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**THE RELATIONSHIP AMONG MENSTRUAL LEARNING, ATTITUDES, AND
COMMUNICATION IN AFRICAN AMERICAN WOMEN OF
DIFFERING SOCIOECONOMIC STATUS**

A Thesis in

Biobehavioral Health

by

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ABSTRACT

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. The menstrual learning instrument measured specific items learned, sources of information for each item, and whether the item was learned before or after menarche. Similarly, the instrument measured participants' sharing of this information with others in their lives. Attitudes toward menstruation were measured using three specific subscales: pleasantness, annoyance, and secrecy. Results illustrated that: 1) Women in this study had various sources of menstrual information, but mothers were the source that was cited most often; 2) most types of menstrual information were augmented after menarche; 3) on average, the African American women disagreed with the attitude that menstruation could be a pleasant or positive experience; 4) biological and behavioral learning from family, other than mothers, and biological learning from teachers and reading correlated with less current positive attitudes toward menstruation; 5) those women who received biological and behavioral information about menstruation from reading felt less negatively, including "annoyed" about their menstruation; 6) on average, the African American women were ambivalent about being secretive or open about their menstrual periods.; 7) women's current attitudes toward secrecy seemed to be diminished by learning biological menstrual information from their friends or reading or receiving

behavioral information from their mother, other family members, or reading; 8) women who had less positive/pleasant attitudes toward menstruation were likely to share more biological and behavioral information with their daughters and an “other;” 9) women who felt less secretive about their own menstruation were likely to share more biological information with the young people that they knew; and 10) socioeconomic status did not impact the above relationships.

Implications for menstrual education are discussed. Implications for revision of menstrual education are discussed, including possible ways to enhance menstrual education and the public health implications of these changes.

TABLE OF CONTENTS

LIST OF FIGURES	viii
LIST OF TABLES	ix
ACKNOWLEDGEMENTS	x
Chapter 1 INTRODUCTION	1
OVERVIEW OF MENSTRUAL HEALTH DISPARITIES	1
INTRODUCTION TO MENSTRUAL COMMUNICATION AND LEARNING ...	7
INTRODUCTION TO MENSTRUAL ATTITUDES	8
STATEMENT OF THE PROBLEM	9
STUDY PURPOSE	10
RESEARCH QUESTIONS.....	11
RESEARCH HYPOTHESES	11
SIGNIFICANCE OF STUDY	12
LIMITATIONS	13
DEFINITION OF TERMS.....	13
SUMMARY	15
Chapter 2 LITERATURE REVIEW	16
STUDIES CONDUCTED WITH ADOLESCENTS	17
Summary	42
STUDIES CONDUCTED WITH ADULTS	43
Summary	63
CONCLUSION OF REVIEW.....	64
Chapter 3 METHODS.....	66
PREVIOUS MENSTRUAL LEARNING INSTRUMENTS	67

QUALITATIVE RESEARCH ON MENSTRUAL LEARNING.....	68
DEVELOPMENT OF THE MENSTRUAL LEARNING INSTRUMENT AND PILOT TESTING	80
IMPLEMENTATION OF THE RESEARCH STUDY.....	85
Chapter 4 RESULTS	97
RESEARCH QUESTIONS.....	98
RESEARCH QUESTION 1: MENSTRUAL LEARNING.....	98
RESEARCH QUESTION 2: SOURCE-TOPICS AND MENSTRUAL ATTITUDES.....	107
RESEARCH QUESTION 3: ATTITUDES AND SHARING OF MENSTRUAL INFORMATION.....	112
RESEARCH QUESTION 4: SOCIOECONOMIC STATUS INFLUENCE	114
SUMMARY	116
Chapter 5 SUMMARY OF STUDY	117
DISCUSSION OF FINDINGS	118
Sources of Information	118
Attitude Subscales and Correlates	120
LIMITATIONS	127
Data Collection	127
Study Design.....	129
CONCLUSIONS/IMPLICATIONS FOR EDUCATIONAL INITIATIVES.....	129
FUTURE RESEARCH RECOMMENDATIONS	137
Bibliography.....	139
Appendix A Research Reviewed in Chapter 2.....	146
Appendix B Portion of Interview Schedule.....	153

Appendix C Health Survey	156
Appendix D Results of White Participants	162

LIST OF FIGURES

Figure 1. Themes155

LIST OF TABLES

Table 1: Descriptive statistics of participants	87
Table 2: Attitude Subscale Reliabilities	95
Table 3: Mother biological crosstabulations: Before and after menarche.....	101
Table 4: Family biological crosstabulations: Before and after menarche	102
Table 5: Friends biological crosstabulations: Before and after menarche....	103
Table 6: Teachers biological crosstabulations: Before and after menarche	104
Table 7: Reading biological crosstabulations: Before and after menarche ..	105
Table 8: Mother behavioral crosstabulations: Before and after menarche ...	106
Table 9: Family behavioral crosstabulations: Before and after menarche....	106
Table 10: Reading behavioral crosstabulations: Before and after menarche	107
Table 11: Point biserial correlations between information received and attitude	111
Table 12: Point biserial correlations between attitude and information shared	114
Table 13: Mother biological crosstabulations: Before and after menarche ...	167
Table 14: Reading biological crosstabulations: Before and after menarche..	167
Table 15: Mother behavioral crosstabulations: Before and after menarche ..	168
Table 16: Point biserial correlations between information received and attitude	168
Table 17: Point biserial correlations between attitude and information shared	169

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Chapter 1

INTRODUCTION

This chapter will introduce the purpose and significance of this study regarding the impact of African American women's communication and learning about menstruation on their menstrual attitudes. First, an overview of menstrual health disparities will be presented. An introduction to communication and learning about menstruation will then be offered. Next, the research problem will be stated, followed by the study's purpose. Then, specific questions the researcher is planning to answer along with hypotheses are presented. Limitations are offered, and finally, a list of definitions of important terms will be reviewed.

OVERVIEW OF MENSTRUAL HEALTH DISPARITIES

There is a prevalent misconception about how health disparities emerge in the United States: health disparities are often drawn along racial lines, without consideration of what is actually driving the health differences between groups. While it is true that different minority groups disproportionately experience various diseases and disorders, these are often not the result of an individual's racial background (Fauci, Braunwald, Isselbacher, & Wilson, 1998). There are, however, a few exceptions to this. Diseases such as sickle cell anemia and

systemic lupus erythematosus have been found to be genetically linked and are found in higher rates in African Americans than those of other racial backgrounds; these diseases are not causing the overall state of poor health among African Americans, though (Department of Health and Human Services, 1998). There are many other factors that contribute to the health disparities experienced by minority groups within our culture. Socioeconomic status, or SES, is currently recognized as one of the driving forces of health differences (Fauci, Braunwald, Isselbacher, & Wilson, 1998).

Socioeconomic factors, including education level, employment status, and income; lifestyle behaviors, including physical activity level and alcohol and drug use; social environment, including educational and economic opportunities, racial discrimination, and neighborhood and work conditions; and access to preventive health care services, such as screenings and vaccinations are all players in the field of health disparities (Williams, Neighbors, & Jackson, 2003). Since so many factors influence what is thought of as “health disparities,” it is important to note that the racial or ethnic disparities that will be discussed are not governed by biology. However, the societal response to one’s race or ethnicity contributes to racial discrimination that impacts socioeconomic status. Examples of how this occurs include structural racism, which “creates barriers to obtaining adequate access to medical care” (Lawson, Rodgers-Rose, & Rajaram, 1999, p. 280-1). Coping with such barriers and stereotypes contributes to stress-related illnesses (Anderson, McNeilly, & Myers, 1991). For example, in the workforce, controlling for education and past job experience, African American women are more likely

than white women to be exposed to occupational hazards (Leigh, 1995). This then results in health disparities between different racial and ethnic groups.

For African Americans, these disparities translate into “earlier deaths, decreased quality of life, loss of economic opportunities, and perception of injustice” (CDC, 2005). It is widely recognized that African American women have higher rates of poor health than do white women in the United States (Lawson, Rodgers-Rose, & Rajaram, 1999; Ren, Amick, & Williams, 1999). As opposed to whites, African Americans are three times more likely to live in poverty. African Americans are more likely to live in areas that: have schools without many resources, are overcrowded, have high rates of unemployment, and are often exposed to drugs and violence (US Department of Health and Human Services Public Health Service, 1990). More specifically, incidence rates for many cancers, including colon/rectal, pancreatic, and stomach; new cases of gonorrhea; and levels of inactivity and obesity are all higher among African American women as compared to white women, and the percentage of women receiving prenatal care is lower among African American women as well (CDC, 2005). African American women with lower socioeconomic status (SES) are at an even greater health disadvantage because of the interaction of race and lower SES on their health (Ren, Amick, & Williams, 1999). Disparities based on socioeconomic status are evident in menstrual-related health issues as well, although most of the research concerning menstrual patterns and health has been conducted using samples of white women of higher SES (Jackson, 1991; Miles & Malik, 1994; Palmer et al., 2003).

Specific menstrual problems that African American women disproportionately face include uterine leiomyomas (ul), or fibroids, of which the incidence is two to three times greater among African American women as compared to white women (Marshall et al., 1977; Faerstein, Szklo, & Rosenshein, 2001). In addition, African American women have a greater number of lesions, larger lesions, lesions at earlier ages, and report more pain and bleeding of lesions. Also, there is typically a longer time period between diagnosis and treatment of their uls as compared to white women (Baird et al., 2003; Faerstein et al., 2001; Kjerulff et al., 1996; Marshall et al., 1997; Pron et al., 2003).

African American women also suffer disproportionately from cervical cancer. While African American women are reported as having the fifth highest rate of cervical cancer (13 cases per 100,000 as opposed to 8.7 per 100,000 for white women), they have the second highest death rate (7 per 100,000 as opposed to 2.5 per 100,000 for white women) (Department of Health and Human Services, 1998). It is suggested that if “SES is controlled, African American/white differences in some cancers, including cervical cancer... are reduced or disappear” (Fauci, Braunwald, Isselbacher, & Wilson, 1998). Furthermore, one study demonstrated that in the population of the San Francisco Bay Area, controlling for socioeconomic status reduced the excess incidence of cervical cancer by 27% for African American women as compared to white women (Krieger, Quesenberry, Peng, Horn-Ross, Stewart, et al., 1999).

Human papilloma virus (HPV) is a sexually transmitted disease that is a risk factor for developing cervical cancer. Since women of lower SES may participate in more sexually risky behaviors, this could explain some of the disparity (Fauci, Braunwald, Isselbacher, & Wilson, 1998). Other sexually transmitted infections that demonstrate this disparity include gonorrhea and syphilis. The incidence for gonorrhea for 10-14 year olds is 467 per 100,000 for African Americans, versus 21 per 100,000 for whites. For 15-19 year olds, the rates are 4,912 per 100,000 for African Americans versus 266 per 100,000 for whites. The incidence for syphilis for 10-14 year olds is more than 7 per 100,000 for African Americans, versus less than 1 per 100,000 for whites. For 15-19 year olds, the rates are 108 per 100,000 for African Americans versus less than 3 per 100,000 for whites (Department of Health and Human Services, 1998).

Pelvic inflammatory disease (PID) is a disease that African American women experience, but women of lower SES experience it significantly more (Lawson, Rodgers-Rose, & Rajaram, 1999). Because women who were of lower SES had a significantly higher incidence of PID as compared to African American women of higher SES, his work furthers the support for the impact of socio-economic status.

It is possible that many of the problems discussed above are not treated until they are in a state of emergency, as demonstrated by Curtis' research. When analyzing the rates of different types of gynecologic disorders that sent women to emergency rooms for 1992 through 1994, it was discovered that African American women were going to the emergency rooms 3.6 times as often

as white women. And, when the disorders were broken down further, African American women were visiting emergency rooms 6.6 times as often as white women as a result of lower genital tract infections (Curtis, Hillis, Kieke, Brett, Marchbanks, & Peterson, 1998).

African American women have a significantly higher possibility of receiving a hysterectomy and at younger ages than their white counterparts (Kjerulff, Langenberg, Seidman, Stolley, & Guzinski, 1996; Lewis, Groff, Herman, McKeown, & Wilcox, 2000). African American women are more likely to have complications associated with a hysterectomy and have longer stays in the hospital. They also have three times the rate of in-hospital mortality after having a hysterectomy than white women do (Kjerulff, Langenberg, & Guzinski, 1993). Some research has indicated that these disparities may be based more on lower SES experienced by many African American women than on actual racial differences (Brett, Marsh, & Madans, 1993; Kjerulff, Langenberg, & Guzinski, 1993). For example, women who have experienced increased incidents of race-based social inequality have received more medical treatments for yeast infections, pregnancy-related problems, and pelvic inflammatory disease (Lawson, Rodgers-Rose, & Rajaram, 1999).

Therefore, it is important to determine the factors that contribute to menstrual-related health disparities. Inaccurate information and negative attitudes about menstrual events have revealed a tendency to adversely affect women's menstrual experiences and health (Avis & McKinlay, 1991; Brooks-Gunn & Ruble, 1980; 1982; Buchanan, Villagran, & Ragan, 2001; Gannon &

Edstrom, 1993; Grief & Ulman, 1982; Hunter, 1990; Kieran & Morse, 1992; Koff, Rierdan, & Sheingold, 1982; Rierdan, Koff, & Stubbs, 1989; Woods, Dery, & Most, 1983). As some menstrual researchers have concluded, “When information is incorrect or limited, it affects women’s ability to understand their own reality” (Buchanan et al., 2001, p. 108). Therefore, it is not surprising that ethnicity and culture have illustrated a possibility to create differences in women’s menstrual attitudes and experiences (Beyene, 1986; Griffin, 1977; van Keep & Kellerhals, 1974). Researchers have further demonstrated that the communication that women engage in directly affects their menstrual health attitudes and beliefs (Buchanan, Villagran, & Ragan, 20001; Stoltzamn, 1986). Therefore, the next section will serve as an introduction to menstrual communication and learning. A more thorough discussion of this literature will be provided in Chapter 2.

INTRODUCTION TO MENSTRUAL COMMUNICATION AND LEARNING

Studies have presented that as girls approach menarche, they do not have the information they need about their impending menstrual cycle (Brooks-Gunn & Ruble, 1982; Rierdan & Koff, 1995a) . For example, a multicultural qualitative study of premenarcheal girls found that most of them did not know what to expect from menarche. Those who did would not share the information with other girls. Overall themes of embarrassment, offensiveness, fear, and even naughtiness were associated with the topic of menstruation for these girls

(Ernster, 1977). Such themes are common throughout the studies examining girls' and women's attitudes and knowledge about their menstrual cycles.

Several studies have focused on menarche and learning, though relatively few have employed a diverse sample (Brooks-Gunn & Ruble, 1982; Golub & Catalano, 1983; Rierdan & Koff, 1990; Rierdan & Koff, 1995a; Rierdan & Koff, 1995b). Some of these studies do not differentiate between a lack of any preparation and insufficient preparation for menarche. The incomplete research in this area is the reason that a more thorough examination of women's menstrual learning is needed.

INTRODUCTION TO MENSTRUAL ATTITUDES

Women's attitudes toward menstruation are very complicated. Often, women's attitudes predict menstrual events to be worse than they actually are once the event is experienced (Koff & Rierdan, 1996). These negative attitudes may be due, in part, to society's messages about menstruation. Attitudes toward menstruation also stem from education that women have received about the topic: more education is associated with more positive views of menstruation (Brooks-Gunn & Ruble, 1982; Golub & Catalano, 1983).

Menstrual attitudes come from several sources, though mothers are often cited as the main source of menstrual information (Amann-Gainotti, 1986; Rierdan & Koff, 1995b). However, it is also important to take cultural influences, such as media, into account. For example, a study conducted in Italy

interviewed 11-14 year old boys and girls and found that girls' positive descriptions of menarche were significantly related to their family's/culture's positive attitudes as well as to previous education (e.g. boys were more likely to ignore the subject). The author suggests that without proper preparation, youth are likely to revert to cultural attitudes (Amann-Gainotti, 1986). It is suggested that these stereotypical attitudes may be partially erroneous. Amann-Gainotti's study emphasizes the importance of objective menstrual learning on the formation of menstrual attitudes. The current study measures education through sources and timing so that a better correlation can be made concerning women's menstrual communication and learning and their menstrual attitudes.

STATEMENT OF THE PROBLEM

In order to understand the factors that contribute to menstrual health disparities, there must be more research conducted with minority women. Research in the area of menstrual communication and learning has not been thorough enough to determine where African American women are learning about menarche and whether they are learning this information before or after they have started menstruating. Attitudes toward menstruation have not been correlated with this information either.

The type, or lack, of menstrual communication and learning impacts women throughout their lives: beginning with their preparation for menarche and continuing past menopause. The research on menstrual education,

communication, and learning explains the importance these factors have on girls' and women's development: positive and healthy attitudes result from positive and accurate menstrual information provided in an appropriate manner (Amann-Gainotti, 1986; Brooks-Gunn & Ruble, 1982; Golub & Catalano, 1983; Rembeck & Gunnarsson, 2004; Rierdan & Koff, 1990; Rierdan & Koff, 1995a; Rierdan & Koff, 1995b). Due to the differences in samples and research designs used in previous research, it is difficult to determine whether women differ on their knowledge, attitudes, and communication styles regarding menstruation based on their race, ethnicity, and/or socioeconomic status. The research questions addressed in this study aim to begin to tease apart some of these differences.

STUDY PURPOSE

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. To achieve this purpose, this study analyzed a portion of data that was collected as part of an NIA funded grant entitled "Menstrual Health Disparities and Low SES African Americans" (1 RO3A60 23890). The portion of the questionnaire that was analyzed for this study concerned women's menstrual learning, including: where women learned about menstruation, what they learned from each source, whether they learned it before or after they started menstruating, what they have told other women about menstruation, when they told other

women about menstruation, and what current attitudes they have toward menstruation. The outcome of these analyses demonstrated whether relationships exist between levels of communication received about menstruation, levels of communication given about menstruation, and women's attitudes about menstruation.

RESEARCH QUESTIONS

1. From what sources and at what time (before or after menarche) do African American women receive their menstrual learning?
2. How is menstrual learning related to African American women's current menstrual attitudes?
3. How are African American women's menstrual attitudes related to their sharing of menstrual learning with others?
4. Are these relationships (#2 and #3) influenced by socioeconomic status?

RESEARCH HYPOTHESES

Based on the thorough review of the literature, as well as pilot studies that the researcher conducted, the following hypotheses were developed:

1. Female relatives and school will be the most referenced sources for menstrual information. Categories that are identified as sources include:

mothers, grandmothers, sisters, cousins, aunts, or other female relatives, friends, church, school, doctors or other health care professionals, or reading materials.

More information will be provided after menarche.

2. A higher score of menstrual learning (across sources) before menarche will be associated with higher levels of menstrual joy and lower levels of menstrual secrecy and annoyance.

3. Higher levels of menstrual joy and lower levels of menstrual secrecy and annoyance will be associated with higher scores of sharing of menstrual learning.

4. Women with lower levels of socioeconomic status will not have as much menstrual education, and therefore have more negative attitudes and lower levels of sharing of menstrual learning.

SIGNIFICANCE OF STUDY

The current study is necessary to direct future educational programs about menstruation. In order to fully understand what programs may give optimal information at the optimal time, it is important to understand how attitudes and communication about menstruation may be impacting each other. After this relationship is further understood, programs can take advantage of this knowledge by incorporating it into the curriculum.

LIMITATIONS

Limitations of this study include:

1. The participants lived in the Harrisburg, Pennsylvania area and were not randomly selected, and thus the results of the study cannot be generalized to broader populations.
2. While the study instruments were pre-tested with African American women of lower socioeconomic status, it is possible that the participants may still have encountered literacy issues.

DEFINITION OF TERMS

African Americans: When the umbrella term “black” is divided along ethnic lines, African Americans are black Americans that are of African descent. Since most black Americans in our research study area identify as African Americans, that is the terminology that is used in this research study.

Blacks: This term is used to define all ethnicities that consider themselves to be black. This term does not assume that someone who has marked “black” on a survey is of African descent. When past research studies did not define what ethnicity participants were, but did specify race, their terminology was used.

Communication Practices: Discussions about menstruation that occur with either a learning or teaching purpose. These discussions may be with family members, friends, teachers, doctors, or other individuals in the community.

Ethnicity: Ethnicity is a category that divides races. Ethnicity takes not only race into account, but also cultural factors. Things such as typical eating patterns, and prevalent cultural beliefs would be components of one's ethnicity.

Menarche: Time in a young woman's life when she first begins menstruation.

Menstrual Learning: Any education that a woman receives, either formal or informal, that references menstruation or a closely related topic.

Menstrual Attitudes: Women's feelings about their menstrual cycle, as measured by three sub-scales: joy, secrecy, and annoyance. These sub-scales are taken from the Beliefs and Attitudes Towards Menstruation Questionnaire.

Race: Race is a broader term than ethnicity. Race is used to describe various ethnicities that may all identify as one group of people united by common history, language, cultural traits, and etcetera.

Socioeconomic status (SES): Factors that contribute to one's socioeconomic status include: education level; employment status; income; social environment, including educational and economic opportunities; racial discrimination; neighborhood and work conditions; and access to preventive health care services, such as screenings and vaccinations (Williams, Neighbors, & Jackson, 2003).

SUMMARY

As set forth in the chapter, the purpose of this study is to determine the relationships among menstrual communication and learning factors and the menstrual attitudes expressed by African American women. Chapter 1 of this thesis includes overviews of important areas relative to this research, a statement of the problem, the study's purpose, specific research questions and hypotheses, limitations of the research, and a list of definitions of important terms. Chapter 2 provides a review of the literature related to the study and includes the rationale for conducting the study. Chapter 3 discusses the theoretical, methodological and analytical procedures employed in the study. Chapter 4 presents the findings of the research and discusses these findings. Finally, the conclusions that can be drawn, as well as recommendations for future research, are discussed in Chapter 5.

Chapter 2

LITERATURE REVIEW

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. The studies reviewed in this chapter are divided into two groups: studies conducted with adolescents as participants and studies conducted with adults as participants. There are several reasons for this categorization. Since adolescents are closer to the menarcheal event, their research responses may not be so much affected by recall bias. On the other hand, older women's responses may benefit from more complex insights that maturity may develop. To display how the research on menarche has evolved, the studies within each category are presented in chronological order. Also important to note is that all of the studies reviewed are studies that were conducted in the United States. Since the cultural influence is important on how girls experience menarche and define menstruation within their lives, it was not appropriate to include studies from various countries.

STUDIES CONDUCTED WITH ADOLESCENTS

Research on girls' and women's attitudes toward menarche and menstruation has been conducted for over fifty years. The first study conducted with adolescents and emotional response to menarche is one of only two studies reviewed that specifically examined differences between black and white girls. Henton (1961) sampled girls from schools in the deep south. The researcher recruited 133 white and 801 black girls who ranged in age from 11-18. The subjects were recruited from three schools and ranged in grade level from 7th through 12th grade. The specific recruitment methods were not discussed. Girls were asked "How did it [the onset of menarche] affect you?" Results demonstrated that white girls mostly reported feeling upset (16.4%), worried (11.5%), happy (12.5%) and neutral toward the event (51.9%). Black girls reported feeling upset (20.7%), unhappy (13.6%), unclean (10.2%), worried (10.0%), ashamed (18.3%), happy (8.0%), and neutral toward the event (19.2%). The researcher summarized these results by stating that black girls experienced a wider range of emotions at menarche than did the white girls. The researcher also reported on preparedness for menarche, though the report of the study does not detail how these answers were elicited from the girls. Results of preparedness were that 76.0% of white girls and 62.8% of black girls were prepared for menarche by their mothers. In addition, 2.0% of black girls reported being prepared by their family physician, and 2.0% of white girls and 62.0% of black girls were prepared by a nurse. A possible difference in the influence of

social networks was also reported: 27.8% of black girls were prepared by a girlfriend, cousin, or teacher, while only one of the white girls was prepared by one of those sources.

