Cultivation of Comfortability: DivaCup Education for Students at a Midwest University

Lillian Minor, Morgan Worachek, Ashley Clark

Keely Rees, Katie Wagoner; Health Education and Health Promotion

ABSTRACT

The menstrual cup has existed for decades, but only in the 21st century has it become a popular tool used to support menstruation. The DivaCup is a specific brand of menstrual cup that is flexible, durable, and made of silicone. A local Eta Sigma Gamma chapter at a Midwest university received grant funding to purchase 40 DivaCups to recruit university students who menstruate and were interested in utilizing the DivaCup. IRB approval was received to conduct this research. Using the Health Belief Model, participants' perceived benefits and barriers to using menstrual cups were evaluated, as well as the ease of use, satisfaction with the product, and self-efficacy both prior to and after using the product for several months. Confidential pre- and posttests were distributed, and 18 total participants (N=18) completed both in their entirety. Reported benefits of the DivaCup included reducing cost/expense (44.4%), achieving zero waste (33.3%), and providing an easier method to support flow (11.1%). Reported barriers of the DivaCup included fit and comfort (44.4%), first use and the learning curve it requires (22.2%), limitations of public restroom use (22.2%), and leaking or messiness (11.1%). From the results of this study, the benefits of using the DivaCup outweighed the barriers, as most participants reported that they will continue to use their menstrual cup (72.2%). Overall, these data emphasize the need for more training and problem solving before the participants use the cup. There is also a need for more extensive studies on college students to alleviate these barriers and promote health education across a campus.

INTRODUCTION

The following study conducted at a Midwest university utilized the Health Belief Model (HBM) for behavior change to gain an understanding of college students' attitudes toward menstrual cup use. The menstrual cup offers a reusable, sustainable, toxin-free, and cost-effective alternative to single-use menstrual products. These benefits align with college students' general wants and needs of living a cost-saving, sustainable lifestyle free of harmful toxins. This study was conducted due to the need for more research on menstrual products and to understand the potential benefits to college students. By exploring the constructs of the HBM in a non-experimental pretest-posttest design, researchers were able to assess the students' use of menstrual cups. The HBM is limited, as it does not account for attitudes or beliefs that can help determine a participant's adoption and regular use of the menstrual cup. Therefore, questions relating to these factors were asked in the pre- and posttests to account for their influence in a participant's utilization of the product. Additionally, participants were asked the attitudes of their peers and family to understand the role social supports may play in self-efficacy or personal attitudes toward the menstrual cup. An overarching goal of this study was to provide a free DivaCups to 40 students, removing the barrier of cost, and ideally resulting in a continual use of the cup beyond the study. Overall, this study was conducted to gain a better understanding on college students' attitudes and opinions regarding the menstrual cup and how the menstrual cup can potentially benefit this population.

BACKGROUND

Over the course of history, women have used various forms of disposable products to support the flow of their menstrual cycles. During the 20th century, sanitary pads gradually became more affordable, accessible, and comfortable, making sanitary pads the most widely used form of menstrual products today (Femme International, 2016). Though pad use is most common, tampon use is not far behind, as more than 100 million people are using them globally. The average menstruating person will use around 11,000 tampons over the course of a lifetime ("Cumulative Exposure", 2016). This creates between 400 and 500 pounds of waste throughout an individual's years

of menstruation ("Plastic Periods", 2018). This amount of waste is significant and will continue to accumulate as tampons and sanitary pads remain the most widely used products to support menstrual flow at this point in history. Though the waste is significant in regard to climate change, the greatest impact on the environment comes from the low-density polyethylene (LDPE) used in plastic tampon applicators as well as the plastic adhesive on the back of a sanitary pad, which is associated with a large carbon footprint ("The ecological impact", 2016). Given that sanitary pads are primarily made of plastic (up to 90%) and tampons are most often encased in a plastic applicator, they break down into smaller pieces, or microplastics. These microplastics containing harmful chemicals (such as LDPE) are found on beaches, oceans, and almost all bodies of water and end up in our food and several sources of water. More research is needed on the effects of microplastics, but there is already sufficient evidence suggesting serious adverse effects on human health (Loria, 2020).

Alternative options to support menstruation are emerging and gaining popularity, as they offer sustainability and reduce personal waste. The menstrual cup is a sustainable product that was initially created 75 years ago, in 1935, by actress Leona Chalmers. This product was created as a reservoir to collect menstrual blood and offer flexibility throughout menstruation. Chalmers filed for a patent for this invention, but it did not gain popularity during her lifetime. Dialogue around women's bodies was stimulated by the feminist and environmental movements during the 1970s, and now, there are dozens of differing menstrual cup brands promoting sustainability, prioritizing health, and offering an alternative option to traditional menstrual products ("Leona Story", n.d.).

In 2001, the brand DivaCup was created by Francine Chambers and her daughter, Carinne Chambers-Saini. The DivaCup was introduced to the market in 2003, and has since become the top selling menstrual cup in the world. DivaCups are made of medical-grade silicone with no added chemicals, as a means to prioritize health of menstruating individuals. This product became popular because of its sustainability, cost-effectiveness, and its flexibility, as it can be worn for up to 12 hours at a time. A menstruating person may only have to empty the cup, rinse it, and reinsert it twice a day, compared to sanitary pads, which must be changed every three to four hours, or tampons, which must be changed every four to eight hours. These benefits align with common and prevalent ideologies held by younger generations, like that of Generation Z, born in the mid- and late-1990s and early 2000s.

