



Title: Young women's perceptions of sustainable menstrual products

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Year: 2021



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Young women's perceptions of sustainable menstrual products

by

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Research Project Submitted in Partial Fulfilment of the
Requirements for the Degree of
Master of Applied Management

in the School of Business
Faculty of New Media, Arts and Business

SOUTHERN INSTITUTE OF TECHNOLOGY
(An affiliate of the New Zealand Institute of Skills and Technology)

Supervisor: Dr Sally Bodkin-Allen

Due Date: Tuesday 14th December 2021. 5pm.

Word Count (excluding contents and appendices): **20,092**

Abstract

Sustainable menstrual products are not new technology but have been slow to become popular especially with young women. The way that information about sustainable menstrual products is presented to young women promotes uptake yet does not necessarily mean usage. The purpose of this study is to find out how young women perceive sustainable menstrual products and how their knowledge, or lack of, affects their product choices. The findings taken from an online questionnaire showed a low likelihood of uptake of the sustainable menstrual products due to lack of knowledge. From a thematic analysis taken from a focus group of young women showed that there was a lot of uncertainty, nervousness, and lack of confidence. The major findings from this study were the need for training and education about the products that are available for young women. This helps them make a well-balanced and well-informed decision about their choice of product. A general conclusion is that there is a gap in young women's knowledge about sustainable menstrual products, instruction on how to use them and where to get them. A recommendation for this study is to extend the focus groups to all years groups at the chosen high school to see there are any patterns or commonalities throughout the different age groups.

Dedication

This project is dedicated to my family who have continually supported my creativity, ideas, difficulties, and challenges throughout my study and always pushed me to strive for better things. To my auntie and uncle who sadly passed away mid study year and to my best friends who champion my study as if it were their own.

Acknowledgements

This section acknowledges my participants for their openness, honesty, and willingness to take part in this study and to their teacher Nicola Hawkes for her enthusiasm and support in making the research happen. To Fudgey Pants and the Wā Collective for providing messages of support and sample products to use for the study. An acknowledgement to my supervisor, Dr Sally Bodkin-Allen for her motivation, constructive feedback, and continual support throughout this project.

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Chapter 1. Introduction

1.1. Introduction

This study looks at young women's perceptions of sustainable menstrual products and how learning about alternative products might affect their attitudes and uptake of them. There are multiple different reusable menstrual products on the market today but for the purpose of this study the research will focus on three products, menstrual cups, reusable period underwear, and reusable sanitary pads. It is a project that looks to have an impact on the mindset of the group of young women who participate in the research and to improve knowledge about alternative sanitary product options. The topic contributes to the fields of feminine identity, the environment, health and well-being and education.

1.2. Statement of the problem

Menstruation is a natural process that all those born female are likely to experience, which is about 50% of the world's population. Chavez-Macgregor et al., (2007) suggest that women have approximately 451 menstrual cycles in a lifetime. This is supported by Chamberlain and McGrattan (2020) who estimate that women have approximately 500 periods in a lifetime. Zraick (2019) gives statistics in days asserting that women spend 2,535 days or around 7 full years on their period. Borowski (2011) asserts that women spend approximately 40 years of their lives on their menstruation cycle. Menstruation and periods are part of reproduction, defines a large part of a woman's identity and is a part of any menstruator's daily lives. It also affects their physiological and emotional health and their lifestyle choices (Hill, 2019). It is a topic that has been kept relatively quiet, yet as society has evolved, technology and education has developed. The female population are starting to ignore taboos, expand their learning, they have started talking to each other and confronting the culture of silence around menstruation (Hill, 2019; Srinivasan et al., 2019; Tiwary, 2018). For the present study, the focus will be on young women who are of high school age. This is to have a more concentrated sample and the language throughout this research project will be towards those who identify as female.

The research problem stems from multiple other fields. One of these is environmental waste, how much menstrual waste adds to landfill and goes into the globes sewage systems or just discarded

from the home every year. In the United Kingdom Ashley et al., (2005) suggested that 4.6 million tonnes of menstrual waste items are flushed down the toilet every day (p. 207). This waste included tampons, disposable sanitary pads, and disposable panty liners. According to Ashley et al., (2005) the problem of sanitary waste is under more scrutiny than before, even with the growing problem of climate damage, sanitary waste is still not a prevalent topic of conversation amongst young women. Without education on the issue of sanitary waste young women cannot understand or take responsibility for their effect on the environment. By exposing and offering young women a more sustainable menstrual product option this will affect their consumer, life, health, and well-being choices and give them the opportunity to make a more informed decision. Young women who choose a reusable option may save themselves money, time and contribute less to landfill (Davidson, 2015).