In 1963, Larsen studied the subject by using girls' and women's menstrual expressions as an index of their attitude toward menstruation. All participants were given the opportunity to anonymously answer the question "What is your way of saying it [menstruation] to others?" The 781 subjects lived in the Puget Sound area of Washington state, were all of middle-class background, and ranged in age from 14 to 87. Since race of the subjects was not mentioned, it is probable that they were all white. When the answers to this question were analyzed, the females' responses were divided into three categories: below 20, 20-40, and over 40 years of age. There was no information provided about the number of girls and women in each category, but the vocabulary used by each group was significantly different. Technical terms for menstruation were used by 4.2% of the teenagers, 14.6% of the adult women, and 18.3% of the older women. Cyclic references, or terms such as "period" and "monthly" were used by 50.2% of the youngest group, 39.1% of the adults, and 27.2% of the oldest group. Causal terms, such as "the usual" or "Mother Nature" were used by 9.8% of the youngest women, 8.1% of the middle-aged women, and 3.8% of the oldest women. References to injury or sickness were used by 2.5% of the teens, 4.0% of the adult women, and 8.8% of the eldest group. "The Curse" was used to describe menstruation by 3.7% of the teenagers, 7.0% of the adult women, and 14.5% of the oldest group. A reference to the mechanics of menstruation was

used by 10.5% of the youngest, 9.3% of the middle group, and by 16% of the oldest women. Finally, “visitor” or “friend” was used by 12.1% of teenagers, 9.6% of women 20-40, and 3.4% of the oldest group.

Larsen (1963) then summarized that the oldest group used negative terms such as references to sickness or “The Curse” the most often. The oldest group also used technical terms and references to the mechanics more often than the younger groups. On the other hand, teenagers used the cyclic references and causal expressions more frequently than the other groups. The younger girls also used the reference of a “visitor” or “friend” the most often. Larsen suggested that these last terms may be used to “ward off a menstrual threat” (p.# 877).

While Larsen’s research is the beginning of attitude research toward menstruation, her study did not investigate how the use of various terms may be related to specific menstrual attitudes. She noted that these terms are an index of attitude, but does not differentiate between what terms may be considered positive or negative, which terms may be “healthier” to use, or which terms women preferred.

In 1975, researchers began to study the importance that attitudes toward menarche may have on women’s development. Whisnant and Zegans (1975) realized that no studies had been conducted focusing on the adolescent girl’s anticipatory attitudes toward menstruation; similarly, no studies had been completed that examined a girl’s assimilation into menstrual life. Therefore, Whisnant and Zegans interviewed 35 white, middle-class girls, and asked them about their menstrual attitudes (Whisnant & Zegans, 1975). Themes that

emerged from these interviews illustrated that menarche was an emotional event related to the adolescent girl's: emerging identity as an adult woman, her newly acquired ability to reproduce, and her changing relationship with her mother. Younger girls, who had not experienced menarche yet, expected menarche to be a time of openness and discussion with friends and parents. However, girls who had experienced menarche all reported being very secretive about the event. While several girls discussed wanting to share information and experiences with their mothers, equally notable was the absence of girls' discussion of sharing anything with their fathers. The authors emphasized that the United States' cultural view of menarche was that of a "hygienic crisis" and they proposed a move toward a more appropriate idea of menarche within the US. The authors cited other societies' rituals as a more positive forum for welcoming menarche and fostering adolescent girls' psychological development. Interestingly enough, this "hygienic crisis" paradigm is still prevalent in today's society.

In 1975, Whisnant and colleagues analyzed commercial educational materials to determine what information girls were receiving. The researchers found that the materials were evaluated as good in describing hygiene, but were poor in addressing emotional needs of the girls (Whisnant, Brett, & Zegans, 1975). The materials were very positive, though not entirely forthcoming with correct information. For example, one booklet answered questions girls might have about menstruation "such as, how to keep smiling every day..." (Whisnant, Brett, & Zegans, 1975, p.# 816). Yet, as the booklets aimed to answer girls' questions, they were also vague. The booklets did not connect internal

reproductive organs together, nor did they describe how they were connected to a girl's outer body. While the general ideas and experiences were written about in a positive tone, the negative symptoms a girl may experience were characterized as the fault of the girl. To discuss any problems, girls were directed to their mothers. Booklets were also designed for mothers to communicate with their daughters. However, the same booklets characterized the girls as new young women; women who did not need to go anywhere for information; women who should not need to discuss menstruation in public at all. The girls' forced independence was reinforced by the secrecy that the booklets promoted.

Clarke and Ruble (1978) expanded both the sample studied and variables investigated regarding menstruation. They surveyed both young boys and girls about their menstrual beliefs. Eighteen premenarcheal girls (with a mean age of 12.11 years), 18 postmenarcheal girls (with a mean age of 12.50 years), and 18 boys (with a mean age of 12.10 years) were asked to complete a questionnaire about menstrual attitudes, expected symptoms, how menstruation affected moods and activities and sources of menstrual information. The participants were recruited from white, middle- to upper-class schools. Results illustrated that the main source of menstrual information for girls was their mothers. Female friends, health classes, and books were also mentioned. Boys, however, did not receive menstrual knowledge from most of the sources. None of the broad generalizations about boys' and girls' sources or attitudes provided exact counts or percentages. Both boys and girls associated menstruation with negative

expectations and attitudes (i.e. physical discomforts, mood changes, disruption of activities and social interactions). Many of their attitudes were interpreted by the researchers as the result of cultural socialization processes. It was therefore recommended that menstrual education be aimed at the audience at appropriate time.

In 1982, Brooks-Gunn and Ruble examined how attitudes about menstruation develop in a cross-sectional study of a much larger study of girls of different ages. Six hundred thirty nine girls completed the survey, 210 from 5th and 6th grades, 219 from 7th and 8th grades, and 210 from 11th and 12th grades. Ninety-six percent of the sample was white. It was stated that social class spanned lower to higher economic status; however no racial or SES comparisons were conducted. Results of the cross-sectional study explained that there were not any grade-level differences for sources between males and females. As grade level increased, media and health sources were rated as more valuable sources and parents and doctors were less important sources.

Nested within this cross-sectional study was the first longitudinal study on this topic. It followed 120 premenarceal girls for approximately one and one-half years, 60 from the cross-sectional study, and another 60 recruited from Girl Scout organizations in New Jersey. Girls in this longitudinal study were called every two months to determine if they had started menstruating. Once they started menstruating, they completed a second survey. This second time point was after a girl had experienced menarche and two or three subsequent periods, but before she was six months removed from menarche. Girls who started

menstruating during the longitudinal period were matched with girls who still had not. Of the 60 pairs, 46 pairs of girls were seen twice. All of the girls in the longitudinal sample were white. The surveys that all of the girls completed were more detailed and queried about: incidence and severity of menstrual symptoms, using the Moos Menstrual Distress Questionnaire (1968); attitudes about menstruation, using the Adolescent Menstrual Feeling Scale (developed by the authors for the study) and the Menstrual Attitude Questionnaire-Adolescent form (original scale developed 1980). Sources of menstrual information, using a scale with fifteen possible sources of information were listed for the girls to rank the information learned from each source. The sources listed were: girlfriends, female adults, sisters, and overheard conversations—all grouped as “females”; male friends, male adults, and brothers—all grouped as “males”; television, magazines, and books—grouped as “media”; nurses and health education classes—grouped as “health”; and parents and doctor.

Results indicated that girls' comfort with discussing menstruation was positively related to the amount of information gained from females, their parents, and/or a doctor. The perception that menstruation is a natural event was also positively related to the amount learned from females and from parents and/or a doctor. Girls who had gone through menarche described menstruation as more negative than girls who had not, even though as a whole they reported less menstrual distress than the premenarcheal girls expected to experience. Another important finding was that the menarcheal experience did not correlate to increased knowledge about menstruation.

In 1986, Stoltzman designed a study to examine the differences between attitudes of adolescents, their friends, and their mothers concerning menstruation to see if these females shared common attitudes. The sample was composed of 40 adolescent volunteers who were 15-16 years old and had experienced menarche, as well as their mothers and friends, for a total of 95 white females. The majority of the families had an annual income of over \$20,000. The Stoltzman Menstrual Questionnaire (SMQ), which was constructed for this study, had three parts that assessed attitudes and beliefs about menstruation (32 statements), self-care activities (sixteen statements), and communication patterns concerning menstruation (32 statements). The responses were based on a five-point Likert scale ranging from strongly agree to strongly disagree. Health professionals evaluated the scale and the reliability (alpha) coefficient, as tested on this sample, was .78. The subscale reliabilities were .75, .79, and .79, respectively. These alpha levels demonstrate the scale's high reliability. Paired t-tests were used to examine differences on each scale between adolescents and their friends and between adolescents and their mothers. No significant differences between these groups of women on the overall scales were found. However, some significant differences were found on subscales: mothers were more likely to view menstruation positively compared to adolescents. Adolescents were also less likely to be concerned about menstrual hygiene, but were more likely to engage in open communication about menstruation as compared to mothers of the girls. The validity of these findings were questioned in Morse, Kieren, & Bottorff's (1993) scale construction article, in which

Stoltzman's questionnaire was criticized as inappropriate for adolescents because of questions that "relate to more mature sexual behavior than would be expected for most junior high school girls (e.g. Item 24, 'Intercourse during the menstrual cycle is unsatisfactory'). References in the scale to *women* rather than *girls* and to *work* and *career* rather than to *school* make it difficult for the young adolescent to respond to the questionnaire in terms of her own experiences" (p.40).

A study on attitudes and previous preparation for menstruation (though not the relationship between the two) was conducted in Hawaii in 1986 by Havens and Swenson. There were 74 girls surveyed, all from eighth and tenth grade classes in a private school. Ethnicity and socioeconomic status were not reported. Analyses demonstrated that 80% of the girls were already menstruating at the time of the survey. The most common perception of menstruation was that it was inconvenient, but was a part of every woman's life. When asked about sources of preparation, most girls said that they learned from their mothers at the time of menarche. The most common reactions listed were surprise, fear, and embarrassment. Girls were also asked about how they would prefer to learn about menstruation. Girls thought that fifth-sixth grade was the most optimal time for learning about menarche. While most (89%) of the girls thought that boys needed to understand menstruation, only 35% of the girls wanted boys in the classroom with them while being taught. Some girls (38%) also thought that parents should discuss menstruation with other siblings once they started menstruation (Havens & Swenson, 1986).

Rierdan, Koff, and Stubbs (1989) conducted the first prospective study of adolescent menstrual attitudes. They studied 92 females in grades 6-9 who were premenarcheal at the first test occasion but who had experienced menarche by the second test occasion six months later. All of the girls were white and middle-class. These girls rated their timing of menarche as early, average, or late. They completed questions about themselves, including an item that indicated their preparation for menarche on a seven-point scale. They also completed an ego development scale in which they had to complete 36 sentences. At the second test occasion, after experiencing menarche, the girls were asked to describe their emotional response to the event. Results presented that there was a high correlation between the objective timing of menarche, as early, average, or late, and the girls' subjective labeling of this timing. However, 20% of girls erred in correctly identifying the timing. The participants reported a mean of 4.43 on the menarcheal preparation scale (1 = completely unprepared and 7 = completely prepared). Perception of menarcheal experience had a mean of 4.15 (1 = completely positive and 7 = completely negative). Overall, subjective timing and level of preparation both predicted how a girl experienced menarche. Objective timing and ego development were not related to the girls' menarcheal experience.

Stubbs, Rierdan, and Koff (1989) published another study that same year, one that focused on the development of menstrual attitudes. The two variables that were studied in relation to this development were age and menarcheal status. The participants were 587 girls in grades 6-9, all white and middle-class.

The participants completed questionnaires about their biological, personality, and social development, including: the Menstrual Attitude Questionnaire-Adolescent version (1982); the Girls Growing Up Scale, with questions about maturing (1978); the Beck Depression Inventory-Short form (1972); the Body Cathexis Scale (1953); a Self-Esteem scale developed by Rosenberg in 1965; the Bialer Locus of Control Questionnaire (1961); and the Children's Manifest Anxiety Scale (1956).

Two specific components of the MAQ-A were focused on by the girls' responses: the affirmation of menstruation and worry about menstruation. Affirmation and worry expressed by the younger girls significantly differed from what college-aged women reported (as studied in Brooks-Gunn & Ruble, 1980; and Brooks-Gunn, Ruble, & Clarke, 1977). College women reported a much more multi-dimensional view of menstruation; rather than only two aspects (affirmation and worry), several more dimensions of the MAQ were represented by college women's responses. One of the reasons for this could be that the MAQ-A may be more sensitive to the experience of older adolescents. Another possibility is that younger girls are not as cognitively mature and therefore have not developed a multi-dimensional view yet. There were no developmental differences in the Affirmation component of attitudes between the 6th-9th grade girls; however the Worry component demonstrated complex developmental differences. Both biological and social/cognitive variables affected the Worry about menstruation component. The study concluded that girls' "Worry about menstruation was high either as a result of actual experience with menstruation

(in young postmenarcheal girls) or as a result of acquiring more information about the experiences and worries of menstruating peers (in older premenarcheal girls)” (p.495). Because the researchers found that early maturers were worried early about menstruation, and since worry was associated with negative aspects of mood and personality, the researchers recommended that a next step would be to longitudinally study the long-term result of early maturing on attitudes and other personality dimensions. One recommendation for changing menstrual education was to inform educators about girls’ attitudes so that they could work to increase affirmation and decrease worry. Since girls in different developmental stages displayed differences in worry, these attitudes are not stable across time. Therefore, it was suggested that a comprehensive educational program implemented at different ages should work to address the needs of girls in both stages of menarche and menstruation.

In 1989, a landmark study investigated racial differences in menarcheal experiences (Scott, Arthur, Panizo, and Owen, 1989). The research question that guided the study was: “Do blacks, having had the same experiences as whites in schools and having heard the same messages on TV and in magazines, illustrate similar reactions to menarche, or have they learned to perceive it differently within their family, church, and neighborhood?” (p. 363). There were 67 black, middle-class girls in the sample, all of whom had experienced menarche. Most of the participants (76%) were recruited through Girl Scout troops so that the sample could be compared to Brooks-Gunn and Ruble’s sample (1982) that also had recruited many participants from Girl Scout

troops. The rest of the sample was recruited from a partnership program that a local sorority had with a group of young black adolescent girls. Their average age was 13.5 years. Questions were taken from the Brooks-Gunn and Ruble questionnaire (1982). Analyses demonstrated that 27% of the girls thought that they were not at all prepared for menarche. Compared to the Brooks-Gunn & Ruble white sample, almost twice as many black girls were unprepared. As for feelings toward menarche, positive scores were similar between the groups, but negative feelings were slightly higher for the black girls than their white counterparts. This could be due to the fact that more of the black girls were completely unprepared for menarche. The authors stated that, as in previous research conducted by Rierdan and colleagues, preparedness was a better predictor than age for how well menarche was accepted. Their data supported this conclusion because earlier maturers felt less prepared for menarche than did later maturers. These data (and the data from the Brooks-Gunn and Ruble sample) indicated that menstrual education should begin earlier so that girls could be better prepared for menarche.

The same researchers also studied whether the black adolescents' differed in their emotional response to menarche from white adolescents' (Scott, Arthur, Owen, & Panizo, 1989). The same sample from the previous study was examined for their emotional response to menarche; there were 67 black girls in the sample, all of whom had experienced menarche. Their average age was 13.5 years. These girls were middle-class. Questions were asked to determine what their emotional reaction to menarche was, as well as what the event meant

to them. The girls were also asked what they would tell a younger sister about menarche. Surprise was the most often mentioned emotional response (63%), scared was next (46%), followed by embarrassed (34%). The results of the question about what their first menstrual period meant to them were summarized into three categories: 1) it means you're growing up; 2) nothing; and 3) other (all negative, such as fear, discomfort, and pain). The results of the question about what they would share about menarche were: practical advice (60%), reassurance (45%), description of menstruation (42%), physical discomforts and limitations (31%), process of maturing (27%), "ask mom" (15%), "avoid having sex" (12%), "be secretive about it" (7%), and physiology of menstruation (6%). As to sources of information, 66% of the girls said that their mothers educated them about menstruation, and 30% said they had received information from school. For these females, menarche meant the beginning of a sexual maturity. This result was compared to what Brooks-Gunn and Ruble (1982) found when they asked the same question of white middle-class girls. None of the white girls said that they would reassure their hypothetical younger sister about menarche. Many of the black adolescents, however, emphasized this as important (45%). This reassurance of a family member may be an example of the communication style and emotional support that has been noted in the kinship networks of African-American families (Standing & Glazer, 1992; Staples, 1984; Tinsley, Lees, & Sumarojo, 2004).

As a continuation of their examination of their previous prospective work, Rierdan and Koff (1990) analyzed how attitudes and knowledge affected the

menarcheal experience using a prospective study design. Ninety-two white, middle-class girls in grades 6-9 participated in the study. All of the girls reached menarche during the 6 months between testing. Menstrual attitudes were measured with the Menstrual Attitude Questionnaire-Adolescent Form (Brooks-Gunn & Ruble, 1980). Other variables were depression (Beck Depression Inventory, short form, 1972), anxiety (Children's Manifest Anxiety Scale, 1956), self-esteem (Rosenberg Self-Esteem Scale, 1965), locus of control (Bialer Locus of Control Scale, 1961), body satisfaction (Body Cathexis Scale, Modified Form, 1978), and sex role orientation (Bem Sex-Role Orientation Inventory, 1974). A seven-point Likert-like scale measured preparation for menstruation. Timing of menarche was measured subjectively and objectively, and menarcheal experience was evaluated by the girls' emotional responses to their first menstruation, again using a seven-point Likert-like scale. Results demonstrated that out of all the personality measures, only depression was a significant predictor of menarcheal experience: Girls who were less depressed before menarche rated their menarcheal experience more positively than girls who were more depressed. Regardless of the girl's age, preparation and affirmation were both significant predictors of how menarche would be experienced: More preparation and more affirmation toward menstruation were significantly related to a more positive attitude toward their menarche experience.

Around the same time, another sample was surveyed to measure adolescents' perceptions of pubertal changes and menarche (McGrory, 1990). This sample included 95 adolescent girls, aged 11-15 years, who all attended a

high school in Boston. The girls were 97% white, 33% were premenarcheal and 67% were postmenarcheal. The girls completed demographic information, the MAQ-A (Brooks-Gunn & Ruble, 1982), and the Piers-Harris Children's Self-Concept Scale. Results indicated that there were no significant relationships between self-concept and menstrual attitudes. In addition, premenarcheal girls thought that menstruation was more debilitating than postmenarcheal girls did. These results must be examined with caution, as 67 refusals were returned to the researcher, most of which were from parents who did not want their daughters to participate in the study. McGrory also found that only 3/31 premenarcheal and 22/64 postmenarcheal girls completed the MAQ-A, which McGrory thought may be due to the girls' embarrassment.

Although attitudes toward menstruation had been measured in these previous studies, no scale had been thoroughly tested for validity and reliability. Morse, Kieren, and Bottorff developed one in 1993 that has been widely used since. This scale aimed to use language appropriate for adolescents, as well as to include situations that adolescents could relate to. This study also focused on the differences between pre- and postmenarcheal girls, designing two separate scales for the two groups. The scale was tested on 860 premenarcheal and 1,013 postmenarcheal girls from randomly chosen public and private schools in Canada. The response rate from all girls invited to participate was 86.9%. No other racial, ethnic, or socioeconomic data were provided. Qualitative work identified five subscales: a negative response to menstruation, a natural/accepting response to menstruation, an excited response, reactions

regarding menstrual symptoms, and strategies for managing menstruation (Morse & Doan, 1987). To increase the content validity, descriptive findings from previous studies by various authors were incorporated. In the first item pool, 93 items were included. All items were formatted to be answered by a five-point Likert scale, indicating degree of agreement or disagreement. Seven expert raters were used to judge the items based on relevance, and seven of the items were discarded based on these judgments. The scale was then pilot tested on five pre- and five post-menarcheal girls. Adolescent girls aged ten to seventeen who were enrolled in grades six to nine then responded to the measure. They were invited to write questions at the end of the questionnaire.

A discriminant analysis allowed for comparisons between the pre- and postmenarcheal girls. Wilks' lambda was .398: Since a large portion of the variance is accounted for, this value indicated that the two groups of girls had unique answers. The expectations of premenarcheal girls and the experiences of postmenarcheal girls were different. Using parallel forms of the questionnaire (used in a group so that repeated assessments can be completed) for these two different groups of girls would inhibit reliable and valid attitude scores. Therefore, the decision was made to have 47 parallel items and 11 unique items on each scale. A factor analysis confirmed that this was the correct decision. The final scale was deemed better than previous ones because it was based on qualitative work conducted directly with adolescents, and its two unique forms allowed for differences between pre- and postmenarcheal girls. This scale was recommended for use in making group comparisons and clinical assessments.

The normative scores from the last study described above were reported by Morse and Kieren (1993). Pearson correlations were used to examine attitudinal differences between the pre- and postmenarcheal girls. Attitudinal scores were less negative as length of time menstruating increased, and acceptance of menstruation, openness, and ease of living with menstruation increased, as well. Although previous studies have found menstrual symptoms to increase in severity as gynecological age increases (as cited by Morse & Kieren: Klein & Litt, 1981; Teperi & Rimpela, 1989; Widholm, 1979), this study did not. However, this study did find that gynecological age was significantly correlated with negative feelings toward menstruation. Although overall attitude scores became more positive as age increased, the measure of variability (standard deviation) demonstrated a wide distribution of scores. Therefore, a prospective study was recommended to confirm the scale's validity.

To take menstrual preparation research a step further, Koff and Rierdan (1995a) conducted a study to differentiate between a lack of any preparation and insufficient preparation for menarche. This study chose to study girls who described themselves as prepared, in order to determine what these girls had learned. There were 224 girls in the study, 205 of whom had not reached menarche yet. Premenarcheal girls had a mean age of 11.44, while postmenarcheal girls mean age was 11.63 years. All of the subjects were white and came from mid- to upper-class families. Preparation for menarche was rated by the girls on a seven-point scale. Parents' role in informing the girls about menarche was also rated on a seven-point scale. Girls' knowledge of

menstruation was assessed by asking various questions about menstruation. These questions included ones that asked about: the cause of menstruation, the frequency of menstruation, the length of a menstrual period, the amount of menstrual flow per day, how pads and tampons were used, and the physical and psychological changes the girls associated with menstruation. The findings indicated that feeling more prepared about menstruation was significantly related to a more positive attitude at menarche. Higher ratings of how helpful a mother was in terms of preparation correlated with higher ratings of overall preparation. When asked about the cause of menstruation, girls' answers were coded into four different themes: 1) something involving the egg, 2) something involving the uterus, 3) a focus on blood and other substances, or 4) mentions of the vagina. These answers were not highly descriptive or indicative of highly prepared girls, even though the girls in this study rated themselves as highly prepared. The researchers concluded that girls have trouble organizing the information they receive.

In order to learn best to prepare girls for the event of menarche, a study asked younger girls, who had been through menarche recently, for their opinions (Koff & Rierdan, 1995b). The sample consisted of 157 girls from a public school who were white and from middle- to upper-middle-class families. The girls rated how prepared they thought they were for their first period on a 7-point scale, as well as how they responded emotionally to their first period, also rated on a 7-point scale. Both parents were ranked individually in terms of helpfulness of discussing menarche before the girls reached it on a 7-point scale. Girls were

also given a list of fifteen information sources and were asked to indicate where they received information, and then ranked the three most important sources. They were also asked which source they would go to for more information. There were also four open-ended questions that asked the participants about how they would prepare girls for their first period.