Generation Z makes up the current majority of populations attending higher education at the university setting. Several traits that generally define this generation match up with the benefit, use, and need for menstrual cups. First, the population of students attending college from low-income backgrounds has grown dramatically over the past 20 years. The percentage of dependent undergraduate students in or near poverty has increased from 29% in 1996 to 39% in 2016. College students are generally mindful of cost factors and tend to worry about college costs and the burden of student debt (Mintz, 2019; Smith, 2019). The menstrual cup is a cost-effective method of managing menstruation, as it is a reusable, sustainable product. Regarding sustainability, younger generations are the most concerned about climate change and protecting the environment. According to a 2018 gallop poll, 70% of adults between the ages of 18 and 34 say that they are concerned about global warming (Reinhart, 2018). College students have taken an interest and put effort into protecting the environment, fitting with the benefits to the environment that menstrual cups offer. Despite the obvious alignment between the benefits of the menstrual cup and the goals of college students, there is a gap in research on ideas and attitudes toward menstrual cups, especially within the college student population, as it is a relatively newer product.

METHODS

Population and Sample

This study was conducted to evaluate university students' attitudes and opinions regarding menstrual cup use. The DivaCup was chosen based on a previous project and name brand recognition for students at this campus. Institutional Review Board approval was received from the university prior to data collection and participant involvement. To recruit participants for this study, members of a local Eta Sigma Gamma chapter volunteered to compile a list of interested students. To be included in this study, participants met the following criteria: a current student attending the same university, 18 years of age or older, have a vagina, regularly menstruate, and were willing to complete a pretest and posttest based on their experiences with the menstrual cups. The DivaCups were given to participants free of cost and were purchased through a grant that Eta Sigma Gamma received in the previous academic year from the university Green Fund. This research project fit with the mission of the Green Fund to promote sustainable practices via offering this reusable product to students. To receive the menstrual cup, participants were required to attend an educational session. Researchers facilitated this session outlining what the study would entail, the role of the participants throughout the process, and to educate participants on how to use and clean their DivaCup. Participants were asked to sign an informed consent, and any participant who could not attend

the session was met with separately, given the same information, and asked to sign an informed consent form. To maintain confidentiality, participants were required to enter the last four digits of their student ID number for the purpose of matching pre- and posttest data. Participant ID numbers were not matched to student names, and information was kept in a safe space that was only accessible to researchers. No identifying information was included in research results presented from the study. A total of 39 participants were given menstrual cups.

The pretest was conducted to assess the students' initial perceived barriers and benefits and their self-efficacy before utilizing a menstrual cup. This pretest was sent out to 39 participants in May of 2018 (before summer recess). User testing was conducted during the summer recess of 2018 (June through August). Following the three months of DivaCup use, focus groups were held from late September to early October (qualitative data from these groups will not be reported here). The posttest was sent out to participants in October of 2018 after the focus groups concluded to assess the ease, satisfaction, changes in benefits and barriers, support, and self-efficacy after utilizing their DivaCup for three months. Again, for the purpose of this paper, only the pre- and posttest data will be reported and described. There were a total of 18 participants (N =18) who completed both the pre- and posttests in their entirety, and this comprises the data reported here.

Measures

This was a mixed method study, as both qualitative and quantitative questions were asked on the pre- and posttests. An initial research team created the pretest and posttest, which consisted of 12 questions each measuring several different factors to gain a better understanding of personal perceptions and opinions regarding the menstrual cup and how it might affect the college student population. Within this study, the independent variables were the individual college-aged students who menstruate and the free DivaCup to be utilized for three months. The dependent variables, the analysis of which reflected the purpose of conducting this study, were as follows: the benefits and barriers college students face when utilizing a menstrual cup, self-efficacy of use, attitudes regarding the product, and the importance of social supports throughout this process. It is important to note that the only demographic data asked on the pretest was the age of participants, as the research team who initiated this study wanted to ensure simplicity by limiting the amount of independent variables in the study. Age was addressed, as participants were only eligible if they were 18 years or older.

The questions included in the pre- and posttests were modeled after the Health Belief Model as well as other factors, including social supports and attitudes. Regarding the HBM, questions included in both tests focused on the benefits and barriers of the cup as well as confidence of using the menstrual cup. Additionally, questions were asked regarding social supports, attitudes regarding ease and use of the menstrual cup, level of satisfaction with use, barriers to using, and general knowledge of alternative menstrual products. Lastly, participants were asked a question about how much money they would be willing to spend on a menstrual cup in both the pre- and posttest. The data from the surveys were extracted into an Excel spreadsheet and matched by identification numbers to be analyzed. The data were cleaned using case-wise deletion, removing all data sets that had unanswered questions within either the pretest and/or the posttest. Two sets of data (both the pretest and the posttest) were removed from the analysis process because of missing questions within either the pretest and/or the posttest. A total of 18 participants filled out every question from the pre- and posttest, both of which were administered via Qualtrics surveys. Of the original 39 participants who were given a DivaCup at the educational session, a total of 18 participants (N=18) fully participated.

As a mixed method study, researchers utilized qualitative and quantitative questions on the pre- and posttests and different types of analyses were required to analyze the clean data. For the quantitative data, descriptive methods were utilized to analyze comparisons from the pre- to the posttest. No statistical tests were run because the initial research team, who obtained the grant, created the pre- and posttests, and conducted the study, did not have matching questions from the pre- to posttest. A select few questions aligned from the pretest to the posttest, making a statistical analysis challenging. The second research team utilized frequencies and percentages to describe the participants' experiences was the most appropriate way to analyze and utilize the data provided.

