

Men on Menstruation: A Causal Comparative Analysis of College Males' Attitudes Toward Menstruation

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ABSTRACT

This research explores how sibling dynamics impact college men's views on menstruation. While existing studies have looked at various angles of attitudes toward menstruation, there's a noticeable gap concerning the role of family, specifically siblings. This study fills that gap by examining whether having a sister who menstruates influences a college man's views on the topic. Using a quantitative approach, we conducted an online survey based on a modified Menstrual Attitude Questionnaire. A total of 48 undergraduate males participated, half of whom have a sister who menstruates. Data were analyzed using t-Tests, comparing average responses between the two groups. Initial findings suggest that having a sister could play a role in shaping attitudes toward menstruation, although the average responses between the two groups were similar. This research adds a new dimension to existing literature by focusing on a specific age group and their family influences, offering a fresh perspective on attitudes toward menstruation. The study is timely and relevant, given the ongoing societal discussions about menstruation and women's health. It opens the door for further research to validate these findings and explore other family and social factors that may shape attitudes toward menstruation. Examining the perspectives of young people and their familial environment provides fresh insights into society's views on menstrual health. This research is especially timely as discussions about women's health, including menstruation, are gaining more public attention than ever before.

Introduction

According to Dunifon et al. (2016), 82% of children under 18 live with at least one sibling, brother or sister (Dunifon et al., 2016). Sibling relationships are unique in that they are one of the most permanent and long-lasting relationships one can have. The stability that comes with this relationship can foster communication and confidence in one another when discussing sensitive topics. With the current conversations on periods or menstruation in the media, the stigma around the menstrual cycle may become less severe, making conversations about it more common. According to Yagnick (2014), the framing of menstruation in TV and media has shifted closer to ideas of liberation, convenience, and womanhood. Rather than being an estranged topic, menstruation has been brought up as a natural phenomenon (Yagnick, 2014). Because of the shift in current media about menstruation, this may cause conversations about menstruation to be less taboo, which is defined as a restriction to indulge in certain behaviors (Yagnick, 2014). The prevalence of these conversations spans from large-scale media to small-scale family discussions. Because of this, the relationship between possible influences and attitudes toward menstruation are ever-changing.

Literature Review

The Menstrual Cycle

The menstrual cycle is a series of phases a woman experiences after puberty. These phases come with surges of different hormones, which may manifest physically and psychologically with varying degrees of severity (Britannica,

n.d.). Iñaki Lete et al. (2017) found that when asked to record their symptoms from menstruation, many women noted that they experienced mood fluctuations, decreased energy, weight gain, and irritability, often coinciding (Lete et al., 2017). A study by Edith Weisburg et al. (2016) advance the notion that the symptoms of menstruation and the menstrual cycle dictate many aspects of a woman's life. Women reported acute pain, feeling unwell, depressed, and having no energy. These symptoms caused many women to cancel activities and take days off from work. The ideas expressed by Lete et al. (2017) and Weisburg et al. (2016) lead to a broader understanding of what women experience during menstruation and draw inquiries into how this impacts the people around them.

Attitudes toward menstruation

Generally, American attitudes toward menstruation are "hormonal", meaning feeling the effects of hormones such as stronger emotions (Cambridge Dictionary, n.d.). This can be attributed to PMS or premenstrual syndrome, defined as a medical condition felt by females before the start of menstruation with physical and emotional symptoms (Britannica, n.d.). According to Joan Chrisler et al. (2014), in a survey of Americans and non-Americans, it was found that Americans rated women in different stages of reproductive life—premenstrual, menstruating, pregnant, and menopausal—more negatively than non-Americans. As mentioned before, all four types of women are labeled as "hormonal" (Chrisler et al., 2014). The term may be considered stereotypical, categorizing all four types of women as emotionally erratic, where their emotions dictate their actions. Regarding attitudes, studies of men, especially spouses, and their attitudes toward menstruation highlight a lack of knowledge about the menstrual cycle. Joan C. Chrisler et al. (2014) support the notion of a lack of knowledge, where researchers state that a, "menopausal woman was rated as bitter, tense, old, sensitive, and feminine" in their study (Chrisler et al., 2014). However, this report is attributed to a lack of knowledge where 50% of people surveyed wished they had more knowledge of women's health (Chrisler et al., 2014). In a similar context, a husband's knowledge of the female reproductive cycle primarily comes from their wife. Furthermore, men's attitudes toward their wives' menopause reflected women's own attitudes toward the female reproductive cycle (Zhang et al., 2020). Perhaps due to a lack of education about the reproductive cycle, for spouses, their wives might be the only source of knowledge they have for this topic.