After analyzing the reports of importance, the top three sources in order of importance were: 1) mothers, 2) other females (mostly girlfriends), and 3) health classes/health providers. The top three categories for searching for further information were: 1) mothers, 2) girlfriends, and 3) materials provided by menstrual product companies. The most important recommendations on sharing information were to have a supportive and calm environment and to prepare a young girl to know what to do when the first period started. When asked how they would prepare other girls, participants wanted to assure others that menarche was a normal event and that it would not be unpleasant. Girls offered advice to mothers, that mothers should: provide information (72%), provide emotional support (53%), not be embarrassed (37%), teach about menstrual hygiene (17%), and to not broadcast the daughter's menarcheal experience (6%). The advice for fathers, however, was to stay out of the way. A main difference between what was heard from the young girls and what was heard from college girls in a previous study (Brooks-Gunn & Ruble, 1982) was that younger girls did not comment on the individual variability in menstrual cycles, whereas variability in menstrual cycles was a main point that college women included in their recommendations for preparing girls for menarche. The

researchers concluded that girls often receive information that they are not ready for or cannot organize effectively.

The previous cross-sectional studies had researched preparation and attitudes toward menarche, but in 1996, Koff and Rierdan conducted a longitudinal study regarding how expectations and experiences of menarche may change over time. There were 80 girls in this study, all of whom were white and from middle-class families. Girls reported how they expected or had experienced menstrual changes, such as cramps, moodiness, and bursts of energy; how often each was expected or experienced was rated on a 4-point scale. The girls also reported their level of preparedness for menstruation on a 7-point scale. Mothers' helpfulness and emotional responses to menstruation were also rated on 7-point scales, ranging from not helpful to very helpful. Girls' perceptions of negative menstrual changes changed over time. Before menarche, girls already have preconceived notions of what to expect with their menstrual cycles, including what types of symptoms they may have. They expected that most of the symptoms would be negative, and that they would experience changes in their bodies across the menstrual cycle. These beliefs were based on cultural views and tended to be focused on negative changes, such as moodiness, that may occur with the cycle. Once menarche occurred though, the girls reported less negative changes than expected. However, they also reported less positive changes. Once the initial dip in negative changes was reported, the negative changes increased. The researchers explained these findings with two possible theories: 1) physiological changes such that dysmenorrhea increases as time

from menarche increases, or 2) girls had been exposed to more cultural messages about the “curse” of menstruation. Further studies were suggested in the area of menstrual socialization.

Another plausible contributing factor to girls’ menstrual attitudes is menstrual product ads. Thus, menstrual product ads were analyzed to determine what type of information was being sent to adolescents who read these ads (Simes, & Berg, 2001). Two hundred advertisements for menstrual products from women’s magazines between 1985 and 2000 were collected. Themes that emerged from the analysis were: 1) silence and shame, 2) embarrassment, 3) ways to get caught [when one is menstruating], 4) how to avoid getting caught, and 5) always dirty. The core variable that was an overarching theme was “heightening insecurities.” By heightening insecurities, the ads are perpetuating the silence and shame that surrounds menstruation in our society. This study accentuated the fact that there are many sources of education and cultural beliefs that adolescents receive, even before they begin menstruating.

In contrast to the previous quantitative research studies, a qualitative research study was conducted by Hawthorne (2002). She wanted to identify and describe the menarcheal experience of African American girls. More than gathering data from a diverse cultural background, Hawthorne’s study is also the first study reviewed that had adolescent participants of varying socio-economic status. Fifteen girls who experienced menarche were interviewed within five days of menarche, and their mothers were also interviewed. The girls who were interviewed all experienced menarche at 9 or 10 years of age (and thus were that

age at the time of interview). Twelve of the mothers were biological mothers, two were maternal grandparents who had adopted their granddaughters as daughters and one was a foster parent. The mothers' mean age was 38.4 with an educational attainment mean of 12.7 years. Fathers, though not interviewed, had a mean age of 44.5 and a mean level of education of 11.7 years. This translates to 93% of mothers and 67% of fathers that had completed high school. Yearly income ranged from \$4,000 to \$107,000, with a median of \$35,000. All of the mother-daughter dyads were interviewed. Four themes emerged out of these interviews: vaginal bleeding, sexual maturation, premenarcheal sexual activity, and sexual payback to biological fathers. The theme of vaginal bleeding referred to bleeding and blood as interpreting the meaning of the menarcheal experience. Sexual maturation was a theme that was worried about by several mothers, but which girls also expressed concern over. One girl mentioned that boys at her school say that "when a girl sees her period that it means she is ready for sex" (p.493). This theme was promoted by the thoughts that girls should not announce their first menstruation because of how boys and men would view them as sexually available. The theme of premenarcheal sexual activity was one that emerged from mothers in the study. This theme stated that menarche, as well as all sexual development, is the result of premenarcheal sexual activity; that it is this continued activity that causes menstruation to begin. The final theme, sexual payback against fathers, was one that mothers discussed in terms of the fathers' beliefs. Men who had treated women badly, in terms of sexually using or abusing, were afraid that their daughters would be treated badly by the men in

their lives as a type of retribution. This is the only theme that had not previously been found in other research. Hawthorne suggested that this could be because no other study had qualitatively interviewed 9 and 10 year-old African American girls with their mothers just after the onset of menarche. Most often, Euro-American girls who were either months or years past menarche had been interviewed. Hawthorne also discussed the need to learn more about what African American fathers, as well as all racial-ethnic groups of fathers, think about menarche.

Teitelman (2004) qualitatively studied adolescent girls' perspectives of family interactions related to both menarche and their sexual health. She interviewed 22 girls of varying cultural backgrounds and socioeconomic backgrounds, aged 14-18. There were 9 African American girls, 11 European American girls, and 2 multiethnic girls. Eleven of the girls were from low-income families. The age at menarche for the girls differed slightly between African American and Euro-American girls. The African American girls had a mean age of menarche at 11.1 years; for Euro-American girls it was 12.1 years. The mean for all girls was 11.3 years. Concerning menstruation preparedness, two themes arose: "I knew what to do" and "I didn't know what was going on." Some ideas that were prevalent among girls once they started menstruating included: "Now you can have babies" and "it was celebrated in our family." A pattern that was apparent to the researcher was that girls from lower-income families were more likely to report negative feelings as related to their bodily changes and emerging sexuality than girls from higher incomes. This study emphasizes what other

studies have suggested: that education about menarche should begin well before it occurs, as well as continue throughout girls' development. Teitelman also stressed that menarche is an opportunity for education and empowerment.

Another qualitative study was conducted by Laura Fingerson in 2005 to explore how both girls and boys respond to negative constructions about menstruation that Fingerson considered dominant in US culture. She interviewed 26 females and 11 males aged 13-19. The sample came from Indiana, was mostly middle-class, and only three participants identified themselves as a race other than Caucasian. Fingerson engaged the adolescents in conversations about menstrual talk. Young girls discussed worries they had concerning their period. These concerns included: trying to guess when they might menstruate, worrying about whether they would have access to menstrual supplies, and worrying about whether they would be able to access a bathroom when they needed to. Empowering ideas of agency that girls, and some boys, experience emerged from these interviews. The first agentic interpretation of menstruation was managing the responsibility, including being prepared for their next period. The second lesson was having experiential knowledge about menstruation. The third was creatively responding to dominant menstrual norms. While the girls expressed pain and annoyance with menstruation, they also had a sense of confidence about their menstrual experiences, saying that their newly acquired skills helped them to feel superior to their male classmates. Some other positive views presented by a few women described the idea of menstruation as a cleansing process that was healthy. There was also a sense of camaraderie

through the menstrual experience: one girl characterized menstrual talk with friends as similar to sharing “fishing stories”, meaning that they were comparing who had the worst menstrual symptoms. As for sources of menstrual information, friends and peers were a source, as described above, as well as media, parents, teachers, and schools. There is no discussion as to which sources were considered more prevalent or salient in the adolescents’ lives. This study is a landmark study in that it found positive aspects of menstruation described by adolescents. Most studies have not found adolescents readily volunteering positive menstrual points. The author suggested that a reason for this could have been previous researchers’ biased expectations of negative information. Another explanation was that past research focused more on individual narratives rather than on collective talk.

Summary

The studies reviewed present a few trends. Most of the studies were conducted with a small number of participants. Only seven had over 100 participants, and most of the sampling methods were ones of convenience. Of these participants, most were white and came from middle-class backgrounds. Only two teams of researchers specifically examined differences between black and white adolescents (Henton, and Scott, Arthur, Panizo, & Owen). Out of the 23 studies conducted with adolescents that were reviewed, only four are considered qualitative, three of those being in the last five years. Lastly, only two

teams of researchers have done any longitudinal research (Koff, Rierdan, and Stubbs; and Brooks-Gunn and Ruble). There is ample room for improvement in sampling, research methods design, and the type of research conducted.

Unlike many other countries throughout the world, women in the United States often do not celebrate or publicly acknowledge menarche as a positive experience (Brooks-Gunn & Ruble, 1982). Girls are not given enough information throughout their developmental process to positively experience menarche, either. Overall, girls reported receiving most of their information from their mothers, though other sources are often cited in lesser amounts (Brooks-Gunn & Ruble, 1982; Koff & Rierdan, 1995a). This information often does not cover women's full range of experiences or knowledge needed, but rather, disseminated information often focuses on hygiene (Whisnant & Zegans, 1975).

STUDIES CONDUCTED WITH ADULTS

The first documented research concerning menarche and menstrual attitudes was conducted by A. Louise Brush in 1938. Her work was done with 100 women who were not adolescents; about 75 of them were college-aged. The rest of the sample was composed of nurses, professional women, and doctors' wives. The women's backgrounds were not described in greater detail. The ages of the women ranged from 17 to 49 years. Each woman completed a questionnaire about age of menarche; the regularity, frequency, and duration of

her menstrual periods; physical, emotional, and mental symptoms; and open-ended questions about behaviors and attitudes.

Analyses demonstrate that half of these women had learned about menstruation from their mothers before they reached menarche. Less than 10% learned from doctors, nurses, or teachers. About 10% were uninformed before menarche and the remaining women learned about menstruation from peers or another undisclosed source. Between 15-20% of the women were pleased when they began menstruating; the main reason being that they felt that they had reached adulthood. However, about 25% were upset at menarche, and another 25% felt neutral to the event. Brush reported that a possible explanation as to the high number of women who felt upset at menarche was the manner in which they were educated about menstruation. Women mentioned that mothers seemed embarrassed and ashamed while educating them. Overall, the researcher recognized the importance of associating the emotional/mental aspects of menstruating with the physical. She emphasized that these interactions were critical endeavors for future research.

A gap in the literature is followed by McHugh and Wasser's research in 1959. Slightly over 200 women who were students at women's colleges were asked to fill out an open-ended questionnaire about their menstrual history and attitudes toward menstruation. The women's responses were tabulated and repetitive statements were deleted. A total of 48 statements were left after this process. Then, 58 female graduate students of mental health and eleven female professionals in the field rated the statements on a scale of one to eleven. A

score of one indicated a negative attitude and a score of eleven a positive one. Attitudes toward menstruation have not been indexed before this study; the indexing of the attitudes in this study was the first step toward standardizing a menstrual attitude instrument.

The next step in attitude scale development was when Moos developed an attitude questionnaire in 1968. Moos wanted to design a questionnaire that could be used to assess symptoms that women experienced during their menstrual cycles. The sample for her study was composed of 839 women, all of whom were graduate students' wives at a large western university. It was stated that the group was largely homogeneous: white and of higher education level. The original 47 symptoms for the scale were obtained through an open-ended questionnaire given to women (specific women are not specified), a review of previous research, and a list of control symptoms from the Blatt Menopausal index (1953). The control symptoms were included to determine if women over-reported symptoms in general. Women were asked to rate the severity of each of the 47 symptoms on a scale of one through six for three times during their most recent cycle: premenstrual, menstrual, and intermenstrual. Psychometric tests were performed on the scale to ensure its reliability and validity. Results explain that it didn't matter what menstrual phase a woman was in when she responded to the questionnaire, nor did it matter how long it had been since her last period. These factors did not affect how women reported their symptoms.

Frances Dunham also used participants who were not adolescents in her study (1970). Dunham used open-ended surveys with 189 college females, aged

17-22, asking about sources of information about and attitudes toward menstruation. The study was composed of a sample that was over 95% white and was from a mostly middle class background. Results inform that 51% of females first learned something about menstruation from their mothers, 34% from peers, 6% from other adults, 3% from media, and 3% from reading material. These females learned more detailed information about menstruation from: mothers (59%), peers (6%), other adults (19%), other sources (5%), and reading material (8%). Dunham reported that the percentage of women who learn about menstruation from their mothers was lower than reported in previous studies, whereas the percentage of women who were learning about menstruation from their peers was increasing. The timing of receiving this information was also measured. The average time before menarche for the first learning about menstruation was 2.5 years, with additional information being provided a year before menarche. Only 6% of women in the study had received no preparation before they started menstruating. Timing of menstrual learning was also associated with attitude. Older age at first menstrual learning was associated with a more negative attitude toward menstruation.

Brooks, Ruble, and Clark also worked with older women. Their study designed to measure college women's attitudes, expectations, and level of knowledge about menstrual-related changes was reported in 1977. One-hundred-and-ninety-one women were recruited from Princeton University. No other racial, ethnic, or socioeconomic status information was provided. The mean age was 19.29 years, and 150 of the women were not taking oral

contraceptives; the other 41 were on oral contraceptives. The women were asked to complete the Moos Menstrual Distress Questionnaire (1968) in two different mindsets: once as if they were premenstrual, and once as if they were not. The purpose was to determine what type of symptom changes they expected in their own lives dependent on their expectations of their cycles. The women also completed attitude questionnaires about menstrual coping processes, including the following five categories: beliefs about physiological and psychological concomitants of menstruation; styles of dealing with menstruation; menstrual-related effects on performance; and evaluations of menstruation. Results identified that these college women expected to have more severe symptoms during their premenstrual phase, but their actual current phase was not related to symptom reporting. The authors concluded that this may be a result of stereotypical expectations on the part of the women. Surprisingly, this study found that 77% of the women perceived menstruation as at least slightly positive. Half of the sample found it bothersome. Only 32% of the sample perceived menstruation as slightly debilitating, but on the other hand, only 12% reported no effect of menstruation on mood. This study was the first to study menstrual attitudes in a systematic way; in more than simple positive vs. negative terms. The conclusions of the study were that the menstrual experience is more complicated than once believed, and that further research was required to understand the experience.

As a follow-up to this research, Brooks-Gunn and Ruble (1980) worked to develop a measure that could accurately capture all of the variability in attitudes

that women have concerning their menstrual cycle. Both positive and negative aspects of menstruation were emphasized, and the measure was designed with individual differences in mind. This scale was titled the Menstrual Attitude Questionnaire. These attitudes were then correlated with cycle and behavior changes. There were three samples: the first was composed of 191 women, all of whom were undergraduate students at Princeton University. Forty-one of the women were on oral contraceptives. Ninety-five percent of the sample was white, and most of the students were in the highest social classes, as presented by Hollingshead (1957). The second sample was given a shortened version of the questionnaire. This sample had 154 women who were undergraduate students in state schools in New Jersey. Like the first sample, most of these women were not taking oral contraceptives, and most of them were white. These women represented a wider range of social classes, though the lowest of Hollingshead's five social classes was still not represented. Eighty two men from the same schools were also tested, and their ethnicity and social class standings were similar to the group of women. A third sample was made of 72 adolescent girls. These girls were given a portion of the questionnaire with only 15 items, some of which were rewritten with language that was easier to understand. Half of the girls tested were premenarcheal, and half were postmenarcheal. Again, most of the girls were white and came from the first four of the five social classes.

Note: This study is included in the "adult" section because most of the sample were adults, as well as because the measure was not being developed specifically for adolescents.

A factor analysis was performed, using Varimax rotation for the first sample (the Princeton women). Five attitudinal factors were identified: menstruation as a psychologically and physically debilitating event, as a natural event, as a bothersome event, as an event whose onset can be predicted and anticipated, and as an event that does not and should not affect one's behavior. Thirty-three of the items loaded onto these factors. This shortened questionnaire was then administered to the second sample (college women and men). The homogeneity score for the scale was between .95 and .97 for both of the samples. Comparisons were then made between all of the samples using one-way ANOVAs. The second sample found menstruation to be more bothersome, more predictable, and denied menstrual effects more than the first sample. Reasons postulated for these differences included the differences in the samples and the fact that the questionnaire given to the first sample was longer. Next, differences were examined between the men and women of sample two. Men perceived menstruation to be more debilitating and were less likely to deny effects of menstruation. Women perceived menstruation to be more bothersome than men did. The adolescent sample thought of menstruation as more debilitating, less bothersome, and more of an event that should not affect one's behavior than the adult samples. There were no significant differences between pre- and postmenarcheal girls regarding their menstrual attitudes. Overall, women denied effects of menstruation more than men, and adolescents did so more than older women.

Both groups of college women were also given the Moos Menstrual Distress Questionnaire (Moos, 1968). Sample 1 completed the questionnaire in two different mindsets: as if they were premenstrual and again as if they were intermenstrual. Sample 2 was divided in half. One half completed the questionnaire as if they, themselves, were premenstrual, menstrual, and intermenstrual. The other half of the women completed the questionnaire for the same three phases, but not for themselves. They were asked to complete the questionnaire for what they thought women in general would experience. Difference scores between the phases were used to correlate with perception of menstruation. Significant correlations were found with three attitudes. If women perceived menstruation as more debilitating, they reported higher symptom scores. Women that perceived menstruation as more predictable reported higher symptom scores on all scales except Arousal and Control. Women who denied menstruation's effects reported lower symptom scores. The researchers suggested that this scale can be used to look at differences within cultures and among cultures, although they did not test their scale's reliability or validity on groups of women from differing cultural backgrounds.

Age, prior knowledge, and preparation were studied as aspects that may have had an impact on the menarcheal experience in a sample of college-aged women (Koff, Rierdan, & Sheingold, 1982). The participants were 97 college women, mostly white and middle-class, with a mean age of 19 years. These women experienced menarche between nine and sixteen years of age, with a mean menarcheal age of thirteen years. This study examined: age at

menarche, perceived adequacy of preparation (using a scale of 1-7), prior knowledge of menstruation (six items of information were asked about, with answers being coded as correct or incorrect), and subjective experience of menarche (using a scale of 1-7). The most salient finding from this study was that more adequate preparation was significantly associated with a more positive menarcheal experience, as measured by the women's subjective experience rating. The researchers recommended that creating better means of imparting physiology of menstruation and hygienic practices would help to improve girls' levels of preparation.

Ruble, Boggiano, and Brooks-Gunn continued their work with adults and menstrual attitudes by researching menstrual-related excuses (1982). There were 52 subjects: 26 males and 26 females. All of the subjects were undergraduate students at Princeton University and were between the ages of 18 and 22 years. Participants in the study were asked to imagine a situation in which two women had a conversation during which one of the women behaved irritably. As part of the discussion between the two women, the irritable woman gave excuses for her behavior. There were 18 possible excuses and two of them were menstrual-related. The participants in the study were asked to rate how annoyed they would be after hearing each of the different excuses. Next the participants had to rate each excuse for believability, blame for the woman because of each excuse, and whether the excuse was external/situational or internal/personal. The participants were asked to return on a second test occasion to fill out the Menstrual Attitude Questionnaire; 22 females and 16

males returned and filled out the MAQ. Results found that when the fictional woman used a menstrual-related excuse, subjects found it somewhat to moderately annoying, did not blame her, and did not attribute the excuse to internal or external factors. The menstrual-related excuses were viewed as less negative than personal-fault statements, but more negative than personal control statements. Common pain (e.g., toothache) and mild frustrations (e.g., running out of gas) were rated similarly to menstrual excuses. However, when gender was taken into account, results changed. Females did not think the menstrual excuses were valid excuses for acting irritably. Males were more likely to view menstrual excuses as less blameworthy and more of an external cause. One plausible explanation of this finding was the cultural messages about menstruation: that menstruation should not be discussed and that others should not know when it is occurring. The shroud of secrecy may have impacted these women's attitudes toward the menstrual excuses. Another interesting finding of this study was that individuals who denied effects of menstruation and the tendency to see menstruation as a debilitating event predicted how annoyed the participant was toward the fictional woman's menstrual excuse. The impact of attitudes suggests that women who have significant others (assumed to be males) may have a more positive menstrual experience as a result of the higher levels of tolerance for menstrual related excuses. However, this tolerance and support could foster the development of the belief that menstruation is debilitating and therefore further stereotypes and sexism. The importance of research on

menstrual attitudes and its impacts on socialization were demonstrated here, as was the need for more research in the area.

Golub and Catalano (1983) conducted research to determine what differences existed in menarcheal experiences between adult women of two different age cohorts. Group one consisted of 70 college women, aged 18-22 years. Group two consisted of 67 women, aged 30-45 years, who were recruited through local parent-teacher organizations. The women were mostly white and of middle-class standing. Only one woman in the study was not college educated. The survey contained questions that asked about the women's recollections of menarche, what their expectations had been before menarche, what preparation they had received, their reaction to their first menstruation, and what menstrual symptoms they experienced (one question asked whether they had pain or cramps at the time of their first menstruation and five questions asked about current menstrual symptoms). Concerning the women's recollections, more women described their first menstruation as positive than negative, though there were some women who cited "other" as an option. No significant differences between how the two groups of women remembered their first menstruation were found. About two-thirds of all of the women felt that they were adequately prepared for their first menstrual experience. A significant finding between the two groups was that the younger cohort was more likely to attribute their menstrual knowledge to school, whereas the older group was more likely to attribute their knowledge to their mothers. In the younger cohort, there was also a positive relationship between being adequately prepared and having

more positive reactions to menarche. When surveyed about symptoms, no significant relationships were found between menarcheal preparation and menstrual pain, flow, or limitation of activities. Significantly fewer younger women reported not limiting their activities during menstruation as compared to the older women. At the time of the survey, 25% of the older women and 35% of the younger women described periods as a “necessary nuisance,” and 16% of older women and 6% of younger women said that they could not wait to be rid of their menstrual cycle. This study supported the idea that menstrual education fosters more positive menstruation experiences for girls. The researchers also suggested that mothers were not the only source for menstrual information as they may have been in the past. The younger cohort of girls received additional menstrual preparation in school.

Rierdan, Koff, and Flaherty (1985-6) examined women’s understanding of menstruation before they started menstruating in a retrospective study conducted with 97 college women. They were mostly middle-class and white women. The women had a mean age of 19.2 years and had experienced menarche between 9.25 and 16 years of age, with a mean menarcheal age of 13 years. The women were asked to rate their preparation for menarche on a seven point Likert scale. One was associated with no preparation (seven women chose this), two women chose “2”; eight chose “3”; fifteen chose “4”; twenty chose “5”; thirty chose “6” and fifteen chose “7” as completely prepared. Women answered specific survey questions about what they knew before menarche, how they discovered they had begun menstruating, their attitudes at menarche, the differences between their

expectations and the actual menarcheal experience, and their perception of how many of their friends had begun menstruating before they had. All of the women's responses to knowledge questions were coded as "correct information," "incorrect information," or "no information." Most of the participants (73%) recalled they had correct information as to the cause of menstruation while half of the remaining women reported they had misinformation and the other half had no information. Regarding the women's expectations as to how they would experience menstruation: 40% incorrectly thought that bleeding itself would be painful, as a cut would be. Most of the women also thought that they understood the frequency (84%) and duration (78%) of menstruation. However, regarding amount of bleeding, over 90% of women did not have premenarcheal information. Most women (86%) also remembered being knowledgeable about how to use menstrual products, although only 39% knew specifically about tampons and only 15% knew how to insert them. Even with prior information, girls still had problems recognizing menstruation at menarche: 10% of the girls who had been educated about the cause of menstruation were still confused when they started menstruating. An additional 14% reported being surprised at the way menstrual blood appeared darker than fresh blood. Once women started menstruating, many (21%) also assumed that everyone else could tell that they were menstruating. As a result of these findings, the researchers suggested that menstrual education be more concrete in its details: giving specific information about the amount and appearance of menstrual blood, for example. The

researchers discussed the possibility that this would lift “the curse of menstruation” by giving girls a more practical sense of preparation.