RESULTS

From the pre- and posttests, 18 participants ranged in age from 19 to 34, and data will be described using the questions to guide the results.

Participants were asked about their level of excitement about using the menstrual cup, and they were given a scale with the lowest level being "not excited" and the highest "very excited" (see Figure 1).

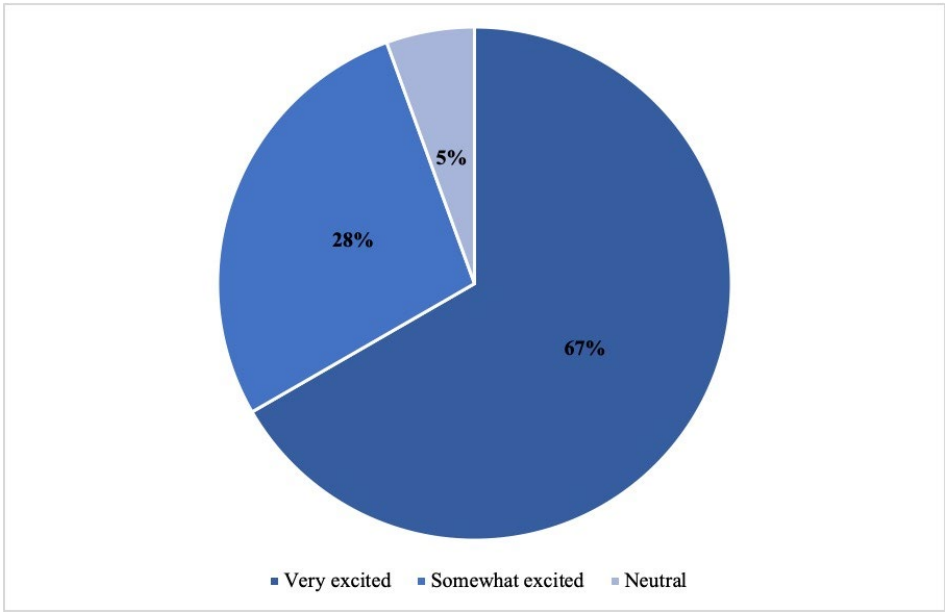

Figure 1. Participant's Level of Excitement to Utilize a DivaCup to Support Menstruation

The majority of participants at 66.7% (n=12) responded that they were very excited, 27.8% (n=5) reported being somewhat excited, and 5.6% (n=1) was neutral. No participant answered that they were not excited to use a DivaCup throughout the time period of this study.

Participants identified five major barriers that stood in the way of their prior purchase and use of a menstrual cup (see Figure 2). The most frequently mentioned barrier was cost at 56% (n=10), followed by a lack of awareness about either how to utilize a cup or about the existence of the cup in general at 28% (n=5). Three participants each identified unique barriers: ease of use at 5% (n=1), lack of access at 5% (n=1), and fear at 5% (n=1).

There were several questions asked on the pretest and posttest based upon the Health Belief Model, like that of benefits and barriers of the DivaCup, as well as other questions regarding social supports, costs, and willingness to continue utilizing the cup.

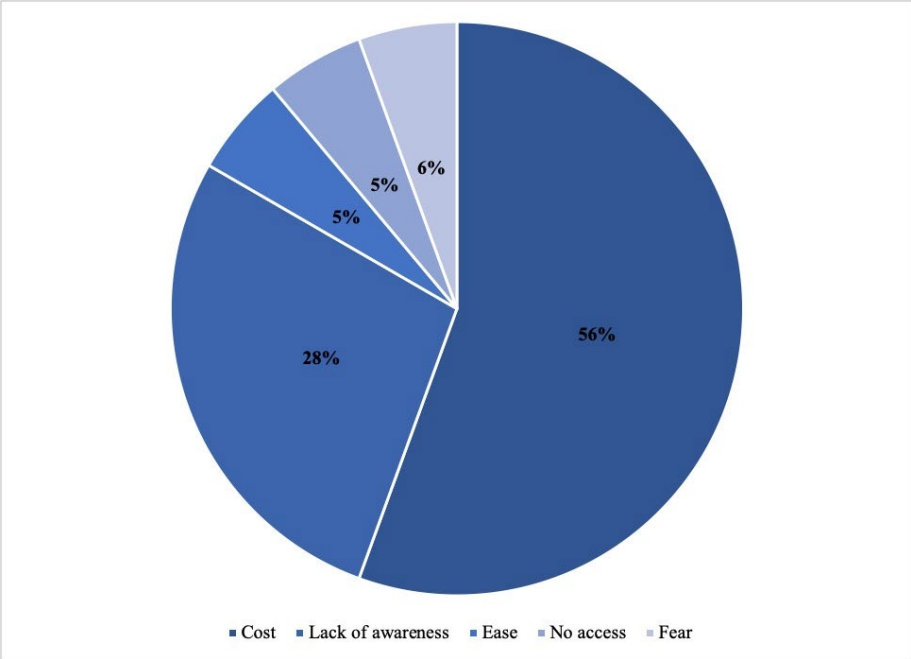

Figure 2. Barriers to Participant Use of a Menstrual Cup Prior to This Study

As a whole, participants identified four main benefits that before using the cup in the pretest, as follows: 44.4% (n=8) recognized a lower cost/expense, 33.3% (n=5) recognized less waste, 11.1% (n=2) recognized benefits to health, and 11.1% (n=2) recognized ease of use (see Figure 3). In the posttest, there were three main benefits listed, with the results as follows: 55.6% (n=10) reported zero waste/better environmental health, 22.2% (n=4) reported less expensive/cost efficiency, and 22.2% (n=4) reported ease of use as benefits. Participants did not identify different unique benefits from pre- to posttest.