Awareness and knowledge gaining on sustainable menstrual products, women's health and well-being is an area to be explored. Ignorance can create longer-term issues for the environment, education system and the next generation of women abstaining from talking about the worries they have with menstruation. With this idea in mind exposing and educating younger, more impressionable, and adaptable women to all the options of products from an earlier age through school programs, social media, advertisements, and word of mouth will make product awareness more widespread (Campbell et al., 2021; Grose et al., 2014; Liu et al., 2021; Oster & Thornton, 2012). These channels of education give young women and adolescents more opportunities to educate themselves and potentially overcome fear of their body, decrease period poverty and negativity and disgust relating to menstruation (Wootton & Morison, 2019). By changing the way adolescent girls are educated and introducing them to products earlier, will help to develop confident more environmentally aware young women in the future (Donovan & Telfar-Barnard, 2019; North & Oldham, 2019). The internet and social media have provided a safe and private space to learn and seek information, debunk taboos, and answer any awkward questions a young woman might have (Liu et al., 2021, p.1). Also, by allowing young women to collect information more freely helps to normalise and address other issues such as menstruation shame, body inclusivity, changing body perceptions, gender identity and understanding menstruation and reproduction more fully without embarrassment (Liu et al., 2021, p.1).

To look at why more research is needed studies conducted in third world and developing countries such as Kenya, Nepal, Uganda, and India have led the way in research on the effects of using

menstrual cups on groups of women. Research done in India looked at young men and young women's knowledge and awareness of menstruation and what their thoughts were (Srinivasan, 2019; Tiwary, 2018). Other studies in Nepal, Uganda and Kenya focused on menstrual cups, ways to educate and train women on the usage of them, to see how this affected uptake of the product (Crichton et al., 2013; Oster & Thornton, 2009; Phillips-Howard et al., 2017). These studies are a small representative of studies conducted on the topic of menstruation and sustainable menstrual products. They show that there is still a gap in research in first world countries such as New Zealand, North America, United Kingdom and Australia. Limited research has been done specifically on the usage of sustainable menstrual products or research that shows any constructive or societal shift away from one-time use products. Through exploring current perceptions and awareness of sustainable menstrual products there is the opportunity to impact the minds of a generation to think differently and empower young women to seek out all the options of products they can use and, feel in control of themselves (Borowski, 2011; Hill, 2019). Taking the opportunity to study the area of sustainable menstrual products delves deeper into other areas that affect young women in first world societies such as period poverty.

Period poverty is a topic that ties into the research as it not unique to third world countries where the studies were carried out. Wootton and Morison (2019) found period poverty was an area that needed to be addressed in New Zealand and this research could help to put more focus and research on to it. As the present research is being done in New Zealand all suggestions and opportunities of change will be pitched towards New Zealander young women. The New Zealand government introduced an initiative that supplies high school students with free sanitary products at their schools (Ministry of Education, 2021). This is an opt-in opportunity for schools which means not all adolescent girls may get the access to the free products and the choice is limited to one-time use only sanitary pads and tampons. The government has secured funding until 2024 for this initiative, where high school students can bulk order the products and sizes that they need, the products are organic, but none of the organisations are providing reusable options (Ministry of Education, 2021). However, young women must keep going back to acquire the products. The initiative is a positive step towards equity amongst young women yet does not address the negative effect on waste and the environment or the need for the development of menstruation education about all menstrual products available.

In the research a pragmatic approach (Saunders et al., 2016, pp. 142-144) has been applied with the aim "to contribute practical solutions that inform future practice" (Saunders et al., 2016, p. 142).

Alongside a mixed methods design (Creswell & Creswell, 2018, pp. 10-11) was used to collect qualitative and quantitative data to look at the thoughts and perceptions of young women about products they are choosing to use, whether they are one-time use or multi-use products. The quantitative data was gathered through an online questionnaire sent to a large group of young women 16 years and over. The qualitative data was collected from two separate focus groups that were conducted with year 9 and then year 12 students at an all-girls high school. The research looks to inform and impart knowledge and information to young women and potentially extend the knowledge to other women such as their mothers, caregivers. Also, the research looks at the possible gap in the education system developing health classes to create more talking opportunities and places where young women can discover sustainable menstrual products.

1.3. Significance of the study

This study is beneficial to young women and those who menstruate who are looking for alternative products to manage their hygiene and menstrual cycles, to look at the way that menstrual products control our social, financial, and environmental awareness. This is a social enterprise type project to educate and raise awareness to help specifically young women make informed and educated decisions for their bodies and feel less influenced by the social norms and patriarchy (Hill, 2019). It is an educational research project to seek a longer-lasting, money-saving, and more hygienic way for young to manage menstruation, to influence the mindset of a generation, to potentially benefit health and well-being education and encourage more attention on menstruation education for young women. The research project is relevant to Applied Management because of the emergence and growth of sustainable business practices in New Zealand. By creating places and talking platforms where sustainable and reusable menstrual products are shown, menstruators can be informed and encouraged to use them by influencing their consumer habits and through the development of menstruation education. There is the opportunity to include trans men and those who identify as non-binary.

