ö., Öncel, S., & Akcan, A. (2009). Menstrual attitude questionnaire: confirmatory and exploratory factor analysis with Turkish samples. *Journal of Advanced Nursing*, 65(3), 652-662. doi:10.1111/j.1365-2648.2008.04919.x
- Foucault, M. (1980). Two lectures. In M. Foucault (Ed.), *Power/Knowledge: Selected interviews and other writings, 1972-1977* (pp. 88-108). NY: Pantheon Books.
- Gergen, K. J. (1999). *An invitation to social construction*. USA: Sage Publications Limited.
- Glueck, C. J., Morrison, J. A., Wang, P., & Woo, J. G. (2013). Early and late menarche are associated with oligomenorrhea and predict metabolic syndrome 26 years later. *Metabolism*. doi:10.1016/j.metabol.2013.07.005

- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis: A global perspective*. USA: Pearson Education.
- Johnston-Robledo, I., & Chrisler, J.C. (2013). The menstrual mark: Menstruation as a social stigma. *Sex Roles*, 68, 9-18. doi:10.1007/s11199-011-0052-z
- Johnston-Robledo, I., Sheffield, K., Voigt, J., & Wilcox-Constantine, J. (2007). Reproductive shame: Self-objectification and young women's attitudes toward their reproductive functioning. *Women & Health*, 46(1), 25-39. doi:10.1300/J013v46n01\_03
- Koff, E., & Rierdan, J. (1995). Early adolescent girls' understanding of menstruation. *Women & Health*, 22(4), 1-19. doi: 10.1300/J013v22n04\_01
- Koff, E., Rierdan, J., & Sheingold, K. (1982). Memories of menarche: Age, preparation, and prior knowledge as determinants of initial menstrual experience. *Journal of Youth and Adolescence*, 11, 1-9. doi: 10.1007/BF01537812
- Kumar, G.M., & Kundan, M. (2011). Psycho-social behaviour of urban Indian adolescent girls during menstruation. *Australasian Medical Journal*, 4(1), 49-52. doi:10.4066/AMJ.2011.534
- Lavrakas, P.J. (2013). Encyclopedia of survey research methods: Cross-sectional survey design. *SAGE Research methods*. USA:SAGE
- Liu, H., Chen, K., & Peng, N. (2012). Cultural practices relating to menarche and menstruation among adolescent girls in Taiwan - qualitative investigation. *Journal of Pediatric and Adolescent Gynecology*, 25(1), 43-47. doi: 10.1016/j.jpag.2011.08.006

- Marván, M.L., Cortés-Iniestra, S., & González, R. (2005). Beliefs about and attitudes toward menstruation among young and middle-aged Mexicans. *Sex Roles, 53*(3), 273-279. doi: 10.1007/s11199-005-5685-3
- Marván, M.L., & Molina-Abolnik, M. (2012). Mexican adolescents' experience of menarche and attitudes toward menstruation: Role of communication between mothers and daughters. *Journal of Pediatric and Adolescent Gynecology, 25*(6), 358-363. doi: 10.1016/j.jpag.2012.05.003
- Marván, M.L., Ramírez-Esparza, D., Cortés-Iniestra, S., & Chrisler, J.C. (2006). Development of a new scale to measure beliefs about and attitudes toward menstruation (BATM): Data from Mexico and the United States. *Health Care for Women International, 27*(5), 453-473. doi: 10.1080/07399330600629658
- Marván, M.L., & Trujillo, P. (2010). Menstrual socialization, beliefs, and attitudes concerning menstruation in rural and urban Mexican women. *Health Care for Women International, 31*, 53-67. doi:10.1080/07399330902833362
- Morrison, L.A., Larkspur, L., Calibuso, M.J., & Brown, S. (2010). Women's attitudes about menstruation and associated health and behavioral characteristics. *American Journal of Health Behavior, 34*(1), 90-100. doi:10.5993/AJHB.34.1.11
- Northrup, C. (2010). *Women's bodies, women's wisdom: Creating physical and emotional health and healing*. USA: Hay House Inc.
- Orringer, K., & Gahagan, S. (2010). Adolescent girls define menstruation: A multiethnic exploratory study. *Health Care for Women International, 31*, 831-847. doi:10.1080/07399331003653782

Patil, R., Agarwal, L., Khan, M.I., Gupta, S.K., Vedapriya, D.R., Raghavia, M., & Mittal, A.