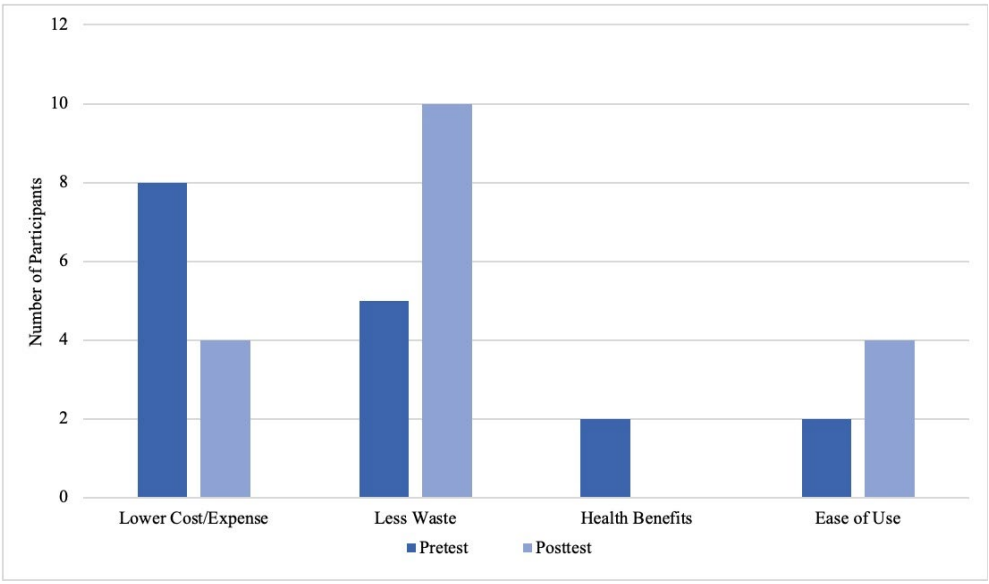

Figure 3. Identified Benefits of DivaCup Use from Pretest to Posttest

Six perceived barriers to menstrual cup use were identified from the pretest: fear, leaking/messiness, cost, none, public restroom use, and lack of knowledge (see Figure 4). Fear was the highest concern at 27.8% (n=5) of participants. This was followed by 16.7% (n=3) of participants indicating cost, 16.7% (n=3) indicating no known barriers, and, and 16.7% (n=3) indicating leaking/messiness as barriers. At the low end, 11.1% (n=2) of participants expressed barriers of both public restroom limitation and lack of knowledge. This question and its results were similar to that of the question asked in Figure 2, however this question focused more on participant's perceived barriers of utilizing a menstrual cup moving forward versus barriers that stopped participants from purchasing and utilizing a cup in the past.

In the posttest, the following were barriers that participants experienced after use: fit and comfort, first-time use, public restroom use, and leaking/messiness. After utilizing the cup for three months, the greatest barrier was fit and comfort of the cup, identified by 44.4% (n=8) of participants. On a related note, 22.2% (n=4) of participants identified their first-time use of the cup to be a barrier. Additionally, 22.2% (n=4) of participants found there to be a limitation of its use in public restrooms, followed by leaking/messiness as a barrier for 11.1% (n=2) of participants. Two of the four barriers in the posttest aligned with those from the pretest; participants identified two new barriers not previously identified in the pretest.