1.4. Research question/aim and objectives

The research question is, how do young women perceive sustainable menstrual products? The aim of this research is to explore young women's perceptions of sustainable menstrual products.

The objectives for this study are:

1. To determine how young women get knowledge of sustainable menstrual products.
2. To investigate the significance of education and resources on sustainable products.
3. To ascertain which sustainable menstrual products are preferred and why.

1.5. Structure of thesis

The research project is divided into six chapters; Chapter one has introduced what the research project was exploring. It stated the problem of period poverty and the significance the research has on studying the environmental impacts of sanitary waste. Also, the opportunity to raise awareness and impart knowledge to young women about sustainable menstrual products.

Chapter two explains the feminist theory on menstruation and how it has created a platform where sustainable menstrual products can be discussed. The next section of the chapter is an industry analysis to investigate the field of research which the research project contributes towards.

A literature review follows in chapter three. The literature review examines published literature in this field of research. The literature covers topics such as sustainable menstrual products, sanitary waste awareness and public awareness of the different sustainable menstrual products and where research is being carried out on sustainable menstrual products. These topics all contribute and influence the reasons for present study topic.

In chapter four the method of data collection will be explained more fully, including the research philosophy and study design. Then the methods of data collection, an online questionnaire and focus groups. Then the limitations, reliability and the bias of the study will be discussed followed by the ethical considerations of the study.

Following on in chapter five are the results of the online questionnaire and the themes identified from the focus groups. The results will be analysed to present the findings of the research project.

The last chapter will give recommendations for further research after the study is complete, a discussion on the relationship the present study has to previous research, then the limitations of the

whole study will be explored and the recommendations for future research. The last section is the conclusion to corroborate the entirety of the study.

Chapter 2. Theory and Industry Analysis

2.1. Introduction

The following chapter provides a real-world application for the focus of the research into young women's perceptions on sustainable menstrual products. The chapter is divided into two main sections. It begins by presenting an exploration of relevant theories, such as feminist discourse analysis. The second part of the chapter is an industry analysis of sustainable menstruation products which includes the history of menstruation products and a SWOT analysis of the three sustainable menstrual products in the present study.

2.2. Theory analysis

Feminist discourse theory

This section of the chapter explores feminist discourse theory on menstruation. It explores how women are normalising menstruation by talking and communicating about it through different channels, such as social media, consumerism, talking and advertising. Culling (2001) asserts that "feminists played down menstruation, there was very little written about it, and what was written tended to vacillate between discounting any effects it had on women's lives and suggesting it would be pleasant if women did not bleed" (p. 54). This suggests that in the past there must have been discretion around the topic of menstruation and that it was not a popular topic of conversation. Contradictory to Cullings statement the feminist movement has been able to bring menstruation onto the talking platform in the form of artwork, writing, creative projects and women talking to each other. Tennant and Brookes (1998) suggest that around the 1960s and 1970s feminism and menstruation became more of a talking topic. Culling (2001) supports this by stating that the seventies were the start of explicitness towards menstruation through the "Women's Health Movement" and it proceeded to make it a topic for discussion, information collection and sharing (pp. 55-56). Tennant and Brookes (1998) note that "women's lives and the domestic sphere, once regarded as trivial and somehow changeless, began to attract scholarly attention" (p.178). This encourages natural processes, like menstruation, to be explored in research and as a regular talking topic between women themselves. Bobel (2010) suggests that women were viewed as "other" and

that the spoken and written English language fails to represent menstruation in a useful way (pp. 28-29).

A wave of females who were called menstrual activists or menarchy, which is a mix of menstruation and anarchy, were offering positive ways to view menstruation and looking at how to normalise menstruation into mainstream society (Fahs, 2018, p. 3; Koskenniemi, 2021, p. 2). According to Bobel (2008) menstrual activism came in the form of the “Women’s Health Movement” which is deemed the ‘grandmother’ of menstrual activism that came about in the late 1960s and early 1970s (p. 740). The emergence of the women’s health movement to menstrual activism, have given women the chance to defy the patriarchy by talking about topics effecting females. Topics that have been brought out from menstrual activism are menstruation, period product options, physiology, and psychology of being a woman. Young women experience “negative discourses of menstruation and women’s bodies converge to set girls on a problematic gendered trajectory at menarche that can be expected to inform meaning making and experiences across the lifespan” (Jackson & Falmange, 2013, p. 379). Menstrual activists help women to be more open and accepting of their menstrual cycles, they also promote alternative menstrual products that are not hugely popular in mainstream media and critique commercials and advertisements that do not show menstruation in a natural way (Fahs, 2018, p. 1). This seeks to change the culture around menstruation by tackling “the consumerist, shame-based, patriarchal and sexist basis of menstrual management and menstrual hygiene today” (Fahs, 2018, p. 3).