(2011). Beliefs about menstruation: A study from rural Pondicherry. *Indian Journal of Medical Specialities*, 2(1), 23-26. doi:10.7713/ijms.2011.0006

Pretorius, T.B. (2007). *Inferential data analysis: Hypothesis testing and decision-making*.

S.A: Reach Publishers.

Rembeck, G., Möller, M., & Gunnarsson, R. (2006). Attitudes and feelings towards

menstruation and womanhood in girls at menarche. *Acta Paediatrica*, 95(6), 707-714.

doi: 10.1080/08035250500531697

Ritter, L., & Lampkin, S. (2012). *Community mental health*. Retrieved from

<http://books.google.co.za/books?id=5WzEHbPDjKgC&printsec=frontcover&dq=Community+Mental+Health&hl=en&sa=X&ei=hQorUZLVOOet0QWLrIDwCw&ved=0CDcQ6AEwAQ#v=onepage&q=Community%20Mental%20Health&f=false>

Roberts, T. (2004). Female trouble: The menstrual self-evaluation scale and women's self-

objectification. *Psychology of Women Quarterly*, 28(1), 22-26. doi: 10.1111/j.1471-

6402.2004.00119.x

Rose, J.G., Chrisler, J.C., & Couture, S. (2008). Young women's attitudes toward continuous

use of oral contraceptives: The effect of priming positive attitudes toward menstruation

on women's willingness to suppress menstruation. *Health Care for Women*

*International*, 29(7), 688-701. doi:10.1080/07399330802188925

Shanbhag, D., Shilpa, R., D'Souza, N., Josephine, P., Singh, J., & Goud, B.R. (2012).

Perceptions regarding menstruation and practices during menstrual cycles among high

school going adolescent girls in resource limited settings around Bangalore city,

Karnataka, India. *International Journal of Collaborative Research on Internal Medicine*

& *Public Health (IJCRIMPH)*, 4(7), 1353-1362. Retrieved from

<http://www.iomcworld.com/ijcrimph/files/v04-n07-03.pdf>

Statistics South Africa (1996). *Census In Brief 1996*. (Report number 03-01-11). Retrieved

from <http://www.statssa.gov.za/census01/census96/HTML/CIB/CIB1996.pdf>

Statistics South Africa (2011). *Mid-year population estimates 2011* (Statistical release

P0302). Retrieved from <http://www.statssa.gov.za/publications/P0302/P03022011.pdf2>

Stoppard, J. (2000). *Understanding depression: Feminist social constructionist approaches*.

London: Routledge.

Stubbs, M.L. (2008). Cultural perception and practices around menarche and adolescent

menstruation in the United States. *Annals of the New York Academy of Sciences*,

1135(1), 58-66. doi:10.1196/annals.1429.008

Suls, J., Krantz, D.S., & Williams, G.C. (2013). Three strategies for bridging different levels

of analysis and embracing the biopsychosocial model. *Health Psychology*, 32(5), 597-

601. doi:10.1037/a0031197

Talja, S., Tuominen, K., & Savolainen, R. (2005). "Isms" in information science: constructivism,

collectivism and constructionism. *Journal of documentation*, 61(1), 79-101.

doi:10.1108/00220410510578023

Tang, C.S., Yeung, D.Y.L., & Lee, A.M. (2004). A comparison of premenarcheal

expectations and postmenarcheal experiences in Chinese early adolescents. *Journal of*