One must also take into consideration the extent to which education in school focuses on the different reproductive stages in a woman's life, such as menstruation. On the other hand, other sources of knowledge about menstruation should be explored. Previous research has found that teachers have provided adolescents with detailed information about the biological mechanics of menstruation than other informants such as female family members (Kpodo et al., 2022). These findings exemplify the different sources of knowledge about menstruation adolescents have in their lives, which should be taken into account when examining perspectives on this topic.

Sibling Relationships

Based on these studies, one can infer that a lack of knowledge can shape attitudes toward different stages of reproductive life, one of these stages being menstruation. This implies that direct access to a source of knowledge may influence attitudes toward menstruation. Sibling relationships, for instance, can be a source of this information. Because siblings are generally raised in the same household and frequently spend time together, they are one of the most extended relationships one may experience (Kowal & Blinn-Pike, 2004). Siblings have a considerable influence on each other, even more than parent-child relationships, as siblings are often in the same age or peer group, have reciprocal relationships, and are equals as children in the family (Kowal & Blinn-Pike, 2004). A similar finding was reported by Eric Widmer (1997), who states that significant factors in sibling relationships include "emotional support and communication" (Widmer, 1997). He further states that although the frequency of sibling interaction decreases as individuals move into adulthood, "feelings of closeness, admiration, belonging, and identity," are extensive and last over a lifetime (Widmer, 1997). The dynamics of sibling relationships would allow for discussion of topics like menstruation during

childhood. By being in frequent contact with each other, siblings can be the source of knowledge regarding the menstrual cycle, which may influence attitudes.

The Gap

As stated beforehand, various studies have centered around a specific population when investigating attitudes toward menstruation, such as spouses, the general public, and women (Chrisler et al., 2014; Lete et al., 2017; Zhang et al., 2020; Weisburg et al., 2016). However, a gap exists in the body of knowledge where studies have yet to discuss college males raised with a menstruating female sibling and their attitudes toward menstruation. The population of college males is specific, as the age range is only 18-22, making them young adults. Their perspectives are likely very different compared than those of women for instance, who have lived most of their lives with exposure to the menstrual cycle. Part of what influences these perspectives is life experiences and familial relationships, such as sibling relationships. Through the current body of knowledge on sibling relationships, permanent and frequent contact when being raised together can cause siblings to influence each other's attitudes (Kowal & Blinn-Pike, 2004; Campione-Barr, N., 2017).

Because there is no current research specifically focused on college males raised with menstruating female siblings and their attitudes toward menstruation, this paper researched the influence of this specific relationship on these attitudes. It is hypothesized that college males that have been raised in the same household as a menstruating female sibling will have different attitudes toward menstruation than college males raised without one because they lack the sibling relationship that would, theoretically, provide them with menstruation knowledge.

Purpose

The purpose of this study is to look at the specific population of college males to investigate whether being raised with a menstruating female sibling influences their attitudes toward menstruation. With the current knowledge of the nature of sibling relationships and the current attitudes of spouses and the general public toward menstruation, the findings from this study will add to the current body of knowledge by examining a different population and their perceptions of menstruation. The significance of this study is to bring attention to attitudes present in a specific population and what factors influence the formation of these attitudes. This has led to the question: Does being raised with a menstruating female sibling influence a college male's attitudes toward menstruation?

Methods

The goal of this study was to determine if having a menstruating female sibling influenced male college students' attitudes toward menstruation.

The purpose of this quantitative, causal-comparative study was to explore the attitudes of college males toward menstruation. A causal-comparative analysis method was chosen for this study. The purpose of this research design was to discover relationships between independent and dependent variables after the occurrence of an event (Salkind, 2010). This method was used to determine whether the independent variables of growing up with a menstruating female sibling and growing up without a menstruating female sibling influence the dependent variable of male attitudes toward menstruation. According to Balnaves and Caputi (2001), correlation studies have one independent variable and two different sample groups, whereas the independent variable can vary in causal comparative studies (Balnaves & Caputi, 2001). In this study, the independent variable would be the presence/absence of a menstruating female sibling, which varies between each college male. In order to establish causal relationships, there must be a necessary cause that is a precondition in order to have an effect or consequence occur (Balnaves & Caputi, 2001). In the case of this study, the necessary precondition is that all participants are a college male with or without a menstruating female sibling. The effect would be their attitudes towards menstruation being influenced from the

presence/absence of a menstruating female sibling in their household. Therefore, a causal comparative method was the chosen methodology for this study.