Koskenniemi (2021) notes that in the early 1990s the term “commodity feminism” was created to adopt feminist discourses on marketing goods for women associating this with purchasing decisions, individualism, and body freedom (p.3). This shows that women are influenced by marketing that they see around them and that targeted advertising and targeted marketing campaigns can be beneficial for advocating sustainable menstrual products. Culling (2001) notes that “menstrual product advertising is identified as a prevailing context that surrounds young women as they become menstruants” (p.i). This supports the idea that young women are influenced by what they see around them, in supermarkets, on social media and the internet.

Menstrual equity is a term relating to all women having equal access to menstrual products and information on menstruation and reproduction (Zraick, 2018). Furthermore, the theory of talking has created government shifts towards not taxing menstrual products, for example Canada, Kenya and

Uganda have abolished sales tax, Australia is moving towards this and other countries such as the United States and Zimbabwe are subsidising or campaigning to abolish the sales tax (Zraick, 2018). Many countries such as New Zealand, Scotland, Wales and England are offering young women in schools, or in full-time education, free products (Department of Education, 2020; Ministry of Education 2021; The Scottish Parliament, 2021; Welsh Government, 2020). Gaybor (2020) notes that there are groups on social media, and blogs, which are creating a pedagogical place to get information, voice concerns and build a community to talk about menstruation and the female body (p. 1). This type of sharing encourages young women to seek out their own knowledge they feel like they are lacking and do it in a private and focused space.

The different feminist terms that have been formed over the years have built a platform of talking and casting away previous timidity towards menstruation. Menstruation activism has helped to reform the feminine care industry and raised awareness about products, health, and education development. Menstruators have potentially become curiously and are questioning and discussing taboos, doubts, and stigma which is helping to normalise or even abolish them. Bobel (2008) argues that written feminist materials are resisting dominant attitudes towards menstruation and “demanding that women’s voices be heard and calling the menstrual product industry to account” (p. 739). The rise in conversations from menstruation activists on normalising periods have allowed sustainable menstrual product companies openness towards sharing and talking about them (Racked, 2016).

2.3. Industry analysis

The following section explores the menstrual product industry and a SWOT analysis of the sustainable menstrual products in the present study. Throughout history women have found ways to manage their menstruation using different products and methods for example, banana fibre, bark, moss, newspaper, torn up clothing as rags, gauze and bandages, pads, tampons, menstrual cups, discs, reusable pads, and reusable underwear (Simple Health, 2021). Roe (1992) claims that “absorbent personal care products are unchanged from prehistoric time” (p. 11). Devices throughout the last century were “intended for menstrual collection, contraception, uterine/pelvic support, drug delivery, and as a conception aid for retention of semen over the cervix” (North & Oldham, 2011 p. 303). With the rising interest and urgency towards climate change, the effect different products have on the environment, along with sanitary waste and its disposal, are subjects which have come under scrutiny. Over the years menstrual product modernisation and commodification has increased.

Davidson (2012) states that “it has increasingly been argued that we should foster sustainable consumption” (p. 56). There are an increasing number of menstrual products on the market that are one-time purchases for multiple usages. New Zealand has companies that are producing and advertising sustainable menstrual products to menstruators all over the country and for all age groups. This section will discuss the variety of sustainable menstrual products that are available around the globe including the menstrual cup, the reusable sanitary pad and reusable period underwear. There are also reusable tampon applicators and reusable tampons. The popularity of the reusable and more sustainable products has created the opportunity for more brands to enter the market.

History of the menstrual discourse and products

This section examines the development of sanitary products through the last century, including modernisation and popularity with a particular focus on the development of sustainable menstrual products. These criteria have carried through the years. For years “women have been using rags as makeshift pads, leading to the term ‘on the rag’ becoming slang for menstruation” (Simple Health, 2021). The rags were worn inside the underwear or in the 19th century inside bloomers. Rubber underwear was worn under skirts to help shield from stains, also wool and raw waste fibres, anything that had good absorbency (popsci, 2021). Modernisation of menstrual products has been on the rise, with women seeking the most absorbent and longer-lasting products, ones that do not ruin clothing and are discreet. Studies from the United Kingdom, United States and Zimbabwe (Ashley et al., 2005; Davidson, 2015; Madziyire et al., 2018) have highlighted that technology and views for menstrual products has changed to make them easier to use and make them more eco-friendly.