*Early Adolescence*, 24(2), 180-195. doi:10.1177/0272431603262669

Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal*

*of Medical Education*, 2, 53-55. doi:10.5116/ijme.4dfb.8dfd

- Tiwari, H., Oza, U.N., & Tiwari, R. (2006). Knowledge, attitudes and beliefs about menarche of adolescent girls in Anand district, Gujarat. *Eastern Mediterranean Health Journal*, 12(3-4), 428-433. Retrieved from [http://applications.emro.who.int/emhj/1203\\_4/12\\_3-4\\_2006\\_428\\_433.pdf](http://applications.emro.who.int/emhj/1203_4/12_3-4_2006_428_433.pdf)
- Umeora, O.U.J., & Egwuatu, V.E. (2008). Menstruation in rural Igbo women of South East Nigeria: Attitudes, beliefs and practices. *African Journal of Reproductive Health / La Revue Africaine De La Santé Reproductive*, 12(1), 109-115.  
doi:10.4314%2Fajrh.v12i1.7961
- Ussher, J.M. (1992). Research and theory related to female reproduction: Implications for clinical psychology. *British Journal of Clinical Psychology*, 31, 129-151.  
doi:10.1111/j.2044-8260.1992.tb00979.x
- Ussher, J.M. (2006). Managing the monstrous feminine: The role of PMS in the subjectification of women. Retrieved from <http://www.uvic.ca>
- White, L. (2013). The function of ethnicity, income level, and menstrual taboos in postmenarcheal adolescents' understanding of menarche and menstruation. *Sex Roles*, 68(1), 65-76. doi: 10.1007/s11199-012-0166-y
- Wister, J.A., Stubbs, M.L., & Shipman, C. (2013). Mentioning menstruation: A stereotype threat that diminishes cognition? *Sex Roles*, 68, 19-31. doi:10.1007/s11199-012-0156-0
- Wong, L., & Khoo, E. (2011). Menstrual-related attitudes and symptoms among multi-racial Asian adolescent females. *International Journal of Behavioral Medicine*, 18(3), 246-253. doi: 10.1007/s12529-010-9091-z

Yeung, D.Y.L., Tang, C.S., & Lee, A. (2005). Psychosocial and cultural factors influencing expectations of menarche: A study on Chinese premenarcheal teenage girls. *Journal of Adolescent Research*, 20(1), 118-135. doi:10.1177/0743558404271134



## Appendices

### Appendix A: Information sheet



UNIVERSITY OF THE WESTERN CAPE  
Private Bag X 17, Bellville 7535, South Africa  
Tel: +27 21-959, Fax: 27 21-959  
E-mail: 3308856@uwc.ac.za

### Information Sheet

**Information and invitation to participate in a study being conducted at the University of the Western Cape (UWC) about Attitudes and beliefs of the experience of menstruation among women, aged 18-21 years, at UWC.**

**Project Title:** Attitudes and beliefs of the experience of menstruation in female students from the University of the Western Cape

#### **What is this study about?**

This is a research project being conducted by Megan van Gesselien at the University of the Western Cape. I am inviting you to participate in this research project because as a woman you have first hand experience of menstruation, which is the central focus of this research study. By participating in this study you will help add to the body of knowledge of menstruation in South Africa and aid in informing interventions to promote positive attitudes and beliefs towards menstruation. The purpose of this research project is to determine the factors associated with the attitudes and beliefs of the experience of menstruation and to determine which factors predict the attitudes and beliefs more.

#### **What will I be asked to do if I agree to participate?**

You will be asked to complete a questionnaire containing information about age, age at which you first started menstruation, religion, population group and how prepared you felt for your first menstruation as well as questions about secrecy, annoyance, proscriptions and prescriptions, disability and pleasantness of your experience of menstruation. This should not take longer than 15 minutes and will be conducted on the University of the Western Cape campus.

#### **Would my participation in this study be kept confidential?**

I will do my best to keep your personal information confidential. To help protect your confidentiality, the data collected will be kept on a password locked computer. The questionnaires are anonymous and will not contain information that may personally identify you. Your name will not appear on the questionnaire or other collected data. Only identification codes will be used on the data forms to link you survey to your identity and only the researcher will have access to this key. If I write a report or article about this research project, your identity will be protected to the maximum extent possible.



**What are the risks of this research?**

There may be some risks from participating in this research study as some participants may see the topic as personal or sensitive and some participants may feel embarrassed about answering certain questions.