Selection

Judgement sampling was used to select the population in this study, as there were eligibility requirements. Judgement sampling is used when the sample is not random, and the sample criteria is established by the researcher (Balnaves & Caputi, 2001). The sample population was selected through a prescreen (see **Appendix A** for prescreen) of participants to determine if they fit the eligibility requirements to participate in this study. These requirements include age, as all participants must have been undergraduate college males, and an age gap, if applicable, of 2-5 years between college males and their female siblings. The college males were divided into two groups: those without a menstruating female sibling and those with one. For the college males with a menstruating female sibling, the age gap between them must have been 2-5 years of age. Those college males with an age gap that exceeded 2-5 years were sorted into the group of college males raised without a menstruating female sibling. This decision was made in order to ensure that the college male was still present in the household for a certain number of years when the female sibling was menstruating. Ethical considerations were taken into account by only sampling from voluntary participants, obtaining consent (see **Appendix B** for consent form), and promising anonymity and confidentiality. The participants were given this information prior to data collection. An email was sent to participants with the survey as well as those who had connections to potential participants (see **Appendix C** for sample emails). College males were studied rather than high school males because of direct access to college males. Furthermore, a college male would have lived with his menstruating female sibling for a longer period of time. Because college-age males are in the early adult stage, their answers may be more reliable than teenagers'. These factors contributed to the decision to specifically study college males.

Data Collection

The data was collected through an online survey on Google Forms (see **Appendix D** for full survey). Responses to individual attitude statements were given using an interval-level scale from 1-5, where each number represents a certain level of agreement: 1 being "disagree", 2 being "somewhat disagree", 3 being "neutral", 4 being "somewhat agree", and 5 being "agree." In modern research, interval-level scales, or numerical scales, are often used to measure agreement (Balnaves & Caputi, 2001). The attitude statements were derived from the 1980 "Menstrual Attitude Questionnaire" by Jeanne Brooks-Gunn and Diane N. Ruble. Given the current climate, these statements currently might have been perceived as sexist and were changed accordingly (see **Appendix D** for attitude statements). There was a total of ten attitude statements. Each attitude statement was answered using the interval-level scale. The sample size was 48 college males, 24 males with a menstruating female sibling and 24 males without one.

Data Analysis

The primary tool used in data analysis was the TI-84 CE calculator. Survey responses were gathered using a Google Form, and a Google Spreadsheet was used to evaluate and sort them. The responses for each attitude statement were analyzed individually. This was done by running a t-Test: Two- Sample Assuming Equal Variance (**Equation 1**) to compare the mean responses of the two groups for each attitude statement. Because the number of data points in each data set were equal, the t-Test with equal variance was chosen.

$$t = \frac{\bar{y}_1 - \bar{y}_2}{\sqrt{s_{pooled}^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$s_{pooled}^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

<u>Attitude Statements</u>	<u>With Sisters</u>	<u>Without Sisters</u>
Means		
Premenstrual tension/irritability is exaggerated by women.	1.5909091	1.363636364
A woman who attributes her irritability to her approaching menstrual period is emotionally unstable	1.5454545	1.681818182
Men have an advantage in not having a menstrual period.	4.1818182	4.318181818
Women are more easily upset during menstrual periods.	3.7727273	3.545454545
When women experience their menstrual period, it doesn't affect how well they perform tasks.	2.7727273	2.863636364
A woman's mood is not influenced by menstrual periods.	1.8636364	2
The reoccurrence of a woman's period is a sign of good health.	4	4.363636364
Most women exaggerate the physical effects of menstruation.	1.4090909	1.454545455
When women speak about menstrual symptoms, they are using their period as an excuse.	1.5454545	1.318181818
People should not be critical of a woman who is upset before or during her period.	4.1363636	3.318181818