Sanitary pads have been shaped and formed in different ways throughout the years. Femme International (2016) notes that “the first pads were made from wood pulp bandages by nurses in France. It was very absorbent, and cheap enough to throw away afterwards”. This was an innovative idea that women themselves came up with the help manage their menstruation. The earliest commercial menstrual pads are reported to have been made in 1896 developed from the pulp bandage idea by the famous Johnson & Johnson brand and called them, ‘Lister’s Towel: Sanitary Towel’s for Ladies’ (Femme International, 2016). They had a belt to help hold them in place, but they were not satisfactory and unfortunately, they did not become popular. Menstruation was still a taboo and women did not want to be seen buying them (Simple Health, 2021). Kotex introduced the

adhesive sticker to hold the pads to the underwear and making individually wrapped pads. The company has led the way in creating educational content and making the products more accessible through their marketing techniques (Kotex, 2021). Scented sanitary napkins have been introduced, they have become thinner, more discreet and the sanitary pad absorbency technology is developing (Mymed, 2021).

The Washington Post (2016) proposes that the earliest manufactured tampon came out in the 1920s and early 1930s. Homemade tampons made of sponges, material and gauze wood with lint wrapped around them have been used for centuries (Simple Health, 2021), but the first commercial tampon was called 'Fax' and was called an "internal sanitary napkin" (mymed, 2021). It did not have an applicator or a string to pull it out with as the ones that are manufactured today have. It is still considered damaging to the hymen in many cultures where women are discouraged from using them to preserve their virginity (The Washington Post, 2016). The global brand 'Tampax' patented the applicator tampon with the string in 1931 (Tampax, 2021). A woman, Gertrude Tendrich sewed tampons by hand and encouraged women to come and work with her (ecowatch, 2021). Her team established an education department to show women about what they were made from and how to use them. The modern and commercial tampons are similar in design across the brands, they differ in size, absorbency and whether they come with or without an applicator (Horwitz, 2020).

Popular science states that the first menstrual cups were being used from 1867 (popsci, 2019). Stating that they have become more mainstream but still not very popular amongst women (popsci, 2019). The Guardian newspaper states that the first menstrual cup was patented in 1937, during the 1980s the menstrual cup became more popular as they were deemed safer than tampons during the era of toxic shock syndrome (Period Nirvana, 2021; Stevens, 2019)). Then the medical grade silicone menstrual cups were introduced in 2002 in the United Kingdom, 2003 in the United States (Period Nirvana, 2021) and in 2005 New Zealand (Lunette, 2021). The products have become more popular as menstrual products users look at saving money, choosing products with less chemicals, give a longer time for protection and menstrual management and a product that is more environmentally friendly (Period Nirvana, 2021; Shure, 2017).

Reusable sanitary pads have been around for centuries as women have used rags or cloth that they could wash again and again to use on whilst their periods (Femme International, 2016). The Guardian (2021) states that, "women have been using a much less sophisticated form of reusable menstrual

pads for much of history”. Women in cultures that prefer a less invasive menstrual product often use pads due to the importance of keeping a girl’s hymen from breaking and the cultural expectation that “demand virginity in relation to their personal value” (Scales, 2019, p. 15). The commercial disposable pad is thrown away directly after use whereas the reusable sanitary pad can be washed and rewashed and they are made from more eco-friendly materials (self, 2021). Some reusable menstrual pads have microplastics in them which women may not be aware of (Ailuna, 2021). According to the online blog Self (2021), the American Food and Drugs Administration does not require any menstruation product companies to name all the ingredients in them they only recommend that they do so (FDA, 2005).

Reusable period underwear was patented in China in 1988 where two layers of cloth were sewn into underwear (Racked, 2016). There are generally two types, one that helps hold pads in place and the other replaces pads and tampons (Racked, 2016). The reusable period underwear are created with layers, a cotton, spandex or polycotton blend, a moisture wicking layer that and then an ultra-absorbent layer (Racked, 2016; The Guardian, 2021). The reusable underwear can be used for incontinence as well. Companies are selling brands for all stages of a woman’s life and period flow, also men’s absorbent underwear as well. This gives the companies the opportunity to widen their product ranges and sell to a wider target audience.

SWOT Analysis of sustainable menstrual products

To get a better idea of the current sustainable menstrual product industry a SWOT analysis that looks at current strengths, weaknesses, opportunities, and threats will be conducted in the following section. There are multiple other sustainable products that could be added to the analysis such as reusable tampons and reusable tampon applicators, but for this study the three main products, reusable underwear, reusable pads, and the menstrual cup, are going to be analysed together.

Table 1 SWOT analysis of sustainable menstrual products

Strengths	Weaknesses
<ul style="list-style-type: none"> - One time buy with multiple uses - Longevity of product lifespan - Longer time span for daily usage - Less chemicals and non-toxic materials - No need to rebuy product, time saving 	<ul style="list-style-type: none"> - Expensive start-up cost, pads and underwear need multiple items for the full period. - Most products are sold on the internet which delays starting product use. - Lack of options in mainstream shops, little or no samples to see or test.