Hays (1987) chose to study how women referred to menstruation (what expressions they preferred) and how these preferences were related to their attitudes about menstruation. The sample consisted of 133 faculty, staff, and students at a college in the Northeast of the United States. Most of the completed surveys were returned by students (89%), and the mean age of respondents was 27.04, though the ages ranged from 18-49 years of age, and about 64% were not married. The racial/ethnic background of the women was not described. The survey consisted of two sections: menstrual expressions and attitudes. Expressions used to refer to menstruation were listed from the respondents' memory. They were asked to describe who used the expression, where they used it, and where they learned of the expression. Attitudes were measured by the respondents' answers to the question: “What are your feelings about it [menstruation] now?” A total of 82 expressions were listed. Women each listed anywhere from one to ten expressions, with the average being 4.2 items. Women did not report using all of the listed expressions, though. Only 36 of the expressions were described as being used by the women themselves. Only the expressions used by the women were discussed in the analyses for this study. The four widely used expressions were: period (126/133 women), friend (47/133 women), that time of the month (32/133 women), and menstruating (25/133 women). Answers to “What are your feelings about it now?” were classified into four categories: positive (six women), neutral (55 women), slightly

negative (49 women), and strongly negative (23 women). Overall, 78.2% of the sample described menstruation as neutral or slightly negative. To examine the relationship between the expressions used and attitudes, expressions were collapsed into categories to facilitate correlations: period, time/cyclic references, visitor/friend/relative/person, medical/technical, material, blood, illness/disability/inconvenience, and miscellaneous. Conclusions included that if a woman used expressions with negative connotations, the woman was more likely to have a negative attitude toward menstruation. However, the use of other expressions (positive or neutral connotations) did not relate to whether a woman had a positive or neutral view of menstruation. It was emphasized that it is important to determine if women actually use terms that they know. Although women report knowing various terms for menstruation, they do not claim to use the terms. So maybe the questions that should be explored are: Why do they know them? Who uses them? Are they indicative of cultural messages, or maybe messages women receive from men? The findings may have been biased since women may have been hesitant to report using negative terms

Until this point, most attitude research had focused on negative aspects of menstruation. Moos had developed the Menstrual Distress Questionnaire (MDQ) in 1968, but it placed a negative emphasis on menstruation. Delaney et al. (1987) developed a Menstrual Joy Questionnaire (MJQ) to contrast the construct of joy with distress. Their study first used these two questionnaires (MDQ and MJQ) to determine how the questionnaire title and order of presentation may affect how women reported their menstrual symptoms and attitudes. The second

part of the study asked women to react to the MJQ. Participants for the first part of the study were 50 volunteers from a psychology class who were mostly white and from the upper middle class. The average age was nineteen years. The MAQ (Brooks-Gunn & Ruble) was given along with the MDQ (Moos) and MJQ (Delaney et al.). The design was that half of the women took the MDQ and then the MAQ, while the other half took the MJQ and then the MAQ. One week later the groups were switched and took the questionnaires in the reverse order. Analyses performed included MANOVAs to determine how the order of presentation (between subjects) and the testing session (within subjects) affected menstrual attitudes measured by the MAQ. Two important findings were discovered. There was a main effect found for the order of presentation on the arousal subscale of the MDQ. Women who had completed the MJQ the first week reported significantly higher levels of arousal on the MDQ when they filled it out one week later as opposed to women who had filled out the MDQ the first week. Another important result was a main effect for the testing session on the subscale of the MAQ "menstruation as a natural event." The group of women who filled out the MJQ the first week was significantly more likely to score higher on the natural subscale as opposed to the women who filled out the MDQ before the MJQ.

Participants in the second part of the study were 40 women volunteers from a psychology class who were also white and from the upper middle class. The average age was 20 years. The women from this study did not participate in the first study. The MJQ was given, along with a questionnaire designed to elicit

reactions to the questionnaire. This second questionnaire had five open-ended questions asking the women about their opinions of the scale. Reactions to the questionnaire were as follows: disbelief (27.5%), shock/surprise (22.5%), thoughts that the title was sarcastic in nature (25%), interest (12.5%), amusement (12.5%), confusion (12.5%), annoyance (5%), appreciation (2.5%), or sadness (2.5%). Participants were permitted to give more than one reaction. Thirty percent of the women thought that the questionnaire would cause them to view menstruation differently. For example, 35% of the women thought that they would look for the positive aspects of menstruation in their next cycle. However, half of the women (52.5%) did not think that the scale would change their attitudes toward menstruation. Thus, it was concluded that the type of scale used to measure symptoms (joy vs. distress) can impact how women report symptoms and attitudes toward menstruation. It is important to note that the MJQ included some items that may be interpreted differently by different women (and this was not studied).

In 1990, Koff, Rierdan, and Stubbs sampled 80 women from college level psychology classes to examine their knowledge about menstruation. The mean age was 19.3 years. Diversity of the sample was not provided. There were a total of sixteen open-ended questions: six asked about specific knowledge areas of menstruation, nine asked about changes associated with menstrual events, and one question was included about how hormones change over the course of a menstrual cycle. When asked about the cause of menstruation, the correct answer had to include the idea of the uterine lining being shed because

fertilization had not occurred. Out of the 80 subjects, 41% answered correctly, although another 16% mentioned the lining and 9% mentioned an unfertilized egg. Incorrect answers included mentions of ovulation. Over 30% could not provide a basic cause for menstruation. When asked about physical, emotional, and cognitive changes that occur with menstruation, no positive changes were mentioned. Changes mentioned included: discomfort, water retention or weight gain, tender or swollen breasts, and other autonomic signs. Most women knew that ovulation was the release of a mature egg (69% of women). Almost all (96%) of the sample population defined menopause as the ending of menstruation. These college women reported the typical menopausal age as between 34 and 70 years. About 66% of the women correctly identified the range as between 45 and 55 years. One-third of the sample did not know how hormone levels changed over the course of a cycle. Other responses were incomplete or didn't specify hormones; only one woman's answer was considered to be correct. To be correct, a woman had to mention FSH, LH, estrogen, and progesterone. This study demonstrated that a large portion of this sample did not have sufficient information about menstruation and menopause. Since this sample was relatively upper class and educated, it is reasonable to expect that lower class samples, which tend to be less educated, may have even less information.

Jackson (1992) was the first researcher to ask older black women to retrospectively report on their menarcheal experiences. The sample was one of convenience that consisted of 120 women who were going through menopause.

The participants were of various socio-economic backgrounds, though mainly lower levels of SES, all living in an urban area. A questionnaire was designed by Jackson and had been pre-tested with 32 black women of the same age group. The menarcheal scale consisted of eight items covering preparedness and attitudes. This study reported that 33% of the women reported being prepared for menstruation before they reached menarche. The 67% who reported being unprepared ranged from having limited, incomplete, inaccurate, or no information. Concerning their first menstrual flow, 41% of women reported anticipating the event in a confident way. However, 59% reported being surprised or fearful at menarche. Over one quarter reported feeling good about themselves at menarche; 46% felt that menstruating was normal but felt neutral toward the event; and 27% described their menarcheal experiences as negative, including feeling sad, ashamed, and dissatisfied. About half of the women (51%) reported having irregular and painful periods in their first years of menstruating while the rest reported being comfortable. Similarly, 51% reported not having to change activities during menstruation while 49% reported having to give up many activities during that time. Concerning the amount of information they had received prior to menarche, 50% of the women reported having considerably helpful, moderately helpful, or fairly helpful information. Another 38% said that the information they had received helped very little or not at all, and 12% of the women reported having no information before menarche. The sources of this information were mothers or guardians (66% of women received information from this source), teachers (33%), friends (22.5% of women received information from

this source; three women identified friends as their only source), and reading materials, sisters, and other relatives were cited as information sources by 40% of women. Jackson discussed the idea that the lack of preparation and negative and ambivalent feelings toward menarche could be partially explained by low socio-economic status, socio-cultural influences, and race. However, Jackson does not go into detailed descriptions of what could be included in these constructs.

Beausang and Razor (2000) asked college students enrolled in a sexuality class (aged 18-61 years) about their experiences of growing up sexually. Out of 227 women's accounts, 85 (37.4%) included mentions of menarche and/or menstruation. Of these 85 stories, 43 provided enough information to determine whether their menarcheal experiences was positive or negative; eleven women described menarche as positive and ten of these women described their mother as their main source of information. Of the fourteen women who reported no preparation, negativity was strongly referenced and more space in their sexual development account was devoted to this traumatic experience. Eighty of the women identified sources of information about menstruation; main sources of information were mothers and teachers. Women also provided reports on their opinions of their educational experiences on menstruation in school. Problems included: perceptions that teachers were unwilling to discuss the topic, time constraints in dealing with menstrual-related information, unclear information, and the presence of peers that led to embarrassment. The researchers stated that the experiences seemed to be similar for women, regardless of the age of

the narrator of the sexual history account. Because the focus of these stories was not limited to menstruation or menarche, but so many women still felt the need to discuss the event in such detail, the researchers surmised that the issue of menstruation and menstrual learning is important to women. Beausang and Razor also re-emphasized the importance of understanding menstruation and menstrual events as a basis for understanding other information about sexual development.

Summary

Of the fifteen studies reviewed that were conducted with adults, a few (six, though some of those were the same samples) had between 100-200 subjects, but only one study had more than 200 participants. All of the samples were convenience samples. Of the studies conducted with adults, only one specifically focused on the African American woman's experience of menarche (Jackson, 1992). Jackson's findings were compared with past research that had been conducted with white women as the majority. None of the studies were qualitative designs, though five did include open-ended questions as part of their research methodology. As was seen with the studies conducted with adolescents, the field of menarcheal learning and attitude research has room to improve.

CONCLUSION OF REVIEW

Research concerning menarche and adolescents began several years ago, but not until 1989 is there any evidence of a more diverse sample, in which research was conducted with a sample of black adolescents. Still, most of menstrual health research focused on the middle class population. As time progressed, researchers began to realize that the actual experiences of girls may not be fully captured through quantitative studies. Since 2000, several qualitative studies have emerged as a method to more accurately understand adolescents' feelings on the topic.

Research that focused on older women's experiences of menarche followed largely the same pattern. Most of the earlier research focused on middle class white women, with more recent research in this area has also shifted to qualitative methodologies.

In the past five years, a lot of menstrual health research has also changed its focus to a more medical one: topics of hormone replacement therapy and quality of life became more prevalent. As a result, recent menstrual research has shifted away from interpersonal communication and has been more focused on professional communication, including the creation of pamphlets, tools for interventions, and ideas for improving girls' attitudes concerning menstruation. Appendix A has a table that summarizes the research presented in this chapter.

The research on menstrual education and communication and learning both in adolescents and adults clearly displays the importance these factors have

on girls' and women's development. By demonstrating that more preparedness is related to higher levels of positive attitudes, and in some cases body image and confidence, researchers have identified the significance menstrual education can have in females' lives. However, menstruation and menstrual health is still considered a taboo topic and has been largely neglected in mainstream social science research (Prendergast, 2000). And, due to the differences in samples and research designs that either use white, middle class samples or small qualitative samples, it is difficult to determine whether women differ on their knowledge, attitudes, and communication styles regarding menstruation based on their race, ethnicity, or socio-economic status. The research questions addressed in this paper will lead to a better understanding of menstrual learning in a lower socio-economic, black community.

Chapter 3

METHODS

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. Since there were no previous instruments that were appropriate for use with low-income African American women, one was developed in order to conduct this study.

The instrument used in the current study went through many phases of development, beginning with focus groups of women who were asked to provide information on their menstrual experiences. After developing a survey instrument from the focus group themes, the researcher returned to some of the interviewed women for cognitive interviewing concerning their thoughts on the developed survey. After the survey had been revised, the changes were pilot tested with some of the interviewed women. This formative research was funded by a grant from the Africana Center at the Pennsylvania State University. The process of designing and pilot testing the research instrument is described in detail below.

Therefore, the Methods Chapter is divided into four sections. The first section describes previous instruments used to study menstrual learning. The second section describes the qualitative research used to inform the development of a menstrual learning instrument. The third section describes the

development of the menstrual learning instrument and pilot testing of the menstrual learning and menstrual attitude instruments through the use of cognitive interviewing. The fourth section will present the methodology for the study conducted to answer the research questions.

PREVIOUS MENSTRUAL LEARNING INSTRUMENTS

The research instrument needed for this study was one that would assess what women learned about menstruation, when they learned it, and from what sources they learned it. In preparation for designing this research instrument, various research studies' questionnaires were examined. Past research has asked questions similar to these, but never in such a comprehensive format. In fact, most of past research in this area was focused on young women's attitudes toward menarche (Brooks-Gunn & Ruble, 1982; Golub & Catalano, 1983; Kieren & Morse, 1992; Koff & Rierdan, 1996; Rembeck & Gunnarsson, 2004). In most of this past research, one predominant method used to assess menstrual learning was a single question that asked girls to rate their preparation for menarche on a seven-point Likert-like scale (Rierdan & Koff, 1990; Rierdan & Koff, 1995a). An expansion on this method used this question along with a list of sources for menstrual learning. Participants were given a list of fifteen sources and were then asked to indicate from which of these sources they received education, rate their top three sources of menstrual education, and give an

indication of which source they would go to if they wanted to obtain further information (Rierdan & Koff, 1995b).

There were several problems with these previous methods used for measuring menstrual learning. One problem was that there was no way to tell when learning occurred. The menstrual learning could have occurred before menarche, but it may have occurred after. The timing of learning, and therefore the levels of preparation, could potentially impact attitudes toward menstruation. An aspect of menstrual education and attitudes that this current study is concerned with is communication. Menstrual communication may also be influenced by levels of preparation and attitudes. Therefore, it is important to determine when menstrual learning occurred. Another problem with past methodology was that there was no way to determine what girls learned from the various sources. Without knowing what girls learned from these various sources, it is difficult to look at how influential different sources are. It is also difficult to make recommendations for future education without this information.

QUALITATIVE RESEARCH ON MENSTRUAL LEARNING

The purpose of the qualitative pilot study was to explore women's attitudes towards and experiences of menarche, menstruation, menopause, and menstrual-related health conditions. However, only the data related to menstrual learning will be reported.

Theoretical Framework

A grounded theory qualitative design was used for the formative research involved in the instrument development (Straus & Corbin, 1998). Instead of testing a theory about how African American women communicate about menstrual events, employing this methodology allowed the theory to inductively emerge from the data provided by the women themselves. In grounded theory, qualitative data are carefully collected, and through an organized procedure of data analysis and coding, categories and concepts are identified and combined into larger themes. This is begun by reading scripts of data numerous times. After reading through the data, the researcher begins to code the data. The first step in the coding process is open coding: This is the piece of the analysis that identifies and titles occurrences of themes in the data. The labels used in the open coding process are then categorized into more general categories. The next step in the coding process is axial coding, in which relationships between open codes are identified. Finally, selective coding is used to identify a core variable that exemplifies themes and relationships that emerged from the data. These themes then become the building blocks of a theory, which can then be tested in future quantitative research (Straus & Corbin, 1998).

Participants

All of the participants were African American women, aged 18 - 50, who lived in a public housing project in Harrisburg, Pennsylvania, selected based on convenience. A total of seventeen women were interviewed: five in two focus groups and twelve in individual interviews. The women were categorized as

“under 35” (n=12, 3 of those from a focus group), or “over 35” (n=5, 2 of those from a focus group). The mean age was 30.29 years.

Data Collection and Measures

Before any research took place, all methods were approved by The Pennsylvania State University’s Institutional Review Board (IRB # 18198). The sampling procedure used was a mixture of convenience and snowball sampling. A convenience sample was first drawn from a free clinic, The Community Check-Up Center, at a public housing project in Harrisburg, Pennsylvania. In conjunction with the supervisory nurse, a flyer was created to aid in recruiting focus group participation with women who visited the clinic. The supervisory nurse collected the names of African American clients who indicated interest in participating in the study. These women came to focus groups that were organized. Since too few women volunteered to participate initially, a snowball sampling technique was used to expand the sample. Any woman who volunteered to participate in the focus groups was invited to ask eligible friends or relatives to participate in individual interviews with the researcher. The women who were recruited by snowball sampling methods were told to come to the clinic on either of two days during the week. The researcher visited the clinic twice a week for a few weeks to be available for interviews. Every woman received \$20 to reimburse her for her time.

Two focus groups were first organized based on these initial volunteers: one for women under 35 and one for women 35 and older. The reason for the age split was that it was believed that the older women may have different

menstrual experiences and concerns than the younger women. Because it proved difficult to find a common time for the women to meet, individual interviews were conducted with the rest of the study volunteers instead.

Each focus group or interview was led by the researcher. At the beginning of each interview or focus group, the purpose and procedures of the study were reviewed and the women then signed an informed consent form. Each individual interview lasted between fifteen minutes and forty-five minutes, whereas the focus groups lasted about an hour each. Every conversation was audio-taped with permission.

The age of each participant was requested and then an in-depth conversation (in focus groups or interviews) was conducted. The development of the interview schedule was loosely based on past surveys sent out to women who were part of the Tremin Research Program on Women's Health. The Tremin survey questions were all close-ended questions. These questions were re-designed as open ended questions with additional probes designed to get further information from the participants. Questions were chosen that would try to determine what was known about menstruation and menstrual topics, where participants had learned this information, and how they may discuss it with others. As mentioned, the open-ended questions were followed by appropriate probes to help clarify the meaning behind the initial answers. Only a part of these interviews were used to inform the current study, thus a partial copy of the interview schedule is available in Appendix B.

Data Analysis

The researcher transcribed the interviews verbatim from the audio tapes using a word processing program. The transcriptions were reread while listening to the tapes to check for accuracy. After transcribing the interviews, the data were analyzed with a grounded theory approach that employed the constant comparative method of data analysis (Glaser & Strauss, 1967). This method uses an inductive approach to analyze data that takes advantage of non-standardized information that results from the interviews. The data analysis involved a continual comparison of themes, concepts, and experiences within and between the data sets (interviews) (Merriam, 2002). Thus, the constant comparative method maximizes the full range of similarities and differences among participants and their experiences. The interviews were read and examined numerous times by the researcher and her research advisor in order to identify the themes.

Several levels of data analysis were conducted, including data description, category construction, and making inferences to explain the data (Patton, 2002). Three types of coding occurred during analysis: open coding, axial coding, and selective coding (Grbich, 1999). To start the open coding, a basic word-by-word and line-by-line scan for content was conducted, which allowed for some familiarity with the data. Ideas about what themes may emerge from the data were noted to guide further analysis. Temporary names were assigned to each code and data were constantly compared to understand what was indicated about the phenomenon under study. As Grbich (1999) explains: "The idea is to

allow categories to emerge from the data, rather than impose already constructed ones upon the data” (p.176).

Each category that emerged from open coding was then analyzed through axial coding. Axial coding helped make connections between data fragments within one category and to develop subcategories when significant differences or variations in data fragments were found. The themes, and subthemes, that emerged were identified and quotes from each interview were extracted to exemplify these important concepts.

Selective coding was then used to identify a core category and verify its relationship to all the other categories. A core category is what connects themes from the data and is central to the phenomenon being studied (Patton, 2002). It is often indicated by the pure volume of data fragments that are inherently similar in the participants’ descriptions of their experiences and perspectives. A final analysis was performed to confirm the aggregation and to ensure that all themes had been accounted for so that theorizing could occur (Patton, 2002).

Qualitative Analysis Results

The qualitative results are discussed, but for further detail, please read Cooper & Koch’s article published in early 2007 in the journal *Women and Health*. The results of the focus groups and interview discussions are discussed by first presenting the core theme and then continuing with a discussion of the sub-themes that characterized the core theme that are relevant to this current research study. The core theme and axial codes representing the sub-themes were chronologically related. (View Figure 1). The axial code, *limited sources of*

learning, preceded the core theme, while *wanting better communication* resulted from the core theme. The axial codes, *negative attitudes* and *confusion about menstrual events and menstrual health*, were concomitant with the other themes.

Core Theme: Avoidance or Negative Discussion of Menstrual Events

The core theme emerging from the data was *avoidance or negative discussion of menstrual events*. This core theme reflected the lack of informative and positive communication around menstruation throughout the lives of this sample of low-income African American women. Every one of the themes that arose from the interviews characterized this secrecy or negativity. Even among close family members, menstrual events were seldom discussed and most discussions with friends centered around “complaining” about menstruation or worry about a period not coming.

Limited Sources of Learning

The potential sources of learning that the women mentioned most often were school and their mothers, while other women were also mentioned by some. Each of these sources gave very limited information so that the women did not receive much accurate or positive education about menstruation.

School

Many of the women mentioned school when they were asked where they had learned about their period but usually in a negative context. One younger woman’s response, during a focus group, clearly described many of the women’s experiences: “School didn’t teach me nothin’ ... I mean, not about THAT!” This

quote characterized the idea that school was a poor source of menstrual education for most women. Information received from school was usually too late, as most women had already begun menstruation when they learned about menarche in the school system. Further, the women who learned about menstruation in school before they had their first period still did not recall the education as helpful. As Camille (age 38) recalled, "First I had my period, and then they started talking about it. It wasn't helpful; it was a little late." Lakeisha (age 25) reiterated that her education came too late, "We got sex ed from a program we had to go to because we were pregnant."

Mothers

Information provided at home generally occurred only when the conversation was absolutely necessary, specifically at the time that the women started their first periods, "Cause I would go up to them [mother and grandmother] and I would ask them [about the period] and they would be like why you wanna know about that, you didn't get your period yet. I'm just like, I just wanna know so when I get it. So then when I got it, I was scared. I was like: Oooo, I'm bleeding" (Tamika, age 20).

Other Women and Lack of Other Sources

Some information about menstrual events came not only from mothers but also from other women in the community, including sisters, aunts, and friends of the family. These women often taught them how to use tampons and pads when they started their periods.

Confusion about Menstrual Events

A major theme that emerged from the data was *confusion and inaccurate beliefs about menstrual events*. This lack of understanding was evidenced during their first menstrual experience and continued throughout their menstrual lives.

Menarche and the Menstrual Cycle

As discussed previously, many of the women divulged that they had not received adequate information before menarche, leading to confusion when this event happened to them. Nellie (age 46) recalled, "I thought I hurt myself. I told my mom I was bleeding between the legs. That's when she showed me pads and how to use it." The women never received any further information after they started menstruating and became older. Therefore, they continued to be confused about this "monthly" phenomenon. This confusion is well portrayed by the women's descriptions of when and how often they think they should menstruate. As Trisha described, "My mom taught me how to judge when my period would come. It might come on the first. If it came on the first, it should always come at that time." She described the timing of her period by a certain day of the month on the calendar. She did not understand that the way to determine when to expect the next period, especially if one's pattern was regular, was to calculate the number of days between periods (the interval). This confusion over when one's period should occur was pervasive throughout the interviews. Every woman expected that her period should occur on the same dates each month. Since women's menstrual interval patterns typically vary and

the days in each month also vary, it is highly unlikely that a woman's menstrual period will start on the same date each month. When this did not occur, the women thought that something was wrong or that they were pregnant. As one woman in the younger focus group explained, "I would worry, for me, when it switches. Like it comes the first week of the month, and then it switches and it comes at the end of the month." The women also mentioned many other inaccurate beliefs about their menstrual periods including that if you want your period to "come down" you should have sex but that heavy bleeding is caused by having sex with men with big penises or having anal sex. Other "remedies" that the women mentioned for "slowing down" their menstrual bleeding were taking baths and drinking alcohol.