Equation 1: t-Test: Two-Sample Assuming Equal Variances

Equation 1, the t-Test: Two-Sample Assuming Equal Variances, calculates the sample means (y1 and y2) subtracted from each other over the square root of the pooled standard deviation squared multiplied by the sum of one over the sample size of data set 1 and one over the sample size of data set 2. To get the pooled standard deviation squared (s_{pooled}^2), one calculates the sum of each sample size minus one multiplied by the sample variance over the sum of the two sample sizes minus two. I compared the responses of the college males with a menstruating female sibling and the college males without a menstruating female sibling. Using the data analyzed from the t-Test, the P values were used in comparison to an alpha value of 0.05. The p value stands for probability, and it measures how likely the difference between two data sets is due to chance (Dahiru, 2008). The alpha value is a significance level and is compared to the p value in order to determine if there is statistical significance between the responses or data points of the two groups of college males. The alpha value represents a 95% confidence interval. When the P value is less than the alpha value, it means that there is a significant difference between the two data sets. If the P value is greater than the alpha value, then the results are statistically non-significant. By comparing the t test results for the responses of each attitude statement, one is able to see if the agreement level between the two groups were similar or significantly different.

Results

To determine if the responses varied between the two groups of college males, a t-Test: Two-Sample Assuming Equal Variance was run. Of the 50 college males contacted, 49 respondents took the quantitative Menstrual Attitude Questionnaire. The last response was eliminated to ensure equal variance—an equal number of data points—when running the t-Test. The data collected for each attitude statement was individually analyzed between the two groups (e.g., responses for attitude statement 1 were analyzed separately from the other statements). After running the t-Test: Two-Sample Assuming Equal Variances on the collected data, the mean responses for each group (**Table 1**) were recorded. Looking at these values, one can determine that the mean responses between the two groups were close in number.

Table 1: The mean response to each attitude statement between the two groups of college males

The t-Test: Assuming Equal Variances also calculated $P(T \leq t)$ two tail values for each individual attitude statement. (Table 2). The $P(T \leq t)$ two tail value indicates whether the responses between the two data sets are different. This is done through comparing the $P(T \leq t)$ two tail value to an alpha value of 0.05.

Table 2: $P(T \leq t)$ two tail values for each individual attitude statement

Attitude Statement	$P(T \leq t)$ two-tail
1. Premenstrual tension/irritability is exaggerated by women.	0.328441101996373
2. A woman who attributes her irritability to her approaching menstrual period is emotionally unstable	0.584093011839569
3. Men have an advantage in not having a menstrual period.	0.627950119563195
4. Women are more easily upset during menstrual periods.	0.472072715901281
5. When women experience their menstrual period, it doesn't affect how well they perform tasks.	0.79608576204042
6. A woman's mood is not influenced by menstrual periods.	0.669822058731162
7. The reoccurrence of a woman's period is a sign of good health.	0.154725065733003
8. Most women exaggerate the physical effects of menstruation.	0.831300716256586
9. When women speak about menstrual symptoms, they are using their period as an excuse.	0.232030028061731
10. People should not be critical of a woman who is upset before or during her period.	0.0300922141254064

Because the goal was to determine if there was a significant difference in the responses between college males raised with a menstruating female and college males raised without a menstruating female sibling, I used the $P(T \leq t)$ two tail values. The goal of using a two tailed value was to see if there was an increase or decrease (a difference) in the attitude statements between the two groups, whereas a one tailed value only tests for an increase or a decrease. The $P(T \leq t)$ two tail values were compared to the alpha value 0.05 (Figure 1).

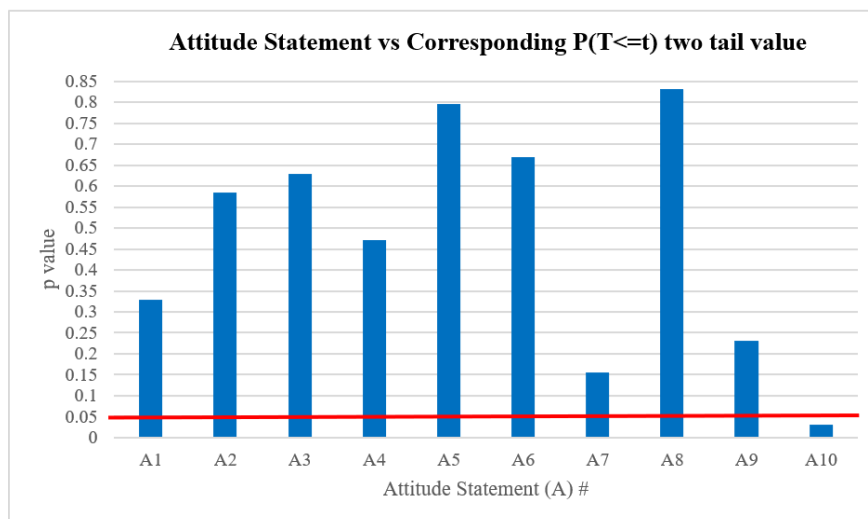


Figure 1. Comparing $P(T \leq t)$ two tail value of each attitude statement to the alpha value 0.05