- Different sizes, colours, and designs of the products to suit all ages., bodies and monthly flows	- Not enough education or information about product size, design that could best suit a young woman. - Need hygienic place to wash the products. - For pads and underwear need a place to store them when changing them in the day.
Opportunities	Threats
- Training and instruction programs on the products and their benefits. - Education on product materials, environmental impact of disposable items. - Tailored advertising that targets young women through social media channels - Adding products to supermarkets and more accessible and mainstream shops. - More products, designs and target markets to be reached. - The rise in revenue from popularity of these products.	- Mainstream products are still popular. - Marketing channels have been saturated with the dominant one-time use only products. - Slow or little uptake of the products as young women may be scared to see their own menstrual blood. - The patriarchy and culture of silence holding young women back from being curious about different product options. - Not enough knowledge being shared through schools or the education system for young women to make an informed decision.

(Ailuna, 2021; Allied Research, 2021; Kaur et al., 2018; Popular Science, 2021; The Guardian, 2021).

The SWOT analysis that has been conducted in table 1 shows different factors affecting the sustainable menstrual product industry. There are many strengths that can be used to encourage young women to use or try the products. The weaknesses can be interpreted into young women’s uncertainty towards the products and the reason the uptake on sustainable menstrual products could potentially be low. The opportunities are where sustainable menstrual companies can improve their products to create more awareness about them. The threats highlight the reasons that sustainable menstrual products are unlikely to be used or knowledge about them to be circulated.

2.4. Summary

This chapter has presented an exploration of theory and an industry analysis. The first section explored the feminist discourse theory of menstruation and how menstrual activists have developed discourse about menstruation which has disrupted the patriarchy. Then discussing how it was socially reconstructed through channels such as word of mouth, academic literature and, more recently, social media. The second part of the chapter looked at the history and evolution of menstrual products and then a focus towards sustainable menstrual products. The SWOT analysis looked at the strengths, weaknesses, opportunities, and threats of sustainable menstrual products to

show the products in all dimensions. It was conducted to impact young women's perceptions of sustainable menstrual products. To help stem misinformation and ascertain how sustainable menstrual products can be introduced to young women.

Chapter 3. Literature Review

3.1. Introduction

This chapter is a review of the literature relating to menstruation and sustainable menstrual products. It is structured into three themes. The first theme is public awareness of menstruation and sustainable menstrual products. The second theme is information published about sanitary waste awareness. Finally, the literature relating to research conducted on menstrual products specifically in third world countries is discussed.

3.2. Public awareness of menstruation and sustainable menstrual products

There is a variety of literature around the world which has examined menstruation as a stigmatised and taboo topic for women. Separate studies by Kaur et al., (2018), Meenakshi (2019), Tiwary (2018) and Srinivasan et al., (2019) in India saw women stating that menstruation was a taboo topic and there were myths, stigmatism, cultural constructs, and societal constraints that discouraged them from talking or finding more information on menstruation or alternative products. Kaur et al., (2018) and Srinivasan et al., (2019) note that women have been restricted on certain activities during menstruation. To name some, cooking, working, sexual intercourse and worship, as menstruation was considered 'dirty and polluting' (Kaur et al., 2018, p.2). Literature from first world countries such as Ireland (Campbell et al., 2021) New Zealand (Wootton & Morison, 2019), the United Kingdom (Millington & Bolton, 2015) and the United States (North & Oldham, 2011) support the Indian literature regarding women's feelings on menstruation as a taboo topic and insinuating it to be unclean.

Srinivasan et al., (2019) conducted a study in Bangalore, India, with a sample size of 314 students, male and female. Knowledge on menstruation was assessed by asking the students questions and marking them on their answers. The results showed that 51% of the students had adequate knowledge on menstruation and their main source of knowledge was their mother (Srinivasan et al., 2019, p.1127). But Peberdy et al., (2019) claims that there is an intergenerational gap of education surrounding sustainable menstrual products that mother and daughter do not converse about (p.3). Furthermore, similar studies in Kenya, India, and Uganda interviewed young men and women on

their thoughts, feelings, and awareness of menstruation in their societies and where they collected their information from about reusable and sustainable products (Crichton et al., 2013; Meenakshi, 2019; Musaaazi et al, 2013). The results showed that there was potential for more information platforms to be utilised to educate young men and women about menstruation and sustainable menstrual products. Simes and Berg (2010) argued that the embarrassment of mothers and teachers on discussion about menstruation caused a larger void to gain any preparation or knowledge on products or how it physiologically and emotionally affects a young woman (p. 468).

The literature has also explored where the public gain knowledge and awareness of sustainable menstrual products. Regarding the view on sustainable menstrual products Koskenniemi (2021) argues that “alternative product businesses seek to challenge the menstruation taboo by conveying positive and educational messages” (p. 2). Similarly, Liu et al., (2021) state that menstrual product advertising in the United States has changed to make positive influences on young people’s perceptions towards their bodies and towards menstruation (p. 1).