Negative Attitudes Towards Menstrual Events

In the brainstorming session that began each interview, many of the words that the women gave for a menstruating woman were derogatory, including "bitch," "evil," "PMSing," and "smelly" or "fishy." This set the stage for the negativity that was expressed for women's menstrual experiences throughout their lives.

Menarche

Several women stated that they remembered feeling "scared" or "hurt" when they started menstruating. Lakeisha vividly recalled, "I was scared, I was dyin'. And I'm sittin' there like, 'Mom!' I was like, 'MOM!' She was like 'what?' I was like, 'Mom, come down!'" This quote was characteristic of what many of the women cited on the day of their first menstrual bleeding. Only one young woman

said anything positive about menarche stating that she felt, "I'm a woman now. I can do the thing [sex]!"

Menstruation

While most women disliked, even hated, their periods, they still expressed relief when it came since it meant that they were not pregnant. As Tamika discussed:

"I just hate when my period comes...the cramps, the mood swings, the attitude when I am on and right now when I am suppose to get it, I'm really moody...But when I have it it's crazy. I be all evil and crampy and I'm like, aww I wish it would leave."

However, during the same interview, Tamika said this about getting her period:

"Like if you have sex, you think you're pregnant and your period come, it's like a relief. Like I am glad I got my period so I am not pregnant." The women also referred to their period as "dirty" and a necessary "cleansing" process that makes them feel "refreshed." Some of their discussion focused on their periods being "smelly." As one woman in the younger focus group described this concept: "[You need to] Get all that filth out of there. You know, it gots to come out. It gots to come out!"

Because the women consider their periods as a necessary evil, they think that men have it too "easy." A woman in the younger focus group joked:

"I think God should do men something. But you know what, God probably knew what he was doing because I think if guys had that attitude that we have a whole lot of domestic violence would be going on. (Laughing). If they had the

evilness that we get, everyone in jail would be like,"What you in for, brother?"

"Period! I mean she was talkin' and next thing I knew, ...she knows not to mess with me when I'm on my period!" (Younger Focus Group).

Wanting Better Communication

These women wanted to both receive better communication from other women and to provide better communication to others (especially their daughters).

Wanting To Receive Better Communication From Other Women

Throughout the interviews, the women repeatedly expressed their desire to know more about all aspects of menstruation. They were especially interested in hearing about other women's experiences. In fact, many women expressed their gratitude for and enjoyment of the interviews. They actually thought that it was fun to be able to discuss this topic so openly, especially since it was something that had been shrouded in silence throughout their lives. One woman in the younger focus group said it very directly: "It's fun to hear what other people think because we never really talk about it. It's interesting to actually talk about it." Even at the end of the interviews, women didn't want to stop talking.

Wanting to Provide Better Communication to Other Women

Since their own menstrual learning was so limited, many women said that they wanted to teach their (future) daughters more about menstruation than they had been taught. They wanted to protect them from the apprehension that they

had experienced when they were unprepared for the event. Many women discussed their plans to be better communicators:

“I don’t wanna be like my momma. My momma didn’t talk to me about it. But I be sure to talk to my girl. I don’t hold nothing back. My daughter’s 15 years old. I don’t hold anything back, we already had that talk. She’s like, “OKAY, OKAY.” I can’t be with you all the time, but I want you to hear me, I want you to hear me!” (Older Focus Group).

“With my girls, I’m gonna make sure we have an open relationship. You can tell me anything. I don’t care what it is. If you had sex early, you scared or whatever, don’t be scared. Just tell me.” (Younger Focus Group)

DEVELOPMENT OF THE MENSTRUAL LEARNING INSTRUMENT AND PILOT TESTING

The qualitative data and related research literature (as noted in Chapter 2) were then used to design an initial menstrual learning survey. Based on the themes that emerged in the formative research, some close-ended questions with appropriate responses were designed for the survey. Cognitive interviewing, used to assess the content validity of the survey, is described below.

Theoretical Framework

The cognitive interviewing portion of the pilot testing was based on several studies that recommended this as a method for testing validity in surveys (Collins, 2003; Miller, 2003; Presser, et al., 2004). Cognitive interviews are defined as interviews that gather information on the process that a respondent

uses to answer a survey question (Presser et al., 2004). Respondents are instructed to “think aloud” so that the researcher might be able to identify potential problems with the survey question. Cognitive interviewing is considered to be a more valid method than simply pilot testing surveys with respondents (Collins, 2003). This is because respondents often will answer questions whether or not they understand the intent of and the information sought via the question. Respondents might not understand words that are used, what is being asked, or they may interpret a question in a way other than how it was intended. Another potential problem is that respondents interpret the same question in different ways. All of these issues may result in poor survey validity, which can invalidate the analyses of respondents’ answers and contributes to increasing measurement error (Collins, 2003).

By using cognitive interviews to determine where problems may lie within the survey, the researcher is able to check for any potential misunderstandings (Collins, 2003). Questions may be improved so that future respondents will fully understand the questions as they were meant to be understood (Miller, 2003). To explore this concept, there was a study examining cognitive interviewing research methods that was conducted with three subsets of the population, one set of interviews was conducted with mostly low-income African American participants. There were 21 individuals interviewed in rural Mississippi, 15 of whom were African American. Since most of the interviews were conducted in the participants’ homes, SES level could be approximated, even if the participant did not provide an income estimate [this process was not elaborated upon]. The

researcher reported that low socio-economic status was apparent. Within this population, cognitive interviewing proved to be an important tool in understanding how the respondents understood the survey questions (Miller, 2003). The survey included questions about general health, including: subjective health measures, access to health care, smoking habits, chronic conditions, cancer screening, and limitation questions. The conclusions of the study were that “respondents’ particular social location does influence how respondents make sense of and answer survey questions” (Miller, 2003, p. S272). Thus, cognitively interviewing members of the same population that will complete the final survey is important. In the current study, women of the same population that would eventually be receiving the survey were employed in the pilot testing of the questions through cognitive interviewing.

Participants

Five of the women who participated in the qualitative research study were able to be re-contacted and agreed to participate in cognitive interviewing about the menstrual learning survey. Each woman was African American and lived in a low-income housing area.

Data Collection and Analysis

To recruit participants for the cognitive interviewing, an attempt was made to contact all 17 of the women who were interviewed in the pilot study.

Unfortunately, in the year between contact, numerous women’s phone numbers

had been disconnected or changed. Only five women were able to be reached at the time of the cognitive interviewing. All five of these women were enthusiastic about examining the newly-developed questionnaire.

Three women who participated in the cognitive interviewing met with the researcher one-on-one and were given the drafted survey. Each woman was asked to read the survey aloud while answering the questions. As she answered each question, the woman was asked to think through her answer aloud. She was also asked to provide her opinions on questions and suggestions for improvements. After her participation, she was paid \$20 for her time.

All of the suggestions were noted (see Results section) and the survey was re-worded and edited. This edited survey was taken to two more women who had participated in the original interviews. This edited version of the survey did not present any problems in understanding to either of the women who commented on it. After participation, these women were also paid \$20 for their time.

Measures

Two instruments were given to members of our research population for cognitive interviewing. The first was the menstrual learning scale that was developed through the qualitative interviews. The second was the menstrual attitude scale entitled the Beliefs and Attitudes Toward Menstruation (BATM) scale (unpublished manuscript). Three subscales of the BATM scale were used: pleasantness, secrecy, and annoyance.

Results

Examples of suggestions on the menstrual learning instrument included rewording certain items to make the questions easier to understand: the term “change of life” was recommended to replace the term “menopause”. All of the suggestions were considered and the instrument was re-worded and edited. This edited instrument was once again taken to some of the women who had participated in the original interviews. This edited version of the instrument did not present any problems to any of the women who commented on it. This version of the instrument was then used in the current research study.

Examples of suggestions for improvement of the BATM scale included rewording certain items to make the questions easier to understand and eliminating questions that seemed redundant. In the final version of this instrument that was used for the study, the pleasantness and secrecy scale were used as originally developed, but the annoyance scale was changed slightly. Of the 11 items, two were dropped, and one was added. This was due to comments that emerged through the cognitive interviewing process. There were three items that were very similar, and the women who read the survey thought that they were too repetitive. The women were annoyed at having to answer a question that they thought was the same on three separate occasions. This measure, and the changes made to it, are described more fully in the section of this chapter that describes the measures used.

IMPLEMENTATION OF THE RESEARCH STUDY

This next section describes the participants, data collection, measures, and analyses used in the study conducted to answer the research questions. To achieve the study's purpose, this study analyzed a portion of data that were collected as part of an NIA-funded grant entitled "Menstrual Health Disparities and Low SES African Americans" (1 RO3A60 23890).

The purpose of The Menstrual Health Disparities study were: (1) to evaluate procedures to recruit and retain representative probability samples of low-income African American and white women as participants in the TREMIN Research Program on Women's Health; (2) to experimentally test the cost efficiency and effects of different levels of incentives on response rates and one-year retention rates; and (3) to evaluate the use of web and email based options for collecting data on menstrual patterns and health from the respondents. The survey that was disseminated for the Menstrual Health Disparities study contained a section on the respondents' menstrual health history, a section on menstrual learning, a section on menstrual attitudes, a general health section, and a section that asked for demographic information.

The three portions of the questionnaire that were used for this current study were the demographic section, the menstrual learning section, and the menstrual attitudes section. The section on women's menstrual learning included: where women learned about menstruation, what they learned from each source, whether they learned it before or after they started menstruating,

what they have told other women about menstruation, and when they told other women about menstruation (see Appendix C). The menstrual attitudes section was based on the revised Beliefs and Attitudes Toward Menstruation scale (see Appendix C).

Participants

A total of 103 African American women participated in the current study, recruited through various means. Their ages ranged from 18-88 years, with a standard deviation of 15.76. These women had a mean age of 47.45 and a median age of 47.50. Assessing highest level of educational attainment, 2 (1.9%) women reported completing middle school or junior high, 15 (14.6%) reported some high school, 32 (31.1%) reported a high school diploma, 10 (9.7%) reported technical or vocational school, and 43 (41.7%) reported going to college. Reports of income ranged from \$6/month to \$8000/month.

Women's relationship status varied: 31 (30.1%) reported that they were married and lived with a husband; 7 (6.8%) reported being married, not living with their husband; 10 (9.7%) reported not being married, but living with a partner; 38 (36.9%) reported not being married and being without a live-in partner; 8 (7.8%) reported they had a different relationship than the ones listed. Women's reports on pregnancy prevention included: 15 women reported using a hormonal method of birth control, 24 women reported using a barrier method of birth control; 26 reported being sterilized; and 7 women reported using the withdrawal method. Twenty-one women reported having at least one abortion. Descriptive statistics are presented in Table 1.

Table 1: Descriptive statistics of participants

	N	Minimum	Maximum	Mean	Std. Deviation
How many children do you have?	103	0	9	2.09	1.72
How many children live in your household?	97	0	7	1.23	1.38
How many adults (including yourself) live in your household?	100	0	6	1.85	.95
How much income do you have for your household each month (after taxes)?	75	6.00	8000.00	2453.68	1739.38
How many people contribute to the household income?	93	0	4	1.47	.73
Age	102	18	88	47.45	15.76

Data Collection

Recruitment of participants for the NIA study was difficult. Specific difficulties are described in each stage below. Because of these difficulties, data collection occurred in stages. The first stage involved random recruitment. The second stage involved snowball sampling. The third stage involved community recruitment, and the fourth stage was recruitment through a conference.

Stage 1

Part of the overall NIA study design was to have randomly selected participants recruited from designated census tracts. This methodology employed random mailings, followed by phone calls, implemented by the Penn State Survey Research Center (SRC). The SRC randomly contacted 800 homes

in a census tract in Harrisburg, PA, that consisted of mostly low-income African American individuals. Because there must be a woman over the age of 18 that was still menstruating living in the household that was dialed, many of the contacted households did not have an eligible participant (e.g. the household residents were senior citizens). When the designated number of phone calls had been made, only 35 women had been recruited. Two more waves of random dialing were done to try to increase the number of women in the study. Twelve more women were recruited for a total of 47.

Stage 2

In order to recruit more women, a snowball sampling technique was employed. Recruitment packets were sent to 47 women who were actively participating in the study to give to friends and family members. These packets of information included a letter describing the recruitment effort that was being asked of the participant, \$5 for the participant's effort, and five sets of envelopes with recruitment letters and interest forms for our participating women to distribute to other eligible and interested women. The snowball method proved to be useful; 20 additional women were recruited through this approach. Once these new participants were actively participating, they were also invited to recruit more women. Sixteen additional women were recruited through this snowball sampling process.

Stage 3

In an effort to boost participation, The Community Check-up Center in Harrisburg, the location where the original focus groups and interviews were conducted, was re-contacted. The Community Check-Up Center was interested in designing an informational health series for their patients. To meet this need, an informal presentation and luncheon was developed by the research team on breast health. This was to be the first in the women's health series that the Center was to offer.

The staff of the Community Check-Up Center advertised the luncheon series with their patients and requested that women sign-up to attend. Ten women came to the luncheon, although more were expected. After having lunch and participating in the breast health presentation, the ten women in attendance were informed about the NIA study. Because women needed to be currently menstruating, only six women were recruited. Letters of information were left with The Center and given to the women who had attended, and twelve more women were recruited for the study through this snowball sampling technique.

Stage 4

At this point, recruitment levels were still not as high as intended. After contacting several community resources, a contact was made with a cancer information group for African Americans in Harrisburg called Catalyst. This group holds an annual health conference and it was agreed that the researchers could recruit at this conference. A booth was erected to recruit women in the exhibitor's hall of the conference site and women were given flyers about the

research opportunity. If women were interested, they were to go to the booth at their leisure to complete a survey. Sixty-six women were recruited at the conference and completed the survey.

Stage 1 Compensation

Compensation for women in Stage 1 of the study was done randomly. 400 of the 800 letters sent out describing the study contained a low incentive (\$2), and 400 contained a high incentive (\$5). For women who agreed to participate in the study, and completed and returned their surveys, there was another level of low and high incentives (\$5 and \$15). These incentives were mailed to the women as their surveys were returned to the Survey Research Center office. The different levels of compensation were employed as part of the larger study focusing on the recruitment and retaining of participants.

Stage 2 Compensation

It was important for compensation for snowball sampling recruits to match the level of compensation that their recruiters were given. Women who were recruited in snowball sampling were given the same form of compensation that their friend or family member was receiving.

Stage 3 Compensation

Since women who were recruited in Stage 3 knew each other, random assignment of differing levels of compensation was not appropriate. All of the women in Stage 3 received a high level of compensation, which was \$20 for filling out and returning the initial survey. This amount was mailed to them upon receipt of the survey.

Stage 4 Compensation

The coordinators of the conference requested that the compensation for filling out this survey be given in the form of a \$30 Wal-Mart gift card, which the participants received as soon as they completed the survey at the conference.

Measures

Measures for each of the stages and measures that were used in the analyses described below will be summarized here.

Stage 1, 2, and 3 Measures

All of the women who were recruited in stages one, two, and three were given a packet of materials. There was an initial health survey, which included the menstrual learning and attitude measures described below. The women were to complete and send back the health survey in the enclosed pre-paid envelope. Other items that the women were asked to complete included monthly menstrual calendars. On these calendars, the women were asked to mark any days that they had bleeding, as well as any days that they had pelvic pain. They were also asked to rate how heavy their bleeding was or how strong their pelvic pain was for each day. These calendars were returned to the Survey Research Center in prepaid envelopes on a monthly basis. At the end of the year, women received a final menstrual health survey to complete and return. The only item that had content for the current study was the health survey, which was given to the women at the beginning of the study.

Stage 4 Measures

The NIA study was funded for two years. Eighteen months had passed by the time the Stage 4 data was collection was implemented. Therefore, it was decided that the women who were recruited at this point would only complete the health survey.

Measures used in the analyses for the current study

Two measures were used for the analyses that are described below. Both measures were components of the health survey that was given to all of the participants. The first instrument's development was described in the previous section: the menstrual learning instrument. The second instrument's pilot testing and editing was described above: the menstrual attitude scale entitled the Beliefs and Attitudes Toward Menstruation (BATM) scale. Three subscales of this scale were used: pleasantness, secrecy, and (edited) annoyance. Detailed descriptions of each instrument follows.

The menstrual learning instrument included sources that women had referenced in the qualitative interviews, including: mothers, grandmothers, sisters/cousins, aunts or other female relatives, friends, from church, school (teachers), doctor/health worker, reading material, other, and none. They were asked to report whether they learned the following pieces of information from each source both before and after menarche: what a period is, what happens in your body that causes a period, how long your period would last, how much you would bleed, what it means when you miss a period, what can cause your period to change, what is happening during pregnancy, how to use pads/tampons, what

types of symptoms you may have, and how to deal with your menstrual symptoms.

The same items of information listed above were also listed as possible pieces of information that women might have shared with others in their life. The following sources were possible sources that the women may have communicated with: daughter, sister, niece, other female relative, other young person, friend, other, and no one.

The BATM subscales used were pleasantness, annoyance, and secrecy. The items from each subscale were rated by each woman on a scale that had the following responses: strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, and strongly agree. The original items that composed the pleasantness subscale were: *Women are proud when we start having our period, There are women who enjoy having their period, There are women who look more attractive while they are having their period, There are women who are happy every time they have their period, and There are women who feel content to have their period.* The original items that composed the annoyance subscale were: *Men have a great advantage not having the annoyance of the period, Women wish that the period would last for just a few minutes, Women wish that we did not have our period, It is annoying to have the period every month, The period is annoying, I think there are times when women cannot stand our period, It is uncomfortable for women to have our period, The period is something that women have to bear, It is hard to live with the period, The period is dirty, and The period is really annoying.* The items that composed

the secrecy subscale were: *It is important to talk about the menstrual period with men, It is important to discuss the topic of the period at home openly, Women must hide anything that shows that we are having our period, It is important to buy sanitary pads without being seen, It is uncomfortable for women to talk about our period, It is important that nobody knows when a woman is having her period, It is embarrassing when a man finds out that a woman is having her period, Women blush when we see an advertisement about sanitary pads when we are with a man, It is important to keep the period a secret, and Women should avoid talking about our period when there are men present.*

There was one subscale of the BATM that was not used: proscriptions and prescriptions. The subscales pleasantness, annoyance, and secrecy were chosen to represent women's attitudes toward menstruation.

After having women review the survey measures, changes were made based on their recommendations. The first change that was made was in the wording of the items; all of the items were re-coded from third person to first person. For example, "Women wish that we did not have our period" was changed to "I wish that I did not have my period." Secondly, as the women noted that three items discussed the "annoyance" of the period on the annoyance subscale, these three items were dropped. Women felt that these questions were too repetitive, so the three items were re-coded into one statement: "My period is annoying."

Analyses

There were two items that stood out as potential problems when examining each item for normality of the distributions per guidelines by Field (2005). Items 62 and 73 on the attitude scale were slightly skewed. The researcher examined the impact of each of these items on their respective subscales by examining the correlations of the items with the other subscale items and by checking the reliabilities of the subscales. The reliabilities of the subscales with these items included were acceptable (Garson, 2002). Since this measure had been previously validated using these items, there is evidence that the items should be included. The reliabilities for each of the subscales reported below, in Table 2, include these items in the Cronbach's alpha calculation.

Table 2: Attitude Subscale Reliabilities

Subscale	# of items	Chronbach's alpha
Pleasantness	5	.667
Secrecy	10	.797
Annoyance	10	.796

Crosstabulations were performed to answer the first research question about women's sources of menstrual information. Point biserial correlations were performed to answer questions two and three about associations with attitude.

Partial correlations were performed to answer the fourth research question about the impact socioeconomic status has on the attitude correlations.

In order to conduct analyses on socioeconomic status, the researcher engaged in personal communication with two experts in the field. In August of 2006, both Dr. Keith Whitfield and Dr. David Johnson were contacted via email. After discussion concerning the present data, it was concluded that there is no one correct method for SES approximation. Therefore, in the socioeconomic status analyses, both monthly income and highest level of education attained were used as indicators. Before using both of these indicators simultaneously as an indicator of SES, analyses were run to ensure that these two variables were not highly correlated (.321). If the variables had been highly correlated, only one of the variables could have been used as a proxy for socioeconomic status.

For all of the correlations and partial correlations, both significant and findings that approached significance are reported. Huck (2004) suggests that when results are approaching significance, there may be reason to pay attention to their associations, especially in the social sciences. In all correlation analyses, Huck's guidelines are followed; items that approached significance had a value of $p < .10$.

In depth analyses and their values are reported in Chapter 4, the results section.

Chapter 4

RESULTS

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. To achieve this purpose, this study analyzed a portion of data that was collected as part of an NIA funded grant entitled “Menstrual Health Disparities and Low SES African Americans” (1 RO3A60 23890). The portion of the questionnaire that was analyzed for this study concerned women’s menstrual learning, including: where women learned about menstruation, what they learned from each source, and whether they learned it before or after they started menstruating. Their menstrual communication involved what and when they had told other women about menstruation. Finally, their current menstrual attitudes were assessed. Results are presented based on the study’s research questions. The research questions are listed below, and the description of analyses performed to answer each question follow. The women included in the analyses were those participants who checked “Black” as their race on the survey instrument; no women that checked more than one racial category were included in these analyses. Results from white participants are presented in Appendix D.

RESEARCH QUESTIONS

1. From what sources and at what time (before or after menarche) do African American women receive their menstrual learning?
2. How is menstrual learning related to African American women's current menstrual attitudes?
3. How are African American women's menstrual attitudes related to their sharing of menstrual learning with others?
4. Are these relationships (#2 and #3) influenced by socioeconomic status?

RESEARCH QUESTION 1: MENSTRUAL LEARNING

To answer research question one, the researcher first computed values for each source-topic for before-menarche and for after-menarche. A source-topic is composed of all of the information that a participant received from a certain source (i.e. mother) for a certain type of information. There are two types of information: biological and behavioral. The statements that participants could check were divided into these two categories based on a logical grouping. This logical grouping was sent to five other researchers (including an expert on methods, an expert on communication, and three experts in the field of menstrual health) to confirm that the grouping made conceptual sense.

There are eight items in the biological information category: What a period is; what happens in your body that causes a period; how often you would

have a period; how long your period would last; how much you would bleed; what it means when you miss a period, what can cause your period to change; and what is happening during pregnancy. These items are all related to biological functions that occur in the body related to menstruation.

There are three items in the behavioral category: How to use pads/tampons; what types of symptoms you may have; and how to deal with your menstrual symptoms. These items are all related to outward behaviors that are associated with menstruating.

Since there were five sources and two types of information, each participant then had ten different values computed for source-topics: mother-biological, mother-behavioral, family-biological, family-behavioral, friends-biological, friends-behavioral, teachers-biological, teachers-behavioral, reading material-biological, and reading material-behavioral. A value reflected the frequency that a participant checked that source for the various types of information. Since there were eight items in the biological category, the biological scores theoretically could range from zero to eight. And since the behavioral category had three items, the behavioral scores could range from zero to three. The exceptions to these ranges are the family computations. Instead of one source in the family section, three sources are compiled to develop a "family" composite grouping: grandmother, sisters/cousins, and aunts or other female relatives. Therefore, the biological information score for family could range from zero to twenty-four, whereas the behavioral information could range from zero to nine.

Once the source-topic scores were totaled, the researcher performed crosstabulations to demonstrate movement from amount of learning from a source before menarche to amount of learning from a source after menarche to determine the timing of learning.

So that it would be apparent which participants were moving from “no information” from a source-topic before menarche to “some information” after menarche, the before-menarche source-topics were recoded into either zero, (no information from that source-topic), or one (any information from that source-topic). When crosstabulations were run with the recoded before-menarche source-topics and the original after-menarche source-topics, only mother-behavioral information was utilizable; all of the other calculations had too many cells with an expected count of less than five, making the calculations unreliable.