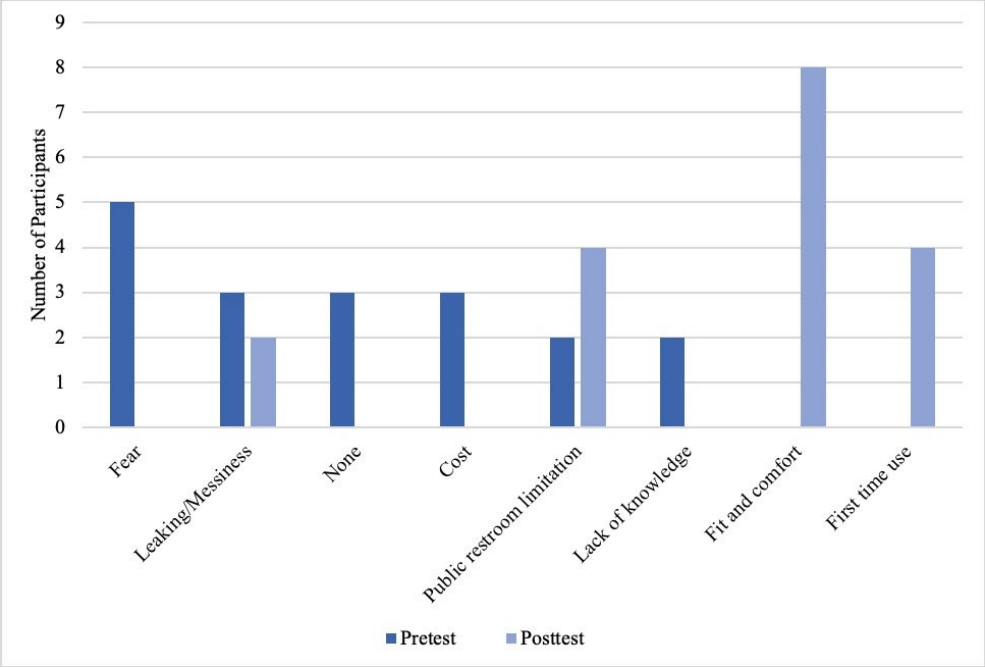

Figure 4. Identified Barriers of DivaCup Use from Pretest to Posttest

Identified in the pretest, about 61.1% (n=11) of participants indicated that they have a peer or peers that utilize a DivaCup, opposed to the 39.9% (n=7) of participants that indicated that they did not (see Figure 5). Participants were asked the opinions of their peers, if they have utilized a menstrual cup. Of the 11 participants with said peers, nine had positive opinions and two indicated that there is a learning curve.

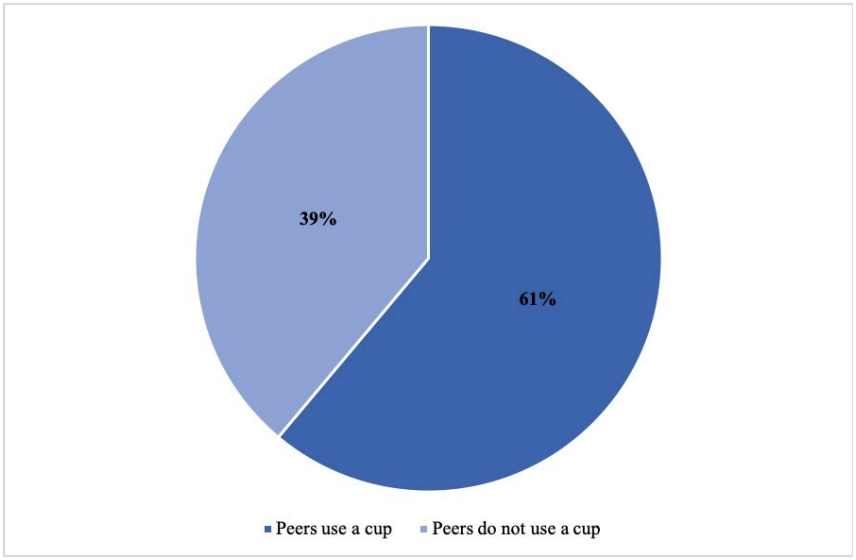

Figure 5. Participants Whose Peers Either Utilize or do not Utilize a Menstrual Cup, as Identified in the Pretest

Participants were asked if they could talk to their peers and family members about their DivaCup use and about 72.2% (n=13) indicated that they were able to. None of the participants indicated that they could not speak openly about the DivaCup, but 27.8% (n=5) indicated that they could "sometimes" talk with their friends and family (see Figure 6).

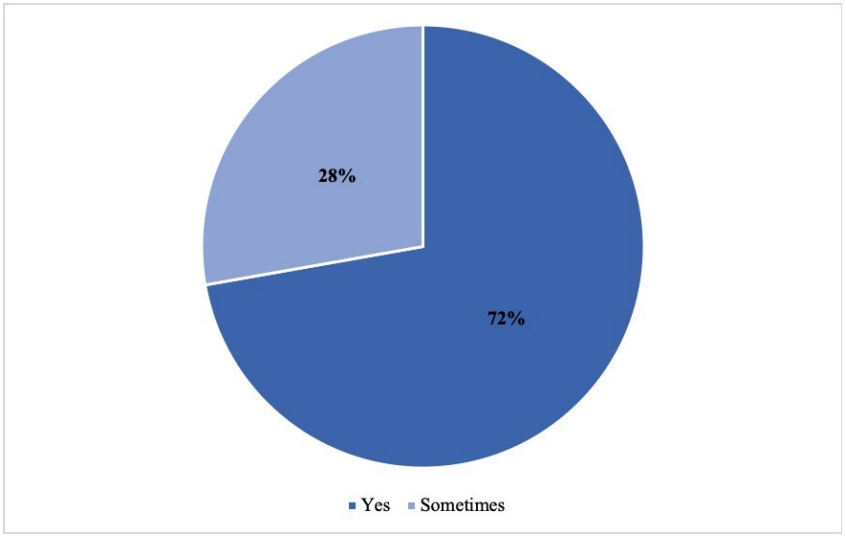

Figure 6. Participant's Ability to Talk Openly About Their DivaCup Use with Friends and Family Throughout the Study

From the posttest, the majority of participants felt either very supported or somewhat supported, 44.4% (n=8) and 16.7% (n=3), respectively. Alternatively, 38.9% (n=7) of participants felt supported by their friends, but not supported by their families (see Figure 7).