Researchers have examined how women might get information on the menstrual cup and how uptake of the product is generated (Borowski, 2010, North & Oldham, 2011; Phillips-Howard et al., 2017 Stewart et al., 2009). North and Oldham (2011) suggested that leaflets and informal talks can give assistance, to stem concerns and encourage women to go away and try the menstrual cups themselves. The lack of information on sustainable menstrual products, specifically the menstrual cup, can cause uncertainty and disregard of the products. Davidson (2012) hypothesized that there may be knowledge, information, and enthusiasm towards the products, but the upfront expense of the product makes it less accessible to those of a lower economic standing (p. 64). Awareness of the products can develop popularity of sustainable menstrual products. Stewart et al., (2009) explored how women became or were aware of menstrual cups as a form of sanitary protection. An information leaflet and questionnaire were put out at a specialist menstruation disorder clinic about menstrual cup usage. Stewart et al., (2009) reported that that majority of women who took part in the study only considered using a menstrual cup and that the older the woman the more likely they were to consider using the menstrual cup. The reasons being that they were more convenient and environmentally friendly than the tampon or sanitary pad. Having knowledge in any socio-economic class or being any age is useful, but the end goal is for the audience to choose a sustainable and reusable menstrual product which cannot always be the case as Davidson (2012) noted.

As menstrual product research and education was carried out mostly in developing countries, there is the opportunity for developing countries to gain information through training, advertisements, the internet, family members, peers, and school programs (Liu et al., 2021; Oster & Thornton, 2012; Srinivasan et al., 2019; Stewart et al., 2009; van Eijik, 2016). Liu et al., (2021) looked at how menstrual product advertising in the United States was changing the social and political outlook on women's bodies. Liu et al., (2021) argued that "menstrual product advertisements may intentionally or unintentionally shape girls' understandings on menstruation, body perceptions and gender norms" (p.1). For information to be spread more freely a hurdle to overcome is the patriarchy and male dominated societies (Meenakshi, 2019; Srinivasan et al., 2019; Tiwary, 2018) and not censoring menstrual product media (Simes & Berg, 2010; Liu et al, 2021). Koskenniemi (2021), for example, claims that it has only been in recent years that red blood like liquid has been put into menstrual product advertising on mainstream UK television (p. 6). Advertising could be a tool to spread large amounts of information about menstruation and different product varieties to help bridge the knowledge gap (Simes & Berg, 2010. P. 467). Srinivasan et al., (2012) argues that the internet was a private space to gain the information young men and women wanted to know. Technological advances are not able to reach all parts of the globe yet and reading and writing are still a luxury which can make finding or receiving information difficult.

The literature has identified links between raising awareness and educating young women about menstrual cups, peer influence and the usage of menstrual cups. Peberdy et al., (2019) note that "peers were vital for learning about menstrual products" (p. 3). This shows that friend's opinions and knowledge sharing create more confidence in the uptake to try new products. Oster and Thornton (2012) conducted a study on the uptake and peer influence of the menstrual cup in schools in Nepal. They had nurses deliver an informal session to a small sample of Nepali school aged girls on how to use a menstrual cup. The female students were surveyed and interviewed every month over 15 months on their usage of the product. The study introduced more menstrual cups that the students gave to friends and those young women were surveyed as well. The students reported that washing it was faster and easier than reusable pads so saved them time, that they had better mobility, but the cup is less or not available for them (pp. 8-9). Oster and Thornton (2012) found evidence that there is a positive peer effect to increase the speed of adoption of the menstrual cup (p. 3). Likewise, another study with a small sample conducted in Zimbabwe by Madziyire et al., (2019), gave training on menstrual cups to five women in a small community and then gave them a questionnaire afterwards to see how they felt and their likelihood of using it again. The results showed that the women would

use them if they were more affordable and there were better private spaces to use them in. Grose and Grabe (2014) found that women's negative attitudes towards menstruation declined with age and those women with prior knowledge of the menstrual cup and talking about it had a more promising attitude towards using the menstrual cup (p. 689).

The evidence in the literature suggests that there is opportunity for educating the women through leaflets and informal sessions about the menstrual cup or sustainable menstrual products. Also, looking at how the young women took to a new product. Then making suggestions of the types of support young women might need in their adolescence specifically around menstruation.

By creating training and informal sessions on the sustainable menstrual products may create more uptake on the products to continue regular usage. Grose and Grabe (2014) assert that having more awareness of alternative menstrual products and educating more women is "a promising strategy for challenging widespread resistance to products such as menstrual cups" (p.689). Donovan and Telfar-Bernard (2019) concluded that policy makers, educators, health professional and parents need to rethink how best to support adolescent girls during and before starting the periods (p. 100).