**What are the benefits of this research?**

This research is not designed to help you personally, but the results may help the investigator learn more about the attitudes and beliefs of the experience of menstruation in the South African context. We hope that, in the future, other people might benefit from this study through improved understanding of the concept of menstruation, the social control that is imposed on menstruating women and the widespread belief system towards the experience of menstruation in order to bring about a change.

**Do I have to be in this research and may I stop participating at any time?**

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify

**Is any assistance available if I am negatively affected by participating in this study?**

If participation in the study causes feelings of discomfort or any negative consequences, counselling will be made available if you feel the need for it.

**What if I have questions?**

This research is being conducted by Megan van Gesselteen from the psychology department at the University of the Western Cape. If you have any questions about the research study itself, please contact Megan at: Room 2.428 in the Psychology Department. Alternately you can email Megan at [3308856@uwc.ac.za](mailto:3308856@uwc.ac.za).

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

**Head of Department:** Dr. M Andipatin

**Dean of the Faculty of Community and Health Sciences:** Prof. Frantz

**Tel:** (021) 959 2163

**University of the Western Cape**

**Private Bag X17**

**Bellville 7535**

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

**Appendix B: Informed consent form**



UNIVERSITY OF THE WESTERN CAPE  
Private Bag X 17, Bellville 7535, South Africa  
Tel: +27 21-959, Fax: 27 21-959  
E-mail: 3308856@uwc.ac.za

**Consent Form**

**Attitudes and beliefs of the experience of menstruation:**

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

**Participant's name** .....

**Participant's signature** .....

**Witness** .....

**Date** .....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

**Study Coordinator's Name: Megan van Gesselleen**

**University of the Western Cape**

**Private Bag X17, Bellville 7535**

**Cell: 082 576 1746**

**Email: 3308856@uwc.ac.za**

## Appendix C: Questionnaire

ID (Official use only)

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**UNIVERSITY of the WESTERN CAPE**



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### DEPARTMENT OF PSYCHOLOGY

Private Bag X 17, Bellville 7535, South Africa, Telephone: (021) 959-2283/2453

Fax: (021) 959-3515 Telex: 52 6661

Dear Participant,

Thank you for agreeing to participate in a study being conducted at the University of the Western Cape (UWC) about the attitudes and beliefs of the experience of menstruation among women, aged 18-21 years, at UWC.

It should take around **15 minutes to complete** this questionnaire. Participants in this study will remain anonymous, which means nobody will know your name and only the researchers will have access to your answers.

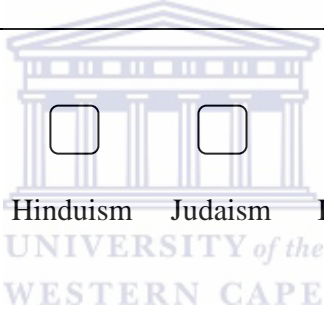
You are free to withdraw from the study at anytime, during the process.

Please read every question carefully and answer the questions **honestly**. Choose the option that fits your answer best and tick the box provided. Remember, there are **NO RIGHT OR WRONG ANSWERS**. It is important that you **answer all the questions clearly**.

*Your cooperation is highly appreciated.*

## SECTION 1: DEMOGRAPHIC INFORMATION

Please fill in the space or tick the box provided

<b>Age</b>	<i>(Please write your age here)</i>	
<b>Age at first menstruation (first period)</b>	<i>(Please write your age here)</i>	
<b>Population group</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"><input type="checkbox"/> african (1)</div> <div style="text-align: center;"><input type="checkbox"/> coloured (2)</div> <div style="text-align: center;"><input type="checkbox"/> indian/asian (3)</div> <div style="text-align: center;"><input type="checkbox"/> white (4)</div> <div style="text-align: center;"><input type="checkbox"/> other (5)</div> </div>	
<b>Religious affiliation</b>	<div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"><input type="checkbox"/> Christianity (1)</div> <div style="text-align: center;"><input type="checkbox"/> Hinduism (2)</div> <div style="text-align: center;"><input type="checkbox"/> Judaism (3)</div> <div style="text-align: center;"><input type="checkbox"/> Islam (4)</div> <div style="text-align: center;"><input type="checkbox"/> African Traditional (5)</div> <div style="text-align: center;"><input type="checkbox"/> Other (6)</div> </div>	
<b>Faculty</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"><input type="checkbox"/> Arts (1)</div> <div style="text-align: center;"><input type="checkbox"/> CHS (2)</div> <div style="text-align: center;"><input type="checkbox"/> Dentistry (3)</div> <div style="text-align: center;"><input type="checkbox"/> EMS (4)</div> <div style="text-align: center;"><input type="checkbox"/> Education (5)</div> <div style="text-align: center;"><input type="checkbox"/> Law (6)</div> <div style="text-align: center;"><input type="checkbox"/> Natural Sciences (7)</div> </div>	