Therefore, the rest of the after-menarche scores were recalculated into zero (no information), one (representing the lower half of the available range of scores), and two (representing the upper half of the available range of scores). When crosstabulations were again run, mother-biological, teachers-biological, and reading material-biological were usable.

To be able to analyze the remaining categories, after-menarche scores were recalculated into zero (no information) and one (some information). When these crosstabulations were run, the remaining categories were usable: family-biological, friends-biological, family-behavioral, and reading material-behavioral.

Not all of the crosstabulations were statistically significant, meaning that the source-topic did not indicate significant differences in levels of information

pre-menarche versus post-menarche; friends-behavioral and teachers-behavioral were not. The eight tables of statistically significant analyses are presented; all are significant at a moderate level of association as reflected by the Phi and Cramer's V values (values can theoretically range from -1 to +1). Each of the tables is presented in the following format: before-menarche is presented in rows, and after-menarche is presented in columns, thus depicting any movement from before- to after-menarche knowledge for each source-topic.

As presented in Table 3, in the crosstabulations that were run in order to answer research question one, 55.8% of African American women reported receiving no information concerning biological topics from their mothers both before and after menarche. However, 32.6% of women reported no information from this source-topic before menarche, but received some (low) information after menarche. An additional 11.6% of women reported no information before menarche, but received some (high) information after menarche.

Table 3: Mother biological crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche			Chi Square	Cramer's V
	0 No information	1 Score 1-4	2 Score 5-8		
	-----%-----				
0 No information	55.8	32.6	11.6	21.791	0.462
1 Some information	16.9	33.9	49.2		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Concerning family as a source for biological information, 81.7% of women reported receiving no information both before and after menarche (Table 4). On the other hand, 18.3% of women moved from having no information before menarche to receiving some information after menarche.

Table 4: Family biological crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche		Chi Square	Phi
	0 No information information	1 Some		
0 No information	81.7	18.3	29.508	0.538
1 Some information	25.8	74.2		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Table 5 presents data on friends as a source for biological information, and relates that 90.1% of women reported receiving no information both before and after menarche. On the other hand, 9.9% of women moved from having no information before menarche to receiving some information after menarche.

Table 5: Friends biological crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche		Chi Square	Phi
	0 No information	1 Some information		
0 No information	90.1	9.9	30.053	0.543
1 Some information	38.7	61.3		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Concerning teachers as a source for biological information, 85.3% of women reported receiving no information from them both before and after menarche (Table 6). However, 11.8% of women moved from receiving no information before menarche to receiving some (low) information after menarche. An additional 2.9% of women reported receiving some (high) information after menarche.

Table 6: Teachers biological crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche			Chi Square	Cramer's V
	0 No information	1 Score 1-4	2 Score 5-8		
0 No information	85.3	11.8	2.9	24.726	0.492
1 Some information	38.2	38.2	23.5		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Concerning reading as a source for biological information, 83.6% of women reported obtaining no information in this manner both before and after menarche (Table 7). However, 9.6% of women who had no information before menarche obtained some (low) information about menstruation from reading after menarche. An additional 6.8% of women reported gaining some (high) information from reading after menarche.

Table 7: Reading biological crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche			Chi Square	Cramer's V
	0 No information	1 Score 1-4	2 Score 5-8		
0 No information	83.6	9.6	6.8	29.473	0.538
1 Some information	31.0	20.7	48.3		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Concerning mothers as a source for behavioral information, 68.9% of women reported receiving no such information both before and after menarche (Table 8). However, 15.6% of women who had no information before menarche from their mothers received a small amount of information (score of 1) after menarche. An additional 4.4 % of women received more information (score of 2) after menarche. And, 11.1% of women received a great deal more information (score of 3) after menarche.

Table 8: Mother behavioral crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche				Chi Square	Cramer's V
	0 No information	1 Score 1	2 Score 2	3 Score 3		
0 No information	68.9	15.6	4.4	11.1	31.605	0.554
1 Some information	17.2	17.2	13.8	51.7		

Note: There are three items in the behavioral category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Table 9 presents data on family as a source for behavioral information, and displays that 89.6% of women reported receiving no information both before and after menarche. On the other hand, 10.4% of women who had received no information from family members before menarche did receive some information after menarche.

Table 9: Family behavioral crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche		Chi Square	Phi
	0 No information	1 Some information		
0 No information	89.6	10.4	47.595	0.680

1		
Some	19.2	80.8
information		

Note: There are three items in the behavioral category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Concerning reading as a source for behavioral information, 88.6% of women reported obtaining no information both before and after menarche from reading. On the other hand, 11.4% of women who had no information from reading before menarche obtained some information in this manner after menarche. See Table 10.

Table 10: Reading behavioral crosstabulations: Before and after menarche

Information Before Menarche	Information After Menarche		Chi Square	Phi
	0 No information	1 Some information		
	-----%-----			
0 No information	88.6	11.4		
1 Some information	33.3	66.7	30.598	0.545

Note: There are three items in the behavioral category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

RESEARCH QUESTION 2: SOURCE-TOPICS AND MENSTRUAL ATTITUDES

Before answering research question two, women's menstrual attitudes were explored. There were five items on the pleasantness subscale, and items could be rated on a scale of 1 (strongly disagree) to 5 (strongly agree), thus the theoretical range of scores for the pleasantness subscale was from 5, a low positive attitude about menstruation, to 25, indicating a very positive attitude toward menstruation. In this sample, women's scores on the pleasantness scale ranged from 5-25, and the mean was 11.77 (SD= 4.10). This indicates that, on average, the women disagreed with the attitude that menstruation could be a pleasant or positive experience. There were ten items on the secrecy subscale, and items could be rated on a scale of 1 (strongly disagree) to 5 (strongly agree), thus the theoretical range of scores for the secrecy subscale is 10, representing an open attitude about menstruation, to 50, indicating a very secretive attitude toward menstruation. The participants' scores on the secrecy subscale ranged from 13-50 with a mean of 27.29 (SD= 8.28), which was basically the midpoint of the range from being open to secretive about their menstrual cycles. Finally, there were ten items on the annoyance subscale, and items could be rated on a scale of 1 (strongly disagree) to 5 (strongly agree). Thus the theoretical range of scores for the annoyance subscale is 10, representing low levels of annoyance concerning menstruation, to 50, indicating a high level of annoyance with

menstruation. The participants' scores on the annoyance subscale ranged from 10-50; the mean was 33.14 (SD= 7.78), which was again basically the midpoint of feeling annoyed about their menstrual cycles.

In answering research question two, Huck's guidelines (2005), as discussed in Chapter 3, were followed. The researcher performed correlations between the menstrual learning women received and their current menstrual attitude scores. In order to do this, before- and after-menarche source-topic scores had to be recoded into one variable. This variable was recoded as zero (never any information for that source-topic, either before or after menarche), and one (some information from that source-topic at some time). This totaled ten variables, and each of these recoded variables were correlated with each of the three attitude subscales, representing pleasantness, annoyance, and secrecy. Of the thirty analyses, six were statistically significant and five approached significance. These eleven results are reported in Table 11. Since some women may not have answered every question, the total number of women involved in each correlation is also reported.

Table 11 displays the significant correlations only. The first correlation relates a statistically significant relationship at the .05 level (correlated with a value of -.214) between the amount of biological information provided by the family and the participants' scores on the pleasantness subscale of the attitude questionnaire. The negative correlation suggests that as more biological information was provided by her family, the woman regarded menstruation as less pleasant. Friends as a biological source and the secrecy subscale were

negatively correlated at $-.212$ ($p < .05$). This correlation suggests that receiving more biological information from friends was associated with currently being less secretive about menstruation. Teachers as a biological source were negatively correlated with the pleasantness subscale at $-.224$ ($p < .05$), which suggests that receiving more biological information from teachers was associated with a lowered score reflecting current positive attitudes toward menstruation. Reading as a biological source was negatively correlated with the pleasantness subscale ($-.198$, $p < .10$), the secrecy subscale ($-.273$, $p < .01$), and the annoyance subscale ($-.192$, $p < .10$). These correlations suggest that more biological information obtained from reading was associated with a lowered score reflecting current positive menstrual attitudes, less secrecy regarding one's menstruation, and lowered levels of reported annoyance. Mother as a source of behavioral information was negatively correlated with the secrecy subscale ($-.192$, $p < .10$), which suggests that more behavioral information provided by mothers was associated with less current secrecy about one's menstruation. Family as a source of behavioral information was negatively correlated with the pleasantness subscale ($-.190$, $p < .10$) and the secrecy subscale ($-.222$, $p < .05$). These correlations suggest that more behavioral information provided by the family was associated with a lowered level of perceived menstrual pleasantness and with less secrecy. Reading as a source of behavioral information was negatively correlated with the secrecy subscale ($-.207$, $p < .05$) and the annoyance subscale ($-.193$, $p < .10$). These correlations suggest that more behavioral information

obtained from reading was associated with less secrecy and lowered levels of reported annoyance. See Table 11.

Table 11: Point biserial correlations between information received and attitude

Source-Topic	Pleasantness Subscale	Secrecy Subscale	Annoyance Subscale
Family-Biological	-.214* (-.220 ¹) 93		
Friends-Biological		-.212* (-.279*) 93	
Teachers-Biological	-.224* (-.240 ¹) 93		
Reading-Biological	-.198 ¹ 93	-.273** (-.246*) 93	-.192 ¹ (-.249 ¹) 80
Mother-Behavior		-.192 ¹ 94	
Family-Behavior	-.190 ¹ 94	-.222* (-.235 ¹) 94	
Reading-Behavior		-.207* 94	-.193 ¹ 81

Each correlation lists the number of participants in the correlation.

A higher score on any subscale indicates a higher level of that attitude.

Correlations in parentheses represent partial correlations controlling for SES as measured by income and educational attainment. Only significant partial correlations are reported.

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

¹ . Correlation is approaching significance (2-tailed).

RESEARCH QUESTION 3: ATTITUDES AND SHARING OF MENSTRUAL INFORMATION

In answering research question three, Huck's guidelines (2005), as discussed in Chapter 3, were followed. The researcher performed correlations between current menstrual attitude scores and the source-topic scores for women's sharing of menstrual information. In order to do this, values for each source-topic for sharing information were computed. A source-topic is composed of all of the information that a participant shared with a certain source (i.e. daughter) for a certain type of information. Once again, there are two types of information: biological and behavioral. The statements that participants could check were divided into these two categories based on a logical conceptual grouping. This grouping was sent to five other researchers to confirm that the grouping was conceptually sound.

There are eight items in the biological information category: What a period is; what happens in your body that causes a period; how often you would have a period; how long your period would last; how much you would bleed; what it means when you miss a period, what can cause your period to change; and what is happening during pregnancy. These items are all related to biological functions that occur in the body during menstruation.

There are three items in the behavioral category: How to use pads/tampons; what types of symptoms you may have; and how to deal with your menstrual symptoms. These items are all related to outward behaviors that are associated with menstruating. Each participant then had fourteen different

values computed: daughter-biological, sister-biological, niece-biological, other young relative-biological, other young person-biological, other- behavioral, daughter- behavioral, sister- behavioral, niece- behavioral, other young relative-behavioral, other young person- behavioral, and other-behavioral. This totaled fourteen variables, and each of these recoded variables were correlated with each of the three attitude subscales. Of the 42 analyses, only four approached significance. The results are reported in Table 12.

It should be noted that not all women may have had each type of sharing contact. For example, a woman without a daughter would not have marked “yes” to sharing any menstrual information with a daughter questions. In analyses, the total number of source-topics that are shared with each contact is examined. Therefore, the researcher examined total sharing connections. Since some women may have left certain areas blank because of this, the number involved in each correlation is also reported.

Table 12 displays the following correlations as significant: Sharing biological information with a daughter was negatively correlated with the pleasantness subscale ($-.200, p < .10$). This correlation suggests that mothers who regarded menstruation as less pleasant were more likely to share biological information about menstruation with their daughters. Sharing biological information with an “other” young person was negatively correlated with the secrecy subscale ($-.192, p < .10$). This correlation suggests that women who felt less secretive about their own menstruation were more likely to share biological information with young people that they knew. Sharing behavioral information

with a daughter was negatively associated with the pleasantness subscale as well (-.203, $p < .05$). This suggests that mothers who regarded menstruation as less pleasant were more likely to share behavioral information about menstruation with their daughters. Sharing behavioral information with an “other” was also negatively associated with the pleasantness subscale (-.178, $p < .10$). This suggests that women who regarded menstruation as less pleasant were more likely to share behavioral information with an “other” individual.

Table 12: Point biserial correlations between attitude and information shared

Connection	Pleasantness Subscale	Secrecy Subscale
Daughter-Biological	-.200 ¹ (-.231 ¹) 94	
Other Young Person-Bio		-.192 ¹ 94
Daughter-Behavioral	-.203* (-.226 ¹) 94	
Other-Behavioral	-.178 ¹ 94	

Each correlation lists the number of participants in the correlation.

A higher score on any subscale indicates a higher level of that attitude.

Correlations in parentheses represent partial correlations controlling for SES as measured by income and educational attainment. Only significant partial correlations are reported.

*. Correlation is significant at the 0.05 level (2-tailed).

¹. Correlation is approaching significance (2-tailed).

RESEARCH QUESTION 4: SOCIOECONOMIC STATUS INFLUENCE

To answer research question four, the researcher first needed to examine correlations among socioeconomic status indicators. Total monthly household income and highest level of education completed were correlated to determine if

the two variables were highly related. Since the variables were not highly correlated, they were both used in analyses described in this section.

To determine how socioeconomic status impacts the relationships explored in questions two and three, partial correlations were performed with the previously found significant correlations. Both income and education level were entered as controlling variables. The significant results of these partial correlations are indicated in parentheses in Table 11 and Table 12.

The interpretation of the partial correlations reflects the relationship between the source-topic and attitude subscale when removing the influence of education and income as indicators of socioeconomic status (SES). The SES indicator variables suggest a possible influence on the source-topic and attitude subscale relationship. The partial correlation reflects the relationship between amount of biological information received from the family and the participants' score on the pleasantness subscale of the attitude questionnaire when removing the influence of education and income as indicators of socioeconomic status (-.220, $p < .10$). The correlation is negative, which interprets as more biological information from family sources is associated with a lower score on the pleasantness subscale when SES is controlled for. The partial correlation also suggested that socioeconomic status influenced the friends-biological/secretcy subscale correlation (-.279, $p < .05$). SES seemed to impact the teachers-biological/pleasantness subscale correlation (-.240, $p < .10$). The correlation of the reading-biological with the secrecy subscale (-.246, $p < .05$) and the annoyance subscale (-.249, $p < .10$) seemed to be influenced by SES. Family-

behavior and the secrecy subscale correlation appeared to be influenced at a level of (-.235, $p < .10$). Some of the relationships between sharing information and current menstrual attitudes also appeared to be influenced by SES: The relationship between sharing biological and behavioral information with a daughter and current pleasant attitude toward menstruation appeared to be influenced by SES (-.231, $p < .10$; -.226, $p < .10$, respectively).

However, to further examine these partial correlations, regression analyses were completed. The regression analyses demonstrated that while the above correlations were significant or were approaching significance when the influence of education and income were removed, these SES indicators were not influential in the significance of the correlation. Overall, within this group of participants, SES had a negligible influence upon the relationship of source-topics and attitude subscales for learning and sharing menstrual information. However, there are several possible explanations for this, all of which are discussed in Chapter 5.

SUMMARY

In this chapter, analyses performed and results of each analysis were presented for the four research questions addressed in this study. The results are discussed within the wider literature in Chapter 5

Chapter 5

SUMMARY OF STUDY

The purpose of this study was to determine the relationships among the menstrual learning, attitudes, and communication of African American women and whether or not these relationships are influenced by socioeconomic status. To achieve this purpose, this study analyzed a portion of data that was collected as part of an NIA funded grant entitled “Menstrual Health Disparities and Low SES African Americans” (1 RO3A60 23890). The portion of the questionnaire that was analyzed for this study concerned women’s menstrual learning, including: where women learned about menstruation, what they learned from each source, whether they learned it before or after they started menstruating, what they have told other women about menstruation, when they told other women about menstruation, and what current attitudes they have toward menstruation. The outcome of these analyses demonstrated what relationships exist between levels of communication received about menstruation, levels of communication given about menstruation, and women’s attitudes about menstruation.

The specific research questions examined were:

1. From what sources and at what time (before or after menarche) do African American women receive their menstrual learning?

2. How is menstrual learning related to African American women's current menstrual attitudes?
3. How are African American women's menstrual attitudes related to their sharing of menstrual learning with others?
4. Are these relationships (#2 and #3) influenced by socioeconomic status?

This study analyzed data collected from 103 African American women in lower socioeconomic settings. The information was collected via a survey disseminated in various ways, including: random sampling within a certain census tract, recruitment of attendees at a clinic, recruitment through a conference, and snowball sampling. After examining the collected data, several interesting findings emerged which are discussed in the next section.

DISCUSSION OF FINDINGS

Sources of Information

After analyzing the women's information sources and topics, the researcher's main conclusions are that 1) women in this study had various sources of menstrual information, but that mothers were cited with the most frequency, and 2) most types of menstrual information were augmented after menarche.

This study found that women cited, to some extent, all of the listed choices as sources for menstruation, except for church. While many sources were reported as supplying at least some menstrual information, mothers were the resource with the highest frequency of reports. Mothers are commonly found to be the most cited as a menstrual learning source in other research as well (Beausang & Razor, 2000; Brush, 1938; Clarke & Ruble, 1978; Dunham, 1979; Jackson, 1992; Koff & Rierdan, 1995b; Scott, Arthur, Owen, & Panizo, 1989).

Examining the current study's results, it is apparent that some sources are stimulated to provide information once a woman experiences menarche. Many women received information about various topics, across sources, after they started menstruating. This finding is supported by the qualitative research that preceded this study. In the qualitative interviews, many women discussed receiving information either after they specifically requested it or after they started menstruating and parents or parent-figures felt compelled to give them some menstrual information. This finding has not been demonstrated by past researchers since previous research has only studied levels of preparation for menarche. No other menstrual research, besides this current study, has examined the level of information that women received both before and after menarche.

The current finding, that women receive most of their menstrual information after menarche, has two different possible explanations. The first is that formalized education may be offering information too late. The second is that mothers and personal contacts may only be offering information after it is

requested or when it is necessary. It is interesting to note that while there are different reasons for late information or a lack of information, the result is the same: young girls and women without menstrual knowledge.

Attitude Subscales and Correlates

A strength of this study is that menstrual attitude is examined by three specific subscales: the pleasantness subscale, the secrecy subscale, and the annoyance subscale. Previous studies have examined menstrual attitudes, but many have not examined specific attitude components (Brooks, Ruble, & Clark, 1977; Koff, Rierdan, & Sheingold, 1982; Larsen, 1963; Rierdan, Koff, & Stubbs, 1989). These past studies also focused on white, middle-class girls' and women's experiences.

After analyzing women's menstrual attitudes, the researcher's conclusions are that:

- 1) On average, the African American women disagreed with the attitude that menstruation could be a pleasant or positive experience. On the other hand, they were ambivalent about the negative aspects of menstruation, such as it being an annoyance. These findings demonstrate that menstrual attitudes are not on a continuum from positive to negative, but are more nuanced, multidimensional, and complex.

- 2) Biological and behavioral learning from family, other than mothers, and biological learning from teachers and reading correlated with less current positive attitudes toward menstruation.
- 3) Those women who received biological and behavioral information about menstruation from reading felt less negatively, including “annoyed” about their menstruation.
- 4) On average, the African American women were ambivalent about being secretive or open about their menstrual periods.
- 5) Women’s current attitudes toward secrecy seemed to be diminished by learning biological menstrual information from their friends or reading or receiving behavioral information from their mother, other family members, or reading.
- 6) Women who had less positive/pleasant attitudes toward menstruation were likely to share more biological and behavioral information with their daughters and an “other.”
- 7) Women who felt less secretive about their own menstruation were likely to share more biological information with the young people that they knew.
- 8) Socio-economic status did not impact these relationships.

Many intricate findings related to attitude emerged from the current study.

One example is that of negative correlations that were present with both the pleasantness and annoyance subscales. These components of menstrual attitude are clearly not a continuum, and less annoyance does not necessarily

correspond with higher attitudes of pleasantness toward menstruation. Since there was some evidence of previous learning associated with current menstrual attitude, Golub and Catalano's research (1983) is not supported. They stated that "the menarcheal experience per se and preparation for menstruation do not seem to affect women's later experiences with menstruation or their acceptance of it" (p. 59). The present data also lead to a conclusion that women's attitudes toward menstruation are multifaceted. As was stated in 1977, and remains the case today (at least in this sample of women), women's attitudes toward menstruation are more complicated than hypothesized (Brooks, Ruble, and Clark, 1977).

Past attitude research has also demonstrated that menstrual attitudes are not constant, but that they may change over time. Older women's attitudes tend to be more multi-dimensional than younger women's (Stubbs, Rierdan, and Koff, 1989). This study did not examine women's opinions over time, but it is possible that because of the age range of the sample that there were confounds due to the length of time that had passed between each woman's experience of menarche and the current research. For example, the issue of age was apparent in one study in which mothers were more likely to view menstruation positively as compared to adolescents (Stoltzman, 1986).

The lack of positive attitudes that were found in the current research is supported by past research findings. Scott, Arthur, Panizo, and Owen (1989) found that black girls had slightly higher levels of negative feelings than their white counterparts (Brooks-Gunn & Ruble, 1982). The current finding is also

supported by Hays' (1987) research in which 78.2% of the sample described menstruation as neutral or slightly negative. Being prepared for menarche has been shown to be significantly associated with a more positive attitude (Koff & Rierdan, 1995a). Women in this study did not directly rate their level of preparation at the time of menarche, but their low positive menstrual scores could be related to their lack of menstrual learning before menarche. Another possible explanation for the lack of pleasantness is that the scale might not have measured this population's specific pleasant aspects of menstruation. For example, in the qualitative research that preceded this study, women did express some positive attitudes toward menstruation. Items that expressed relief, the affirmation of being a woman, or the excitement of being young and healthy were not included on this attitude questionnaire. Items such as these may have more accurately captured this population's pleasantness toward menstruation.

The secrecy that surrounds menstruation has been documented in past research (Ruble, Boggiano, & Brooks-Gunn, 1982; Whisnant & Zegans, 1975), as well as in the content analysis of menstrual booklets (Simes & Berg, 2001; Whisnant, Brett, & Zegans, 1975). Sometimes secrecy as an attitude may be characterized as "embarrassment." For example, 34% of a sample of black adolescents cited embarrassment as an emotional response to menarche (Scott, Arthur, Owen, & Panizo, 1989). The theme of secrecy was strongly present in the qualitative work. Women expressed their own secrecy of discussions as well as secrecy they had encountered from other sources. Specifically, numerous

women discussed their mothers, aunts, and grandmothers denying them menstrual information when they requested it.

Annoyance is an attitude that has not been as extensively studied in the literature. However, one study found that girls perceived menstruation as inconvenient, which is similar to annoyance (Havens & Swenson, 1986). Another found that 25% of older women and 35% of younger women described their periods as a “necessary nuisance” (Golub & Catalano, 1983). Brooks, Ruble, and Clark (1977) found that half of their sample described menstruation as “bothersome.” Contrary to the age difference described by Golub & Catalano’s research, Brooks-Gunn & Ruble (1980) found that less of the adolescents in their sample found menstruation to be bothersome as compared to the older adult women. Only one study specifically discussed adolescents’ feeling of “annoyance” toward menstruation (Fingerson, 2005), which emerged as a theme from Fingerson’s qualitative data collected from adolescents. Similar to Fingerson’s work, the qualitative work completed before this study also found themes of annoyance. Most of the annoyance expressed in the interviews surrounded inconveniences women felt as a result of monthly bleeding. For example, dealing with premenstrual symptoms and emotional volatility were cited as annoyances.