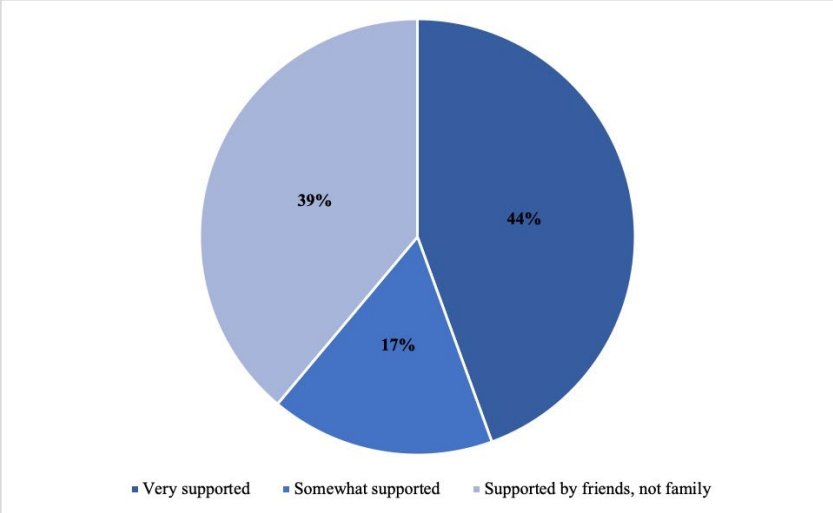

Figure 7. Level of Support Participants Felt from Family and Friends Throughout the Study

Participants were asked how much money they would be willing to spend both in the pretest, before use, and posttest, after use (see Figure 8). In the pretest, 38.9% (n=7) of participants reported that they would pay a range of $10-20, 50.0% (n=9) would pay $20-30, and 11.1% (n=2) would pay $30-40. The same exact question was asked in the posttest, and the results were as follows: 33.3% (n=6) reported that they would pay a range of $10-20, 44.4% (n=8) would pay $20-30, and 22.2% (n=4) would pay $30-40.

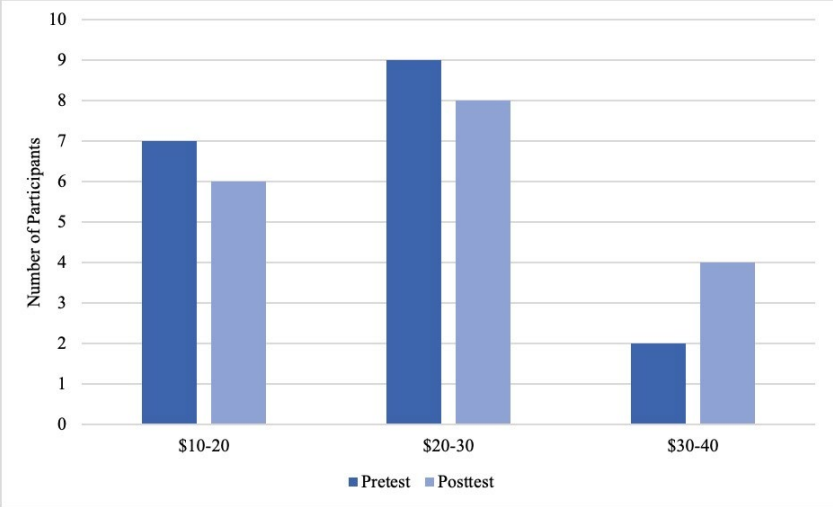

Figure 8. The Cost That Participants Were Willing to Spend on a DivaCup Prior to and After Use

In the posttest, participants were asked if would continue to use their DivaCup to support their menstruation, using a range of "yes", "no", or "maybe". The majority of participants, 72.2% (n=13), reported that "yes", they would continue to use their cup after this study was concluded, followed by 22.2% (n=4) of participants that reported they would "maybe" continue, and 5.6% (n=1) of participants who reported "no", they would no longer be using their cup (see Figure 9).

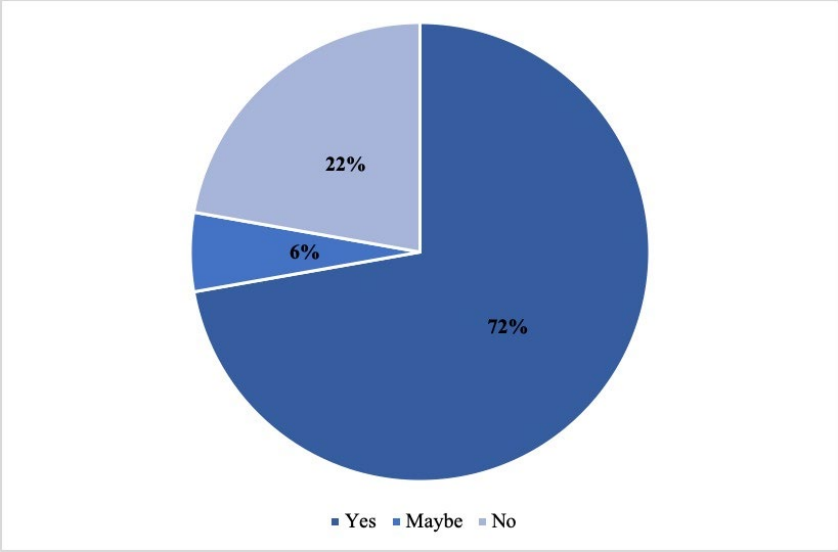

Figure 9. Participant's Willingness to Continue DivaCup Use After the Study's Conclusion

DISCUSSION

Research surrounding menstrual cup use are few and far between; sustainable menstrual products are not widely discussed or studied. There have been programs and menstrual cup distributions on college campuses, but data on this population are not abundant. One of the largest studies conducted is a systematic review and meta-analysis from several different databases which overall deemed this product as a safe method to support menstruation. The goal of this study was to identify studies published about the experience, leakage, and negative side effects associated with menstrual cup use. Authors also indicated a need for more studies regarding cost-effectiveness and environmental effect. This review also discovered that about 70% of users wanted to continue to utilize their menstrual cups after becoming familiar with them and practicing as well as having peer support (van Eijk et al., 2019). The results from the present study align with this pervious study, as about 72% of participants reported that they would continue to use their menstrual cup after the conclusion of the study. Additionally, this study demonstrated that the majority of the participants had friends or family that they could talk to about their menstrual health as well as some level of support from friends or family ("very supported", "somewhat supported", or "supported by friends, not family").