Of the 10 attitude statements (A), statement 10 was the only statement where the responses from the two groups of college males were significantly different, as the $P(T \leq t)$ two tail value of 0.0300922141254064 was smaller than the alpha value 0.05. All the other $P(T \leq t)$ two tail values were significantly larger than the alpha value, meaning that there was no significant difference between the mean responses of each group.

Analysis

The hypothesis that the attitudes toward menstruation of college males raised with a menstruating female sibling would be different than those college males raised without one is not supported by the results of this study. Based on the analyzed data, nine out of ten of the attitude statements had no correlation, meaning that there was no significant difference between the responses of college males raised with a menstruating female sibling and those raised without one. This conclusion is based on the fact that the p values calculated from the t-Test were greater than the alpha value of 0.05. Of all the attitude statements, only one of the statements—statement 10—exemplified correlation and a meaningful relationship between being raised with a menstruating female sibling and attitudes toward menstruation. Because the minority of the questions had correlation, it is not enough data to support the relationship between these two variables. The attitude statement that showed correlation after the t- Test, “People should not be critical of a woman before or during her period”, is the only statement where the responses between the two groups of college males showed a significant difference.

Confounding Variables

Because of these findings, confounding variables such as health education, portrayal of menstruation in the media, and cultural taboos should be considered as these factors may influence the formation of attitudes toward menstruation in college males. To explore the extent of the impact of media, cultural attitudes, and health education on college males' perceptions of menstruation, one must highlight the importance of these aspects alongside factors such as being raised with a menstruating female sibling. According to a study by Benschaul-Tolonen et al. (2020), undergraduate students in Hong Kong were found to have different levels of knowledge and attitudes toward menstruation depending on whether they were in health-related programs (Benschaul Tolonen et al., 2020). All college males surveyed in this study had the freedom to major in any field, which means each individual would have focused on a different field of study. Likewise, one must consider that a college male may have other close relationships with females such as friends, mothers, partners, who may have also influenced their attitudes toward menstruation. For instance, in one study by Kumar et al. (2011), which studied cultural and social practices in adolescent girls, researchers found that education and family background directly influenced adolescent girls' menstrual practices (Kumar et al., 2011). This also implies that education and family background can influence a male's understanding and attitudes toward menstruation. Likewise, researchers found that girls who were better educated were more aware of their menstrual hygiene (Kumar et al., 2011). Because all menstruating female siblings referred to in this study are well-educated, this may also imply that the males they are close with are also likely to be more educated on menstruation. Based on the parameters set in this study, all participants were college males, and from Kumar et al.'s (2011) findings, educated men may also be more aware of menstruation (Kumar et al., 2011). These findings could be a key aspect as to why the attitudes of college males raised with a menstruating female sibling showed no significant difference from the attitudes of college males raised without a menstruating female sibling.

Additionally, it is crucial to consider the role of media and societal attitudes that may shape college males' perspectives of menstruation. Media portrayal and cultural norms, specifically ethnic cultures, play a large role in forming opinions and attitudes, often regardless of individual experiences. Media representations of menstruation have generally been limited and biased, frequently perpetuating stereotypes and stigma about the topic. Additionally, media such as advertisements for menstrual hygiene items often employ euphemisms and metaphors, avoiding direct

mentions of menstruation which reinforces the idea that it is a taboo subject (Bobel, 2010). Moreover, media portrayals tend to focus on negative aspects of menstruation, such as pain and inconvenience, while overlooking other perspectives that recognize menstruation as a natural and essential part of the female reproductive cycle (Johnston-Robledo & Chrisler, 2013).

These portrayals by the media can significantly impact college males' understanding and attitudes towards menstruation. A lack of accurate and comprehensive information from the media may lead to misconceptions and perpetuate negative stereotypes about menstruation, contributing to stigma and discomfort surrounding the topic (Schooler et al., 2005). College males exposed to these portrayals may develop a skewed perspective on menstruation, regardless of their personal interactions with menstruating females such as siblings.