## SECTION 2: PREPAREDNESS

Please tick the box that best corresponds with your answer

<i>How prepared do you think you were for your first menstruation?</i>			
Totally unprepared (1)	Somewhat unprepared (2)	Somewhat prepared (3)	Totally prepared (4)
<i>How much information did you have prior to your first menstruation?</i> <i>(Did you know about the cause of bleeding, the sensation of menstruation, how often you would menstruate, the amount of bleeding per day, how long you would menstruate and how to ensure cleanliness during menstruation?)</i>			
No information (1)	Very little information (2)	Enough basic information (3)	Extremely well informed (4)

## SECTION 3: BELIEFS AND ATTITUDES TOWARDS MENSTRUATION

Please answer the following questions about your attitudes and beliefs of the experience of menstruation. Your answers will remain confidential and anonymous, please be honest. Tick the box that best corresponds with your answer.

		Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1.	It is important to talk about the menstrual period with men					
2.	Women must avoid swimming while we are having our periods					

		<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>	
3.	I think there are times when we women cannot stand our periods						
4.	Women are proud when we start having our periods						
5.	It is important to discuss the topic of periods at school with boys and girls						
6.	The period is dirty						
7.	Women must avoid eating or drinking cold things when we are having our periods						
8.	Men have a great advantage not having the annoyance of the period						
9.	We women must hide anything that shows that we are having our periods						
10.	The period affects the performance of women at work						
11.	We women wish that the period would last for a few minutes						
12.	It is important to buy sanitary pads without being seen						
13.	There are women who feel more content to have our periods						
14.	Women wish that we did not have our periods						
15.	It is uncomfortable for us women to talk about our periods						
16.	There are women who are happy every time they have their periods						

17.	It is important that nobody knows when a woman is having her period						
		<b>Strongly Disagree</b> (1)	<b>Disagree</b> (2)	<b>Neutral</b> (3)	<b>Agree</b> (4)	<b>Strongly Agree</b> (5)	
18.	Women must avoid smoking while we are having our periods						
19.	The period is annoying						
20.	Women must avoid eating certain foods while we are having our periods						
21.	It is embarrassing when a man finds out that a woman is having her period						
22.	Women must drink tea while we are having our periods						
23.	The period is painful						
24.	Women blush when we see an advertisement about sanitary pads when we are with a man						
25.	The period disables women						
26.	There are women who enjoy having their periods						
27.	Women must avoid carrying heavy things when we are having our periods						
28.	There are women who look more attractive while they are having their periods						
29.	It is important to keep the period a secret						
30.	It is uncomfortable for us women to have our periods						

31.	Women must take showers with hot water while we are having our periods						
32.	We women should avoid talking about our periods when men are around						
		<b>Strongly Disagree</b> <b>(1)</b>	<b>Disagree</b> <b>(2)</b>	<b>Neutral</b> <b>(3)</b>	<b>Agree</b> <b>(4)</b>	<b>Strongly Agree</b> <b>(5)</b>	
33.	The period is a big problem						
34.	Women must avoid exercising while we are having our periods						
35.	The period is something that we women have to bear						
36.	Women get excited when we have our first period						
37.	The period affects a woman's ability to do housework						
38.	It is hard to live with the period						
39.	It is important to discuss the topic of the period at home openly						
40.	Having the period is a punishment for women						
41.	It is annoying for us women to have the period every month						
42.	The period affects women's daily activities						
43.	The period is really annoying						
44.	Women must eat or drink hot things when we are having our periods						



45.	Women must stay away from men while we are having our periods						
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