The data collected for the present study were gathered in a mixed-methods format, including qualitative and quantitative questions. This study yielded useful data to clarify perceived benefits and barriers of menstrual cup use, confidence in use, satisfaction with the product, and social supports throughout the study. The data collected reflected the overall purpose of the study, which was to understand university student's perceptions of the menstrual cup.

Participants voluntarily signed up for this study, so understandably, about 95% of participants were excited or somewhat excited to use their menstrual cup. This potentially speaks to the self-efficacy component participants may or may not have had coming into the study. If they were not excited about using a menstrual cup, that may have impacted the experience they would have, and some potential participants may have elected not to participate due to low excitement and/or self-efficacy. Additionally, in terms of social supports, about 62% of participants indicated on the pretest that they had a friend or peer who already utilized a menstrual cup. This social support may have led participants to engage with and participate in the study out of curiosity and what they have heard or learned about the product from said friend(s) or peer(s). Social supports play a vital role in the use of a product or change in behavior and this could have been a reason this group of participants elected to participate in the study. Social supports in relation to menstrual cup use among college students could be the sole focus of another study.

Two important constructs from the Health Belief Model, benefits and barriers to product use, were asked about on both the pre- and posttest and compared to one another (see Figures 3 and Figure 4). The benefits that participants listed in the pretest remained consistent in the posttest, with the exception of "health benefits", which participants did not mention in the posttest. Cost-effectiveness was identified by participants as the greatest benefit,

followed by less waste, health benefits, and ease of use. The identification of cost-effectiveness as the greatest benefit aligns with the reasons as to why they did not utilize a menstrual cup in the past, with over half of the participants (56%) identifying cost as the main reason why they never experimented with a menstrual cup. Since participants received a DivaCup free of cost, it is likely that this is connected to the identified benefits, as demonstrated in the results of the pretest. In the posttest, the order of these benefits shifted, as less waste became the most commonly identified benefit by participants. Participants noted that their use of menstrual cups produced less waste than single use, disposable products such as sanitary pads and tampons. This benefit aligned with the funding organization's mission of waste reduction and sustainability promotion on campus.

Participant-identified barriers did not align from pre- to posttest like they did for the identified benefits. Initially, participants identified barriers of fear, leaking/messiness, no barriers, cost, public restroom limitation, and lack of knowledge as barriers. In the posttest, participants identified fit and comfort, first time use problems, public restroom limitation, and leaking/messiness as barriers. The only two matching barriers from pre- to posttest were leaking/messiness and public restroom limitation. Fear, cost, and lack of knowledge were not identified in the posttest, likely because participants attended an educational session that provided knowledge that participants may not have had on how to use and care for the product. Additionally, the barriers in the posttest might have not been recognized as a barrier before trying out the product. Participants may not have known that the fit and comfort level would be a barrier before using the DivaCup. However, after trying out the product, participants identified this as the top barrier, followed by overcoming a learning curve associated with its first-time use. Again, cost was not mentioned, likely because participants received the DivaCup free of charge. Fear was also not mentioned as a barrier in the posttest, and this could be for several reasons. It could have been in part due to the educational session, participating in the study with several other people using this product for the first time and connecting at this session, social support from friends and family, and other reasons. This product was likely intimidating initially as it differs from sanitary pads and tampons, requiring more comfortability with the body.

The social support that participants experienced from friends and family could have influenced attitudes and perceptions throughout any of these processes. When trying something new, especially something personal such as a menstrual cup, talking about it with peers or other supports can help people feel more comfortable. Most of the participants (about 72%) had friends or family that they could talk to openly about their DivaCup use. There was not an option that differentiated talking with friends or family, so participants may have had support from either friends or family, but this was not determined by the question asked. The data collected about social supports is informative, but there were no questions asked about the relevance of social support in their perceptions or experience. Again, this could be the focus of an entire study within this population.

Lastly, most of the participants (n=13) indicated that they would continue to utilize their cup. Participants were also willing to spend more money on a menstrual cup after trying one out during this study. Cost seemed to become less of a barrier when participants were able to try a cup without any guilt or fear that they would waste their money. After experiencing and identifying the benefits that the DivaCup provided them, they were seemingly more willing to overcome this cost barrier and spend more on a cost-saving, reusable, and sustainable menstrual product.

Strengths and Limitations

This study gave researchers insights on college students' opinions regarding menstrual cups and what worked and did not work for them. Conclusions drawn from these data explore what education and information could be shared in future studies if this study or one like it were to be replicated. Participants who continue to use their DivaCups will ultimately create less waste, save money, and have an easier time managing their menstruation. This study provided descriptive data that may educate health educators and people who menstruate, as it gives insight into students' perceptions on a newly popular menstrual product.

There were some limitations to this study. First, there was high attrition within this study; a total of 40 students were given a DivaCup and 18 data sets were useable, as mentioned. This might have led to attrition bias, as those who were already inclined to use this product may have been the individuals who stayed in the study. This is hard to discern, but it must be addressed as a limitation of the data collected. These data were also challenging to analyze because of the survey format: some of the same questions were inconsistently quantitative and qualitative from pre- to posttest. Another limitation was the lack of matching questions from pretest to posttest. Without matching questions, it was not possible to perform statistical analyses to determine significance.