In addition to media representations, cultural attitudes towards menstruation may also largely influence college males' attitudes. Cultural norms and attitudes toward menstruation vary across different societies, significantly impacting how different people approach the topic of menstruation. Menstruation is often considered impure or unclean in various cultures, causing menstruating individuals to be excluded from certain spaces (McMahon et al., 2011). Often, menstruation is avoided as a topic of discussion. These norms can create an atmosphere where menstruation is seen as shameful and private, rather than accepted and understood.

College males growing up in such environments may internalize these attitudes and develop negative views of menstruation, even if they have been raised with a menstruating female sibling (Seear, 2009). On the contrary, in cultures where menstruation is openly discussed and embraced as a natural process, college males may have more positive attitudes towards the topic (McPherson & Korfine, 2004). Based on these different contexts, situations such as being raised with a menstruating female sibling cannot be the sole influence on college male's attitudes toward menstruation. Each individual's living situation and family background is unique, causing their attitudes toward menstruation to vary accordingly.

Given the significant influence of media and societal attitudes on college males' perspectives, it is essential to consider their impact alongside factors such as being raised with a menstruating female sibling.

Being raised with a menstruating female sibling may influence attitudes toward menstruation, albeit a limited influence, based on previous research done on sibling influence (Kowal & Blinn-Pike, 2004). However, because of the findings from this study, which show that there is no significant difference between the attitudes of college males raised with a menstruating female sibling and those college males raised without, one must consider other confounding variables that may also influence these attitudes.

Limitations

A limitation in this study was the sample size. A total of 49 responses were collected and 48 of those responses were analyzed. Having more participants in this study would have allowed for a better and more accurate comparison of the relationship between being raised with a menstruating female sibling and attitudes toward menstruation. Another limitation of the study was the specific parameters set. The college males that were organized into two groups—one group with a menstruating female sibling and the other group without one—must have met certain criteria. For instance, many of the college males from the group raised without menstruating female siblings had sisters. However, the age gap between these college males and their sisters were 8-9 years. As stated earlier, one of the parameters set was that the age gap between the siblings must have been 2-5 years in order for the college male to have been present in the same household when the female sibling began menstruating. Yet, these parameters directly influenced the results. Having a sister in general, despite a larger age gap, could have changed the outcomes of this study. Another limitation that has also been found to be a confounding variable is the fact that all of the males surveyed are educated and going to college. Because of this, these males may have had more exposure to menstrual hygiene, practices, etc. through their education.

Implications and Future Directions

Although this study did not support the hypothesis, the focus and goal of the study still prove to be valuable as it explores a population that has not been investigated yet. The results support the notion that the attitudes of college males raised with a menstruating female sibling are similar to college males raised without one. A key area emerging from the current results is comprehensive sex education. The implications of this study could be applied to other factors such as sex education/health in schools. As of 2016, the California Department of Education requires schools to provide comprehensive sexual education in grades 7-12 at least once in middle and once in high school (California Department of Education, 2016). The findings that show no significant difference in the attitude statements between college males raised with or without a menstruating female sibling prompts the question of where these males are learning about menstruation or what could possibly be influencing their attitudes toward menstruation, which future research could possibly explore.

Confounding variables could be explored in future research on the other influences of attitudes toward menstruation, as well as possible solutions such as media literacy and campaigns. Educational programs and awareness campaigns can play a crucial role in changing public perceptions and creating a more inclusive environment where menstruation is acknowledged and understood (Sumpter & Torondel, 2013). Future variations of this study could adjust the parameters to explore whether relationships besides sibling relationships influence the development of a college male's attitudes toward menstruation. Other variables to consider in future variations of this study could explore education, media portrayal, and cultural values toward menstruation.

To conclude, being raised with a menstruating female sibling does not directly influence a college male's attitudes toward menstruation. The attitudes between college males raised with a menstruating female sibling and those raised without one are not significantly different. Based on these findings, confounding variables such as media representation, cultural norms, and education were established through previous works in the body of knowledge. These variables, alongside being raised with a menstruating female sibling, possibly influence a college males' attitudes toward menstruation. The implications of comprehensive sexual education from this study can be directly applied to the curriculum taught in California schools and whether this information is enough to accurately inform males about menstruation and positively influence their attitudes toward it. The findings from this study contribute to the existing conversation of attitudes toward menstruation by allowing future researchers to consider and investigate confounding variables from this study.

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