While communication that women engage in concerning menstruation seems to be shrouded in secrecy, women have reported communicating with others about menstrual experiences. Brooks-Gunn and Ruble (1982) found that girls’ comfort in discussing menstruation was positively related to the amount of

information they had received from females, their parents and/or a doctor. When examining age differences, Stoltzman (1986) found that adolescents were more likely to openly talk about menstruation as compared to their mothers. Similarly, in the qualitative interviews, women spontaneously mentioned that they highly enjoyed the discussions and requested more information on numerous occasions. This could have been a result of a relief from the societal pressures to keep discussions of menstrual issues private.

One finding of this current study demonstrated a negative correlation between pleasant menstrual attitude and communication mothers gave to their daughters about menstruation. It seems that women who are giving information to their daughters tend to have a negative attitude towards menstruation. This could be contrary to past research that demonstrated a positive attitude in relation to the amount of menstrual information received from females and from parents and/or a doctor (Brooks-Gunn & Ruble, 1982). While the qualitative interviews did not assess attitude with an instrument, attitude seemed to improve with discussion. After discussing menstruation in the interview setting, the women mentioned wanting to provide further information to their own daughters.

The final research question had to do with the influence of socioeconomic status (SES) on the relationships among menstrual attitudes and communication received or shared. The regression analyses used to test this research question demonstrated that while the above correlations were significant or were approaching significance, when the influence of education and income were removed, these SES indicators were not influential in the significance of the

correlation. Overall, within this group of participants, SES had a negligible influence upon the relationship of source-topics and attitude subscales. This finding is contrary to the speculations of previous researchers who suggested that SES could be contributing to differences found between white and African American adolescents in regards to menstruation (Jackson, 1992).

There could be alternate explanations for why the current researcher failed to find a significant influence of SES upon the relationships among menstrual communication and attitudes. For example, it could be that the number of women in the study (N=103) was low by regression standards. Other possible explanations are that all of these women are from the same census tract; therefore, they are sharing the same local environment. While they may not be from the exact same area or have the exact same income level, there is a certain level of similarity in their economic surroundings. Delving further into that same notion, though, it is possible that specific neighborhood may have had an impact on women's relationships among menstrual communication and attitudes. While they all lived in the same census tract, the location of the neighborhood of each participant was not known. Neighborhood could have been a better indicator of socioeconomic status than other sources of information. Two other explanations have to do with income. Firstly, the women in this study were asked to report how much money their household earned each month. However, the answers to this question lead the researcher to suspect that some of the women misinterpreted the question. For example, the range of answers for income was \$6/month to \$8000/month. It is possible that some of the women

assumed the question was asking about hourly or yearly incomes. Secondly, answers to income questions may be more accurate in a qualitative study, in which a doubtful answer may be followed by a probe for more information. For example, Teitelman (2004) found that girls from lower-income families were more likely to report negative feelings as related to their bodily changes and emerging sexuality than girls from higher income families.

LIMITATIONS

Data Collection

One possible limitation is the varying means of acquiring participants for the research study. While it was very difficult to sample the population of lower socioeconomic status African American women, this could inform future researchers about possible difficulties. It is useful to understand what difficulties one might encounter when beginning a research study. For example, the current researchers had difficulties in initially contacting subjects to participate in the study as well as difficulties in maintaining contact with the women. Over the course of time, several participants moved or had phone service disconnected.

Some of the women in this study were recruited through Catalyst, a cancer information group. There is the possibility, though it is not known, that some of the women's menstrual attitudes could have been influenced by their experiences with cancer of themselves or their family members.

There is also the alternate possibility that the varying methods of recruiting subjects was a strength of the study. This study was able to draw on women from more diverse populations that was originally proposed by using census tract data.

When attempting to analyze the data, the researcher recognized a possible future enhancement for the menstrual sharing instrument. In order to more accurately determine, for example, how many women shared a certain type of information with their daughters, nieces, or sisters, it would have helped to first ascertain the number and types of members of the respondents' families. This revision could add to the validity of the sharing instrument.

A limitation of the health survey was that menarche age was not asked. Though the question was on the draft survey, it was cut off during the Survey Research Center's printing process. As data came back, the researcher noticed that menarcheal age was not included. Since some of the women in the study were participating for the course of the year, and would be filling out a health survey at the end of that year, the question was added to the second health survey. However, not all women in the current study will be completing that health survey.

Another possible limitation is that the women completing this survey ranged in ages from 18-88 years of age. The result of this is a possible recall bias, particularly in the older women.

Study Design

Another limitation of this study is that it has limited generalizability. All of the women in the study were African American and from the Harrisburg, Pennsylvania area. This study was, however, a crucial first step in involving lower socioeconomic African American women in such menstrual education research.

CONCLUSIONS/IMPLICATIONS FOR EDUCATIONAL INITIATIVES

This study aimed to further researchers' understanding of the diversity of women's menstrual-related experiences. Through pilot interviews and then quantitative research, the following main findings were discovered:

1. Women in this study had various sources of menstrual information, but mothers were the source that was cited most often.
2. Most types of menstrual information were augmented after menarche.
3. On average, the African American women disagreed with the attitude that menstruation could be a pleasant or positive experience. On the other hand, they were ambivalent about a certain negative aspect of menstruation—it being an annoyance.
4. Biological and behavioral learning from family, other than mothers, and biological learning from teachers and reading correlated with less current positive attitudes toward menstruation.

5. Those women who received biological and behavioral information about menstruation from reading felt less negatively, including “annoyed” about their menstruation.
6. On average, the African American women were ambivalent about being secretive or open about their menstrual periods.
7. Women’s current attitudes toward secrecy seemed to be diminished by learning biological menstrual information from their friends or reading or receiving behavioral information from their mother, other family members, or reading.
8. Women who had less positive/pleasant attitudes toward menstruation were likely to share more biological and behavioral information with their daughters and an “other.”
9. Women who felt less secretive about their own menstruation were likely to share more biological information with the young people that they knew.
10. Socioeconomic status did not impact the above relationships.

The current and previous findings suggest the need for menstrual education revision, in societal, professional, and familial settings. Studies have examined preparation for menarche and have found there to be girls who were not prepared for menarche (Brush, 1938; Golub & Catalano, 1983; Jackson, 1992; Scott, Arthur, Panizo & Owen, 1989).

Some of these needs are based on analyses of attitudes and messages that girls receive from their surroundings. One source of information girls refer to

is menstrual product booklets. Educational booklets that are published by the same companies that produce menstrual products have been analyzed for content messages. In 1975, the concept of a “hygienic crisis” was identified as a theme within the booklets (Whisnant, Brett, & Zegans, 1975). While the booklets have changed somewhat, there is still an element of this crisis portrayed (Erchull, et al., 2002). Further, the more current booklets (analyzed up until 1997), are just as likely as the older booklets to promote secrecy surrounding menstruation (Erchull, et al., 2002). This could be one of the sources that has impacted women’s attitude of secrecy that were apparent in this study. These booklets could be revised so that a more open and balanced view of menstruation is portrayed.

This secrecy is further reinforced by men’s attitudes toward the menstruating women. When college men were asked to give their opinions as to which symptoms women may experience throughout their menstrual cycle, they strongly endorsed negative changes yet were unaware of any positive changes. Researchers suggested that this could be because of “misinformation, or conditioning, which has reinforced a negative view of premenstrual changes” (Christensen & Oei, 1990, p.618).

Further messages are received in classrooms. Research by Rierdan and Koff (1995a) found girls to be unprepared for menarche. Their answers to descriptions of the menstrual process were not highly descriptive or indicative of highly prepared girls, even though the girls in this study rated their preparation highly. A conclusion that the researchers drew from this was that girls have

trouble organizing all of the information they receive. Another study confirmed what Rierdan and Koff suspected: Hawthorne (2002) also found that young girls had trouble understanding information from class. One 10-year-old who had already begun menstruating said, "I didn't know what it was when it started... I thought I was wetting my pants... I didn't think I had hurt myself, but I knew I was passing blood from somewhere down there, 'cause it was in my panties. I just didn't understand what it was... The teachers talked to us about blood coming from down there, but I couldn't put everything together she told us. I thought it would just stop. So, I just kept changing my panties" (Hawthorne, 2002, p.491).

Since some girls in these studies did not seem to have a sufficient grasp on how the menstrual process works, it follows that girls may be at risk for pregnancy and sexually transmitted infections.

However, interventions and educational experiences can change girls' attitudes toward menarche and menstruation. Research by Rierdan and Koff (1990) inform that education and the teaching of affirming attitudes led to a more positive menarcheal experience. Since the teaching of affirming attitudes are easily incorporated into existing menstrual education, menarcheal experiences could be improved with the change of how menstruation is taught.

Revising the methods of current menstrual education in schools is the crucial first step. Perhaps the most important aspect of menstrual education revision is taking recommendations from girls themselves. Girls from the Havens and Swenson study of 1986 recommended that their menstrual education should help to increase understanding of menstruation between both boys and girls.

Past research in the field of menstrual education revision has found varying methods of revision. For example, Swedish researchers Rembeck and Gunnarsson (2004) compared the effectiveness of two different interventions on improving attitudes toward menstruation in 12 year-old girls. The sample was drawn from three communities in Sweden. Twelve-year-old girls were assigned to either the new intervention or a standard education group; at the beginning of the study 151 girls were in the intervention group and 159 in the usual care group. Two-hundred-eighty-three girls participated and took both the pre- and post-questionnaire. Morse's attitudinal scale (1993) was used. The girls answered the questionnaire twice, between 4 ½ and 6 months apart. The standard intervention consisted of health classes that girls already received; topics covered included puberty and reproductive organs. The new intervention that was being tested consisted of a group session at a youth center that was designed to increase self-esteem. The session was two hours long and was run by a school nurse and a nurse-midwife. The session had educational components about topics such as the body, its organs, and gynecological exams; games; demonstrations of how to use menstrual products; soft music; stories from other cultures about menstruation rituals; and uterus-sized fruits as snacks. All parts of the intervention were designed to be active; no passive learning took place.

The findings indicated that girls who reached menarche between the test occasions and who were in the active intervention group had a significantly greater increase in positive attitudes toward menstruation than girls who received

the standard program. Girls who had already begun menstruating before the first questionnaire was given and who were in the usual care group significantly increased more in the “living with menstruation” aspect of the attitude questionnaire than girls who were in the active intervention. Since the measure did not cover all attitudes that were emphasized in the active intervention, including attitudes toward genital names, aspects of non-menstrual maturation, and information about gynecological exams, the active intervention may have had more of an effect than was demonstrated. The active intervention was recommended for girls who are “on-time” maturers and should be delivered just before menarche. Girls who mature earlier may not be ready for this program before their menarcheal experience. This was illustrated by the fact that girls who were still premenarcheal at the end of the study did not improve (“late” maturers). But, since the study did not follow these late maturers once they did experience menarche, there was no evidence to support whether or not these girls eventually benefited from the intervention. The researchers recommended that girls should be educated gradually, over the years preceding menarche, though this education design has not been scientifically tested.

To improve education, menstrual topics could be taught beginning in elementary school. Children and adolescents should not be the only targets for this education, though. Research studies have pointed out that adults do not have sufficient information on the topic either (Brooks, Ruble, and Clark, 1977; Koff, Rierdan, and Stubbs, 1990). Yet, adults, and parents specifically, are a main source of information for youth. The Kaiser Family Foundation (1999)

reported that children between ten and twelve years old go to their parents first for information about puberty and related topics. However, adults can not be expected to teach youngsters about menstruation if they do not have the information themselves. Even women who have been menstruating for years do not fully understand what is involved (Brooks, Ruble, and Clark, 1977; Koff, Rierdan, and Stubbs, 1990).

When it comes to menstruation, mothers are consistently cited as the primary source of learning, especially about menarche (Kieren & Morse; 1992; Larsen, 1961; Rierdan & Koff, 1995b; Whisnant & Zegans, 1975). This is especially true in African-American families (Jackson, 1992). Yet, most mothers are not confident in their abilities to share information about menstruation (Kieran & Morse, 1992) and this lack of self-efficacy results in a lack of communication (Dilorio, Resnicow, Dudley, et al., 2000). Further, mothers may also pass along incorrect or misleading information unintentionally (Andrews, 1985).

To facilitate communication and increase its effectiveness between parents and adolescents, specific conversation starters are needed for mothers. Gillooly, a family therapist, made such suggestions after many conversations with mothers and daughters (2004). Overviews of the four recommended methods are to: Use a short story from a suggested text to start conversation; encourage mothers to discuss with schools when and what is being presented about menstruation so that they can complement the information at home; encourage mothers to share positive menarche and menstrual memories with their daughters; and brainstorm “first-time” menstruation scenarios with possible

barriers and solutions to menstrual product access. The mothers and daughters with whom Gillooly worked with approved of her approaches to foster menstrual conversations. The same desire for assistance in beginning menstrual conversations was seen in African American mothers and daughters in Hawthorne's (2002) research: Development of family interventions was recommended.

Little research has been completed on extended family networks and menstrual education. One idea is that close relationships can help women find needed information as well as give them an outlet to discuss menstrual coping strategies. These relationships could provide a method for preventing or attenuating psychological and physical stressors that women experience each month as result of their menstrual cycle (Taylor & Bledsoe, 1986).

Communication with mothers, as well as communication with the familial network, has been illustrated to impact several areas of pubertal development and sexuality as well. For example, it has been suggested that menarche is a time when focus is brought to the body for self-organization of such issues as body image, genital function, gender identity, and sexuality roles (Shainess, 1961; McMahon, 1979). Another research study found that adolescents who had less sex-related communication with their parents were: significantly less likely to use contraceptives over the last six months and the last five sexual encounters; significantly less likely to use condoms in the past month or during the last five sexual encounters and at last intercourse; significantly less likely to communicate their needs with their sex partners, and had significantly lower levels of self-

efficacy in being able to negotiate safer sex with their partners (DiClemente et al., 2001). These suggestions indicate that better menstrual education could have strong public health implications. For example, menstrual education that is conducted in a positive manner could aid in decreasing levels of disordered body image, unintended pregnancies, and sexually transmitted infections, as well as increased self-esteem.

FUTURE RESEARCH RECOMMENDATIONS

Future research should focus on how best to educate about menstruation among diverse populations. Specific topics for future research might include how diverse families deal with menstrual education. It is suggested by past research that African American families may use their larger family and social networks in child rearing, including informal health education (Nwoga, 2000). This topic was explored by this study, but not with enough detail to compose conclusive results. Better data could be attained by revising the menstrual sharing measure that was used in the present study, or through qualitative interviews with participants. Qualitative interviews could either delve into information already provided, as a follow-up to this research, or as a method to gather family networking information. Qualitative work as a follow-up to this study could also gather the missing data.

Another topic that should be explored further is the impact of SES on menstrual attitudes and communication using a larger sample. Before this area

of research can be furthered, though, more research needs to be done on the best way to determine levels of SES. There is no one single way to measure SES, and after the difficulties that were realized in this study, further exploration into SES determination is recommended.

Finally, to emphasize the importance of menstrual education, studies should determine the amount of influence that menstrual knowledge and attitudes have on health outcomes such as disordered body image, unintended pregnancies, sexually transmitted infections, and self-esteem. Longitudinal studies that assess menstrual knowledge and attitudes, communication about menstruation, and formal education received could be evidence for an influence on these outcomes. By providing solid confirmation of the need for menstrual education revision and societal acceptance, policy makers will be more likely to create change.

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Appendix A

Research Reviewed in Chapter 2

Researchers	Year	Participant Type	Participant Description	Purpose of Research	Main Results
Henton	1961	Adolescent study (some open-ended)	133 white and 801 black girls who ranged in age from 11-18	Attitude (How did you feel?) and preparedness (not elaborated on how asked)	Black girls experienced a wider range of emotions at menarche than did the white girls. Also: difference in social networks: 27.82% of black girls were prepared by a girlfriend, cousin, or teacher, while only one of the white girls was prepared by one of those sources
Larsen	1963	Adolescent study	781 girls White Middle-class	Expressions used referring to menstruation	Oldest group used negative terms the most; teens used cyclic/causal and visitor/friend categories the most
Whisnant and Zegans	1975	Adolescent study	35 girls	Menstrual attitude	"hygienic crisis" Girls expect communication to be open. But post-menarcheal girls were secretive
Whisnant, Brett & Zegans	1975	Adolescent Study	Examined pamphlets	Education status of menstrual booklets	No emotional help in booklets
Clarke and Ruble	1978	Adolescent Study	54 boys and girls, white, mid to upper class (18 pre-menarcheal, 18 post- and 18 boys)	Sources of menstrual information	Many negative expectations and attitudes expressed

Brooks-Gunn and Ruble	1982	Adolescent Study	639 96% white Low to hi SES 5 th -12 th grade	Examine how attitudes concerning menstruation develop	As grade level increased, media and health sources were rated as more valuable sources and parents and doctors were less important sources
Brooks-Gunn and Ruble	1982 (same paper)	Adolescent Study First longitudinal	60 and 60 control 46 pairs seen twice	Detailed survey including sources	Comfort related to information from females, parents, doctors
Stoltzman	1986	Adolescent Study	40 15-16 year olds	Attitudes of friends and mothers	Mothers have more positive views of menstruation; girls are more likely to communicate about menstruation
Havens and Swenson	1986	Adolescent Study	74 8 th -10 th grade students in private Hawaiian school	Attitudes and previous prep for menarche	Negative reactions to menarche: mostly learned from moms at menarche
Rierdan, Koff, and Stubbs	1989	Adolescent Study First Prospective	92 females: white and middle class	Prep, reactions, ego measured	Preparation predicted how the menarche was experienced
Stubbs, Rierdan, and Koff	1989	Adolescent Study	587 white, middle class	Comprehensive survey	Differences in worry between younger and older girls
Scott, Arthur, Panizo, & Owen	1989	Adolescent Study RACIAL differences	67 black girls: all middle class	Investigation of racial differences in menarcheal experience	Twice as many black girls not prepared for menarche. Slightly higher negative attitudes than white girls
Scott, Arthur, Panizo, & Owen	1989	Adolescent Study RACIAL differences	67 black girls: all middle class	Emotional response	Mostly negative emotional response to menarche; 66% educated by mom. Girls wanted to reassure sisters
Rierdan and Koff	1990	Adolescent Study Prospective: 6 mo.	92 females: white and middle class	Analyzed how attitudes and knowledge affected the menarcheal experience	Depression affected menstrual reactions. More preparation and affirmation related to more positive experiences

McGrory	1990	Adolescent Study	95 11-15 year olds; mostly white	To measure adolescents' perceptions of pubertal changes and menarche	No relationship between self-concept and menstrual attitude. Premenarcheal girls thought menstruation was more debilitating than postmenarcheal girls did
Morse, Kieren, and Bottorff	1993	Adolescent Study	Random sample of 860 pre and 1013 post menarcheal girls	Developed valid and reliable scale for adolescence on attitudes. 5 subscales	Differences found between pre and post menarcheal girls
Morse and Kieren	1993	Adolescent Study	(same sample)	Normative scores presented	Less negative as length of time menstruating increased
Koff and Rierdan	1995a	Adolescent Study	224 pre and post menarcheal white girls, mid to upper class	Studied levels of preparation	Feeling more prepared had more positively. Mothers' role important
Koff and Rierdan	1995b	Adolescent Study	157 white, mid to upper class	Recommendations for preparing young girls	Found top 3 sources: moms, other girls, health classes/providers
Koff and Rierdan	1996	Adolescent Study Longitudinal study	80 white, middle class	How expectations and experiences change over time	Reported less negative and less positive changes once menarche occurred
Simes and Berg	2001	Adolescent Study	200 menstrual product ads	Menstrual product ads were analyzed to determine what type of information was being sent to adolescents	"Heightening insecurities" was core variable
Hawthorne	2002	Adolescent Study QUAL Study	15 girls with moms; wide range in SES	Identify and describe menarcheal experience of AA	Many themes related to sex

Teitelman	2004	Adolescent Study QUAL study	22 girls of various racial and SES backgrounds	Perspectives of family interactions related to menarche and health	Lower income had more negative feelings
Fingerson	2005	Adolescent Study QUAL study	26 females; 11 males. Mostly white	Exploration of how both girls and boys respond to negative constructions about menstruation	Girls had many concerns but also were empowered. Camaraderie found positive aspects. Also source of menstrual info

Researchers	Year	Participant Type	Participant Description	Purpose of Research	Main Results
Brush	1938	Adult study (some open ended)	100 women, 75 college. Aged 17-49	Menarche and attitudes	15-20% excited to menstruate, 25% neutral, 25% were upset Mothers characterized as embarrassed
McHugh and Wasser	1959	Adult study (some open ended)	Slightly over 200 women at universities	Menstrual history and attitudes	Developed attitude scale
Moos	1968	Adult study	839 grad students' wives	Developed attitude questionnaire	Menstrual phase and length since last cycle did not impact symptom reports
Dunham	1970	Adult study	189 college females, 95% white and middle class	Sources and timing of information	Mothers as source lower than previous studies; peers higher
Brooks Ruble and Clarke	1977	Adult study	191 women from Princeton	Moss Menstrual Distress completed as if premenstrual and as if not	More positive experiences than expected; attitude is more complicated than once believed
Brooks-Gunn and Ruble	1980	Adult study	191 women from Princeton, then 154 college women, then 82 men from the same colleges, then 72 adolescent girls	Developing and testing the scale: Menstrual Attitude Questionnaire	Perceive as more debilitating: higher symptom scores. Women denied effects more than men; adolescents denied more than older women
Koff, Rierdan, & Sheingold	1982	Adult study	97 college women, mostly white and middle class	Studying whether age, prior knowledge, and preparation impact menarcheal experience	More adequate prep was significantly related to a higher subjective rating of menarcheal experience

Ruble, Boggiano, and Brooks-Gunn	1982	Adult study	52 subjects, 26 F, 26 M at Princeton University	Excuses and attitudes	fictional woman used a menstrual-related excuse, subjects found it somewhat to moderately annoying, did not blame her, and did not attribute the excuse to internal or external factors
Golub & Catalano	1983	Adult study	70 college women and 67 30-45 year old women	Recollections, expectations, preparation, reaction to, and symptoms of menarcheal experience	Menstrual education fosters more positive menstruation experiences
Rierdan, Koff & Flaherty	1985-6	Adult study	97 college women, middle class and white	Rate preparation and various questions about menstruation as understood at menarche	Girls didn't understand the practical aspects of what menstruation would include
Hays	1987	Adult study (some open ended)	133 faculty, staff, and students at a college	Expressions of menstruation and attitudes	If uses expressions with negative connotations, the woman was more likely to have a negative attitude. However, the use of other expressions (positive or neutral) did not relate to a positive or neutral view of menstruation
Delaney	1987	Adult Study	50 college women from psych classes, then 40 college women (different women)	Develop the Menstrual Joy Questionnaire	Women who had completed the MJQ the first week reported significantly higher levels of arousal on the MDQ when they filled it out one week later as opposed to women who had filled out the MDQ the first week. Another important result was a main effect for the testing session on the subscale of the MAQ "menstruation as a natural event."

Koff, Rierdan, and Stubbs	1990	Adult study (some open ended)	80 women from college level psychology classes	examine their knowledge about menstruation	large portion of this sample did not have sufficient information about menstruation and menopause
Jackson	1992	Adult study	120 women who were going through menopause, mainly lower level of SES	Retrospectively reporting on menarcheal experience as going through menopause	the lack of preparation and negative and ambivalent feelings toward menarche could be partially explained by low socio-economic status, sociocultural influences, and race
Beausang and Razor	2000	Adult study (some open ended)	Written accounts from a college sex class: 85 with info about menarche or menstruation	Write an account about sexual development	The researchers stated that the experiences seemed to be similar for women, regardless of the age of the narrator. So many women still felt the need to menstruation, even though that was not the specific topic, so the researchers surmised that the issue of menstruation and menstrual learning is important to women

Appendix B

Portion of Interview Schedule

Breaking the ice

- We'll start with a brainstorming session: What words have you heard used to refer to the menstrual period?
- What words have you heard used to refer to someone on their menstrual period?