Additionally, the format of the pretest and posttest resulted in several limitations. First, as mentioned previously, age was the only demographic data collected to limit the number of variables studied. Variables were limited because of the relatively small sample size and the similar demographics of students at this campus, as the students are predominantly white and cis-gender and typically share the same income and education levels. Future

studies could focus on one or more of these variables to determine the potential influence of these variables on this population's experience with a DivaCup. Lastly, self-efficacy is a critical part of the Health Belief Model and matching questions were not asked about this construct. If it were to be repeated or done again in the future, this should be a crucial consideration throughout the study. Overall, the data gained from the pre- and posttests were important and informative, but with more refinement could have been more statistically significant.

Implications for Research and Practice

In order to make the DivaCup and other menstrual cups more accessible to a multitude of individuals, continuous research needs to be conducted to raise awareness and conversations around sustainable menstrual products. As with any new advancement, thorough and ongoing research on the menstrual cup is needed to provide consumers with the education and knowledge to use the product. This study explored college student-identified benefits and barriers related to menstrual cup use and how that impacted their experience of the product. For future studies, reaching a broader network and greater population of menstruating individuals will provide more information about benefits and barriers among a more diverse population. The more education that can be provided, the more benefits will be experienced (less waste, cost-effectiveness, and an easier menstruation experience). Studies such as this one will be critical in troubleshooting, problem solving, and properly preparing for the widespread transition from traditional, single-use sanitary pads and tampons to sustainable, reusable menstrual cups.

Again, peer support is an incredibly important factor to study in relation to menstrual health. Research conducted in 2009 studied peer effects in menstrual cup use and adoption. This study concluded that since this cup has only recently become popular, it is still new, unfamiliar, and can be intimidating. There was strong evidence suggesting that peer exposure, or multiple friends in a group utilizing this product simultaneously, encourages individuals to adopt more quickly to the use of the cup (Oster & Thornton, 2009). With this information, further studies can be conducted focusing on a "buddy system" approach targeting groups of females (perhaps those sharing a house, apartment, or living situation) to test the product within the same study to gain a better understanding of how peers may play a role in the menstrual cup experience.

Research on menstrual cups does not stop at a college student population; there are great opportunities to broaden the reach of this research with different populations or groups of menstruating individuals. The college student population identified cost as a main barrier as to why they have not utilized a cup in the past and this population is not the only one living with a limited income. There are opportunities for advancement and research for menstruating individuals of all different backgrounds and demographics that would benefit from a study like this one. This research was conducted in hope that it would open up the conversation surrounding menstruation and that hope continues in the future as the use and popularity of sustainable menstrual products grows.

REFERENCES

Cumulative exposure and feminine care products. (2016). Retrieved from http://www.safecosmetics.org/get-the-facts/healthandscience/cumulative-exposure-and-feminine-care-products/

DivaCup. (n.d.). Retrieved from https://divacup.com

Leona story: Bringing freedom during those days of the month. (n.d.). Retrieved from https://leonacup.com/pages/leona-story

Liswood, R. (1959). Internal menstrual protection. *Obstetrics & Gynecology, 13*(5), 539-543.https://journals.lww.com/greenjournal/Citation/1959/05000/Internal_Menstrual_Protection__Use_of_a_safe_and.3.asp#pdf-link

Loria, K. (2020). How to eat less plastic. *Consumer Reports.* Retrieved from https://www.consumerreports.org/health-wellness/how-to-eat-less-plastic-microplastics-in-food-water/

Mintz, S. (2019). Are colleges ready for Generation Z? Retrieved from https://www.insidehighered.com/blogs/higher-ed-gamma/are-colleges-ready-generation-z

Oster, E., & Thornton, R. (2012). Determinants of technology adoption: Peer effects in menstrual cup take-up. *Journal of the European Economic Association, 10*, 1263-1293. https://doi:10.1111/j.1542-4774.2012.01090.x

Peña, E. F. (1961). Menstrual protection. *Obstetrics & Gynecology, 19*(5), 684-687. https://journals.lww.com/greenjournal/Citation/1962/05000/Menstrual_Protection__Advantages_of_the_Menstrual.19.aspx

Reinhart, R. J. (2018). Global warming age gap: Younger Americans most worried. Retrieved from https://news.gallup.com/poll/234314/global-warming-age-gap-younger-americans-worried.aspx

Sabrina. (2013). The history of the sanitary pad. *Femme International. https://www.femmeinternational.org/the-history-of-the-sanitary-pad/*

Shreya. (2016). The ecological impact of feminine hygiene products. Retrieved from https://digital.hbs.edu/platform-rctom/submission/the-ecological-impact-of-feminine-hygiene-products/#

Smith, A. A. (2019). Study finds more low-income students attending college. Retrieved from https://www.insidehighered.com/news/2019/05/23/pew-study-finds-more-poor-students-attending-college

Van Eijk, A. M., Zulaika, G., Lanchner, M., Mason, L., Sivakami, M., Nyothach, E., Unger, H., Laserson, K., Phillips-Howard, P. A. (2019). Menstrual cup use, leakage, acceptability, safety, and availability: A systematic review and meta-analysis. *The Lancet, 4*(8), 376-393. DOI: https://doi.org/10.1016/S2468-2667(19)30111-2