Communication about menstruation

- Do you talk to anyone about your period, problems with it, or symptoms that accompany it?
- Who do you talk to?
- What do you talk about?

Learning about menstruation and menopause

- Before you started menstruating, what did you learn about it?
- From whom did you learn it?
- Did you find what you were told to be true?
- What information have you received about menopause?
- From whom did you receive this information?
- What have other women told you about their experiences?

Learning about menstrual events

- Do you know what uterine fibroids are?
- Do you anything about pelvic inflammatory disease?

- What do you know about hysterectomies?

Closure

- Do you have any questions about anything we have discussed today?
- Would you like to make any more comments?

Figure 1. Pictorial Representation of Themes.

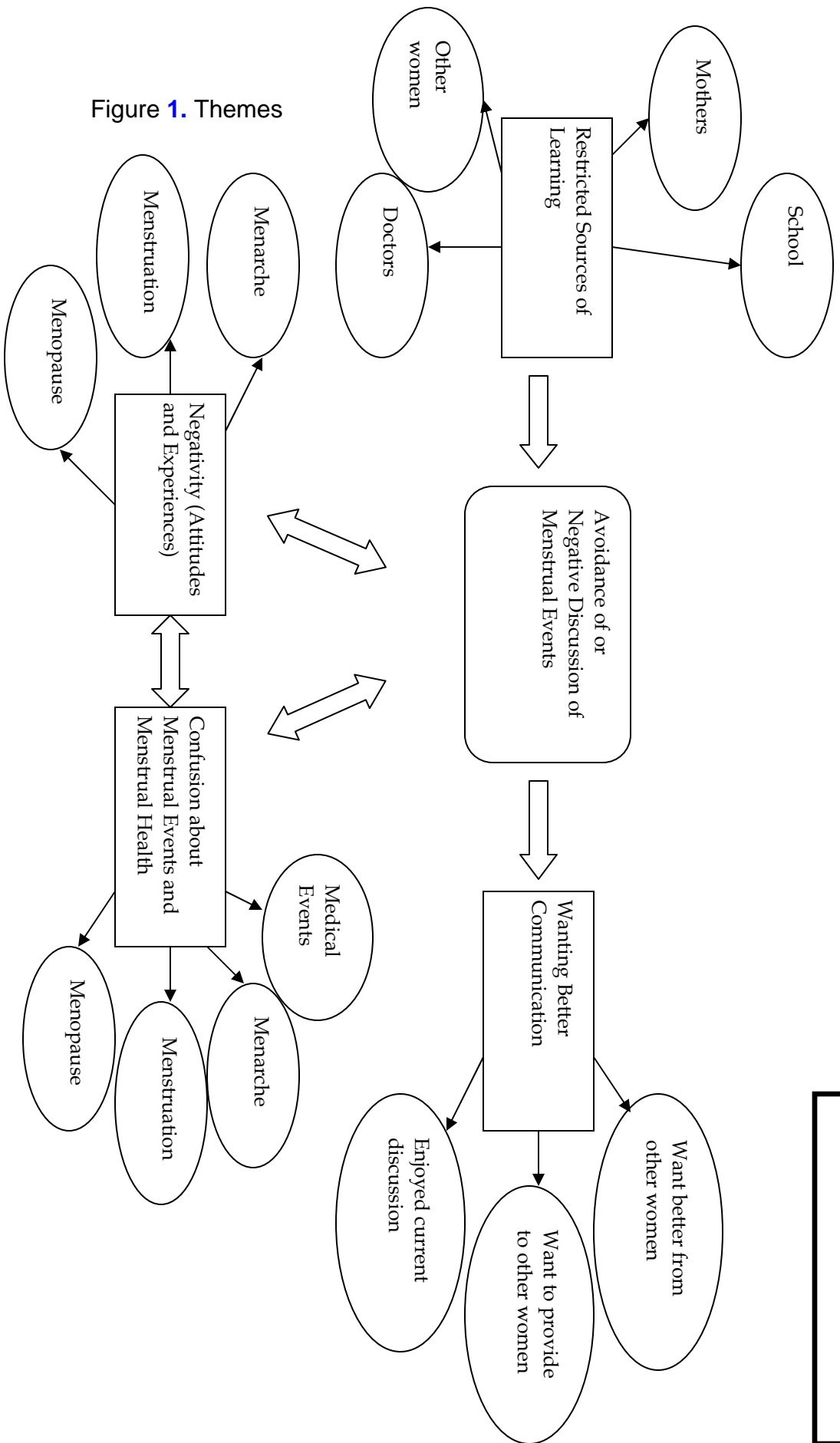


Figure 1. Themes

Key

- Core Variable
- Axial Codes
- Open Codes

Appendix C

Health Survey

1. What is your birthdate? (For example, March 27, 1950 would be 03/27/50.)

<input type="text"/>	<input type="text"/>	/	<input type="text"/>	<input type="text"/>	/	<input type="text"/>	<input type="text"/>
month			day			year	

For the next questions, fill in the circle beside your answer.

2. Please select the one sentence below that describes your periods over the **LAST YEAR**. Be sure to read all of the choices first and select **only one**.
- I am having my menstrual period as I usually do.
 - My periods are changing.
 - I have not had a period for 3-11 months.
 - I have not had a period for 12 months (a year) or more.
3. From the list below, select any changes that you have noticed in your periods in the **LAST YEAR** from what they were like a year ago. Fill in the circle for **all** that apply. If you have not had any changes, fill in "No Changes" at the bottom of the list.
- They are further apart
 - They are closer together
 - They last longer
 - They last fewer days
 - I bleed more heavily on some or on all days
 - I bleed more lightly on some or on all days
 - I have more clots
 - I have less clots
 - I find the texture, color, or odor of the blood is different
 - I have more menstrual cramping
 - I have less menstrual cramping
 - I have more spotting between periods
 - I have less spotting between periods
 - I have more "run-on" periods that last 2 weeks or more
 - I have fewer "run-on" periods that last 2 weeks or more
 - I experience more "gushing" (very heavy bleeding) than before
 - I experience less "gushing" (very heavy bleeding) than before
 - I began my period again, without taking any hormones, after at least 12 months of not having a period
 - Other (please explain): _____
 - No Changes at all

4. Below is a list of reasons why women's periods might change or stop. Fill in the circle next to every one that has happened to you in the LAST YEAR. If your period has not changed or stopped, fill in the last circle.

- Menopause (the change of life) - No bleeding for 12 months or more
- Getting older/approaching menopause (the change of life)
- Pregnancy
- Breastfeeding
- Miscarriage/abortion
- Because of my birth control method
- Hysterectomy (my female parts have been taken out)
- Heavy exercise
- Illness
- Because of medicine I'm taking
- Stress
- Diet change
- Eating disorder
- Not sure (please explain): _____
- Other (please explain): _____
- My periods have **not changed or stopped**

5. Please tell us about any pregnancies you have had and what happened with them. Try to remember the year that each occurred. If you have never been pregnant, fill in the first circle. In the boxes, put the number of times this has happened. For example, if you have given birth 4 times put

0	4
---	---

- I have never been pregnant
 - I am pregnant now
 - I have given birth

--	--

 times _____
 - I had a still birth

--	--

 times _____
 - I had a miscarriage

--	--

 times _____
 - I had an abortion

--	--

 times _____
 - I had an ectopic pregnancy

--	--

 times _____
- (A pregnancy in the fallopian tube instead of the uterus)

Give Year for Each Time

6. In the LAST YEAR, which of the following forms of birth control methods have you used? Please indicate all forms used by filling in the circle. If you have not used birth control, fill in the first circle.

- | | |
|---|--|
| <input type="radio"/> No birth control used | <input type="radio"/> Emergency contraceptive pill |
| <input type="radio"/> Intrauterine device (IUD) | <input type="radio"/> Female sterilization (like tubes tied or hysterectomy) |
| <input type="radio"/> Birth control pills | <input type="radio"/> Male sterilization (like a vasectomy) |
| <input type="radio"/> Injectable (like Depo-Provera) | <input type="radio"/> Rhythm method |
| <input type="radio"/> Condom (male or female) | <input type="radio"/> Withdrawal |
| <input type="radio"/> Diaphragm, sponge, or cap | <input type="radio"/> I don't have sex (abstinence) |
| <input type="radio"/> Spermicide (like foam, jelly, cream, or film) | <input type="radio"/> Other (explain): _____ |

10. Indicate **all** the people who told you about this part of having your period **AFTER** it happened. If no one has ever told you about this, mark "No One."

	Mother	Grandmother	Sisters/Cousins	Aunts or other female relative	Friends	From church	Teachers (School)	Doctor/Health worker	Reading Material	Other	No one
a. What a period is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What happens in your body that causes a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. How often you would have a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. How long your period would last.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. How much you would bleed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. What it means when you miss a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. What can cause your period to change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. What is happening during pregnancy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. How to use pads/tampons.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. What types of symptoms you may have.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. How to deal with your menstrual symptoms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. How much do you really understand now about these things?

	Nothing	Hardly anything	A little	A lot	Every-thing
a. What a period is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What happens in your body that causes a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. How often you would have a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. How long your period would last.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. How much you would bleed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. What it means when you miss a period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. What can cause your period to change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. What is happening during pregnancy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. How to use pads/tampons.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. What types of symptoms you may have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. How to deal with your menstrual symptoms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. When you should see a health-care worker about your period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3: Feelings About Your Period

15. Read the ideas and feelings about the menstrual period below. Fill in the circle that best reflects your level of agreement or disagreement with each statement.

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
a. It is important to talk about the menstrual period with men.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I was proud when I started having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. My period is dirty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. It is important to openly discuss the topic of the period at home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Men have a great advantage not having the annoyance of the period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. I must hide anything that shows that I am having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. I wish that my period would last for just a few minutes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. It is important that I buy sanitary pads without being seen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. I wish that I did not have my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. It is uncomfortable for me to talk about my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. It is important that nobody knows when I am having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. My period is annoying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. There are times when I cannot stand my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. It is embarrassing when a man finds out that I am having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. I blush when I see an advertisement about sanitary pads when I am with a man.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. I enjoy having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. I look more attractive when I am having my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. It is important to keep my period a secret.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. It is uncomfortable for me to have my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. I avoid talking about my period when there are men present.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. My period is a big problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. My period is something that I have to bear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
w. It is hard to live with my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
x. I am happy every time I have my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
y. I feel content to have my period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4: Your Health

16. How would you rate your physical and emotional health in the **last month**?

	Very Poor	Poor	Fair	Good	Excellent
a. Physical health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Emotional health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Indicate how often you experienced each of the conditions listed below in the **past month**.

	Never	Rarely	Sometimes	Often
a. Acne (skin break outs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Abdominal or stomach bloating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Breast tenderness/pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Constipation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Cold hands/feet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Crying spells	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Decreased appetite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Diarrhea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Dizzy spells	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Dry skin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Facial hair growth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Feeling angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Feeling attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Feeling calm/focused	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Feeling depressed/having "the blues"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Feeling panicked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Feeling happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Feeling irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Feeling satisfied with life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Feeling tired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. Feeling unattractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Feeling worried/nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
w. Food cravings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
x. Forgetfulness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
y. Headaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
z. Heart pounding/racing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
aa. Hot flashes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
bb. Increased appetite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
cc. Insomnia (not able to sleep)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Rarely	Sometimes	Often
dd. Joint pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ee. Menstrual cramps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ff. Migraine headaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gg. Mood changes/swings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hh. Nausea/vomiting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. Pelvic pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
jj. Pain during intercourse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
kk. Shoulder or back pain/stiffness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ll. Skin crawls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mm. Tingling sensation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
nn. Unable to concentrate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
oo. Urinary leakage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
pp. Vaginal dryness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
qq. Vaginal infections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
rr. Weight gain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ss. Weight loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Have you ever had any of these health conditions?

	Yes	No
a. Allergies	<input type="radio"/>	<input type="radio"/>
b. Anemia	<input type="radio"/>	<input type="radio"/>
c. Arthritis	<input type="radio"/>	<input type="radio"/>
d. Asthma	<input type="radio"/>	<input type="radio"/>
e. Breast cancer	<input type="radio"/>	<input type="radio"/>
f. Cervical cancer	<input type="radio"/>	<input type="radio"/>
g. Cervical dysplasia (Positive Pap Test)	<input type="radio"/>	<input type="radio"/>
h. Chlamydia	<input type="radio"/>	<input type="radio"/>
i. Colorectal cancer	<input type="radio"/>	<input type="radio"/>
j. Diabetes	<input type="radio"/>	<input type="radio"/>
k. Eating disorder	<input type="radio"/>	<input type="radio"/>
l. Endometrial (uterine) cancer	<input type="radio"/>	<input type="radio"/>
m. Endometriosis	<input type="radio"/>	<input type="radio"/>
n. Genital warts (HPV)	<input type="radio"/>	<input type="radio"/>
o. Gonorrhea	<input type="radio"/>	<input type="radio"/>
p. Heart disease or attack	<input type="radio"/>	<input type="radio"/>
q. Hepatitis	<input type="radio"/>	<input type="radio"/>
r. High blood pressure	<input type="radio"/>	<input type="radio"/>
s. High cholesterol	<input type="radio"/>	<input type="radio"/>
t. HIV/AIDS	<input type="radio"/>	<input type="radio"/>
u. Infertility	<input type="radio"/>	<input type="radio"/>

	Yes	No
v. Irritable bowel syndrome	<input type="radio"/>	<input type="radio"/>
w. Kidney disease	<input type="radio"/>	<input type="radio"/>
x. Lupus	<input type="radio"/>	<input type="radio"/>
y. Osteoporosis (bone thinning)	<input type="radio"/>	<input type="radio"/>
z. Ovarian cancer	<input type="radio"/>	<input type="radio"/>
aa. Ovarian cysts	<input type="radio"/>	<input type="radio"/>
bb. Overweight/obese	<input type="radio"/>	<input type="radio"/>
cc. Pelvic Inflammatory Disease (PID)	<input type="radio"/>	<input type="radio"/>
dd. Physical abuse	<input type="radio"/>	<input type="radio"/>
ee. Sexual abuse	<input type="radio"/>	<input type="radio"/>
ff. Sexually Transmitted Disease (STD)	<input type="radio"/>	<input type="radio"/>
gg. Stroke	<input type="radio"/>	<input type="radio"/>
hh. Syphilis	<input type="radio"/>	<input type="radio"/>
ii. Thyroid disease	<input type="radio"/>	<input type="radio"/>
jj. Urinary disease	<input type="radio"/>	<input type="radio"/>
kk. Vaginal infection	<input type="radio"/>	<input type="radio"/>
ll. Other cancer (describe:)	<input type="radio"/>	<input type="radio"/>
mm. Other health condition (describe:)	<input type="radio"/>	<input type="radio"/>

19. How many visits have you made to a doctor or health clinic to check on your own health in the last year?

- None 4 to 5 visits
 1 visit 6 or more visits
 2 to 3 visits

a. In the last year , have you had any of these health care check-ups?	Yes	No
Pelvic exam	<input type="radio"/>	<input type="radio"/>
Pap test (to check for cervical cancer)	<input type="radio"/>	<input type="radio"/>
Breast exam by health-care worker	<input type="radio"/>	<input type="radio"/>
Mammogram (X-ray of the breast)	<input type="radio"/>	<input type="radio"/>
Test for a sexually transmitted disease	<input type="radio"/>	<input type="radio"/>
Health-care visit because of a menstrual problem	<input type="radio"/>	<input type="radio"/>
Prenatal care	<input type="radio"/>	<input type="radio"/>
b. Are you now using any hormones for:	Yes	No
Your menstrual period	<input type="radio"/>	<input type="radio"/>
The change of life (menopause)	<input type="radio"/>	<input type="radio"/>
Cancer	<input type="radio"/>	<input type="radio"/>

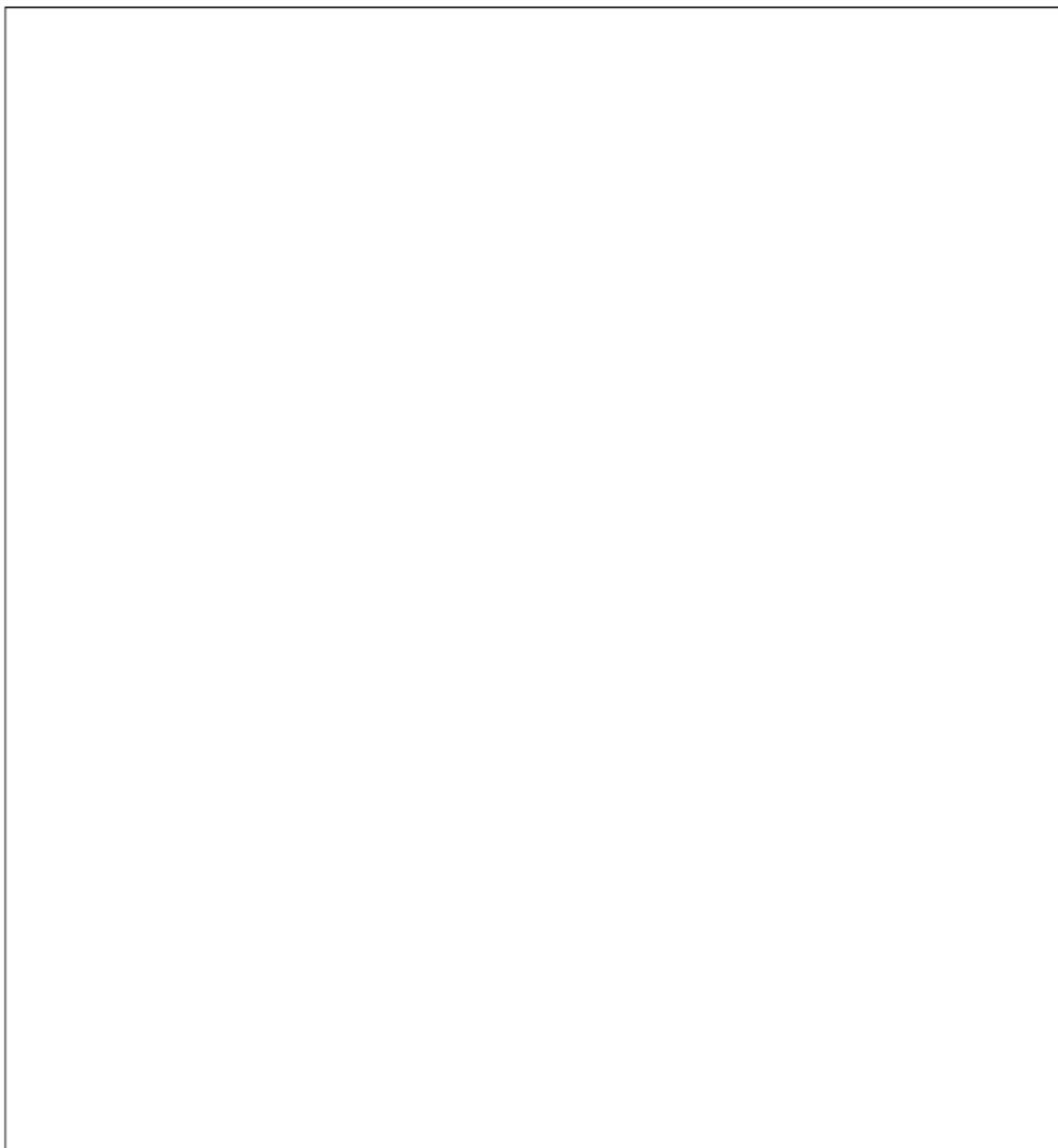
20. Are you covered by any type of health insurance? Yes No

21. Besides insurance, is your health care covered in another way besides you paying for it? Yes No

Section 5: More About You

22. How far have you gone in school? (Select only one.)
- Grade school
 - Middle school or junior high
 - Some high school
 - High school diploma
 - Technical/vocational school
 - College
23. Which best describes you? If you are multiracial, select all that apply.
- Black (African American)
 - White (Caucasian)
 - Latina (Hispanic)
 - Native American
 - Other (please explain): _____
24. What is your relationship status?
- Married, live with husband
 - Married, do not live with husband
 - Not married, but have live-in partner
 - Not married and no live-in partner
 - Other (please explain): _____
25. How many children do you have?
26. How many children live in your household?
27. How many adults (including yourself) live in your household?
28. How much income do you have for your household each month (after taxes)? Please give exact income.
- \$. per month
29. How many people contribute to the household income?
30. What is your religious faith?
- Christian
 - Catholic
 - Islam
 - Jewish
 - None
 - Other (please specify): _____
31. How often are you at church?
- More than once a week
 - About once a week
 - A few times a month
 - About once a month
 - Less than once a month
 - Never

Do you have anything else you would like to tell us about your menstrual health or experiences?

A large, empty rectangular box with a thin black border, intended for the respondent to provide additional information or comments regarding their menstrual health or experiences.

Thank you for completing the survey.
Please mail it back now in the large postage-paid envelope.

Appendix D

Results of White Participants

Table 13: Mother biological crosstabulations: Before and after menarche

	0 No information	1 Some information	Chi Square	Phi
	-----%-----			
0 No information	68.8	31.3	2.030	.244
1 Some information	44.4	55.6		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Table 14: Reading biological crosstabulations: Before and after menarche

	0 No information	1 Some information	Chi Square	Phi
	-----%-----			
0 No information	88.2	11.8	10.088	0.545
1 Some information	35.3	64.7		

Note: There are eight items in the biological category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Table 15: Mother behavioral crosstabulations: Before and after menarche

	0 No information	1 Some information	Chi Square	Phi
	-----%-----			
0 No information	70.6	29.4	1.121	0.182
1 Some information	52.9	47.1		

Note: There are three items in the behavioral category. A score of one would indicate that information had been given on one item; a score of two indicates information on two items, etcetera.

Table 16: Point biserial correlations between information received and attitude

Source- Topic	Statistics	Pleasantness Subscale	Annoyance Subscale
Reading- Biological	Correlation N		-.334¹ 32
Family- Behavior	Correlation N	-.373* 32	

Each correlation lists the number of participants in the correlation.

A higher score on any subscale indicates a higher level of that attitude.

Correlations in parentheses represent partial correlations controlling for SES as measured by income and educational attainment. Only significant partial correlations are reported.

*. Correlation is significant at the 0.05 level (2-tailed).

¹. Correlation is approaching significance (2-tailed).

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	Degree	Year	Field
The Pennsylvania State University University Park, Pennsylvania	Ph.D.	2006	Biobehavioral Health
The Pennsylvania State University University Park, Pennsylvania	B.S.	2002	Biobehavioral Health

Research Experience

Research Assistant on study in Jena, Germany
Research Assistant on NIA grant: Menstrual Health Disparities Among Low SES African Americans (1 RO3 A6023890)
Research Assistant on grant from the Africana Research Center: Menstrual Patterns and Related Health Concerns of African American Women of Lower SES: A Pilot Study
Trainee on a Robert Wood Johnson Foundation grant working with the benefits of long-term nicotine replacement therapy (NRT) use

Teaching Experience

Health and Human Sexuality, BBH 146: Fall 2006, Summer 2005, Summer 2004
Introduction to Biobehavioral Health, BBH 101: Summer 2005

Articles

Cooper, S.C. & Koch, P.B. (Accepted for Publication). Communication about menstrual events among African American women of lower SES. To be published in *Women & Health*.
Koch, P.B. & Cooper, S.C. (In Preparation). Sexual responding among young adults. To be sent to *The Journal of Sex Research*.

Professional Presentations

"Communication about menstrual events among African American women of lower SES" at The Society for Menstrual Cycle Research National Conference June 1 -2, 2005; Boulder, CO

References

Available upon request.