3.3. Sanitary waste awareness

This section will explore literature that looks at the impact sanitary waste has on the environment and how this could influence awareness towards reusable and sustainable menstrual products. Ashley et al., (2005) note that women may be unaware of the amount of sanitary waste they are contributing to landfill throughout their menstrual lifetime. Similarly, Davidson (2015), states that there is little consideration towards the environmental and social impact of the sanitary products that are being used in society (p.57). This shows a lack of understanding towards sanitary product knowledge and the disposal of them.

Menstruation is a process that women experience throughout their lives. According to a Danish study carried out by Chavez-Macgregor et al., (2007) they estimated that women have 451 menstrual cycles in their lifetime. They worked out the cumulative number from 786 women's menarche to menopause. The average age of menarche was 13.6 years, and the average age of menopause was 49.6 years (Chavez-Macgregor, 2007). If one woman were to use disposable products for the lifetime of her period cycles, this is a lot of sanitary waste.

Sanitary waste is becoming a more scrutinised form of waste that has been Borowski (2011) argues that plastic bags, bottles, and lunch bags have been replaced with reusable ones and this should be the case for menstrual products too (p.7). Similarly, Borowski (2011) suggests that environmental and health concerns around menstrual products are an 'afterthought' (p.7). Peberdy et al., (2019) mention that disposable menstrual products have gone unnoticed as a source of single-use plastic until more recently (p.1). A study carried out in the United Kingdom by Ashley et al., (2005) using a survey from the Product Manufacturers Association, showed that 4.6 million tonnes of sanitary waste is being disposed of per year (Ashley et al., 2005, p. 207). Women are disposing of their sanitary waste potentially without knowing the impact they are contributing to damaging the environment (Peberdy et al., 2019, p. 1). Achuthan et al., (2021) states that "women form 50% of the population, the sheer volume of periodic menstrual non-biodegradable waste generated has significant environmental implications" (p.1). Dwivedi and Desai (2020) claim that the average women dispose of 150kgs of menstrual waste containing non-biodegradable absorbents and that they were ignorant towards alternative products on the market (p. 37). This suggests that this area of sanitary waste needs more information on it. Howard et al., (2011) explored the median number of menstrual products a woman might use each period. It was found that per year 169 disposable products were used (p.208). This worked out to be 771, 248, 400 disposable products annually used by women in Canada (Howard et al., 2011, p. 208). Koskenniemi (2021) alleged that alternative products are presented as environmentally friendly, and websites show many statistics created about amounts of disposable sanitary waste there is (p. 11)

The literature suggests that there are concerns around disposable and sustainable menstrual products. Borowski (2011) surveyed 160 people on their awareness of the environmental and health issues that went along with disposable products and what the more sustainable options could be. Borowski (2011) discussed the negative health effects that disposable products can lead to for example, toxic shock syndrome, bacterial infections, discomfort, and irritation due to the synthetic materials and dioxins that were used to manufacture the disposable products. The study found that women were firstly concerned about the price and then the environmental impact of the products (pp. 7-8). It suggests women may not know the materials in the sanitary products they choose to use and the time it takes for those materials to disintegrate or biodegrade. To support this Kaur et al., (2018) and Tu et al., (2021) state that menstrual pads and tampons are made from cotton, non-woven fabrics and

polymer absorbers that should be buried and if incinerated give off harmful toxins into the air (p.1). Davidson (2015) claimed that menstrual products have an increased number of micro plastics that cannot biodegrade and organic biodegradable products will not do so in a de-oxygenated environment, such as deep under the ground in land fill (pp. 57-58). The brand Tampax claims to be biodegradable yet Ashley et al., (2005) argue that there was “no objective data exist as regards the longevity of these biodegradable products”, (p. 207). Kaur et al., (2018) argue that third world countries more specifically, may be lacking in disposal bins and hygienic facilities for menstrual products for women to use and dispose of products responsibly (p.4). Even though research shows that disposal products can be harmful, Ashley et al., (2005) conducted a survey in the United Kingdom about toilet habits which included disposing of sanitary items. Twenty-nine items were identified from the surveys as being flushed down the toilet. None of the respondents in the survey admitted to flushing sanitary pads, but 23% admitted to flushing tampons. The findings estimated that “2.5 million tampons, 1.4 million sanitary towels, and 700,000 panty liners are flushed in the U.K. every day. This equates to about one item every 4–5 days for each female member of the population (almost 30 million)” (Ashley et al., 2005, p. 207). These high numbers suggest “that there are no prospects to switch away from disposable items by any significant numbers or the population” (p. 207).

The literature suggests the use of more natural or reusable products as the alternative to disposable mainstream products (Borowski, 2011; Kaur et al, 2018; Peberdy et al., 2019; Roe, 1992; Tu et al, 2021). The suggestion for this is to change the mind of the consumers attitude towards the environment and encourage more conscious choice making when buying menstrual products (Ashley et al., 2005; Borowski 2011). Achuthan et al., (2021) suggests that during the current climate of the world women are considering reusable products that are longer lasting (p. 1). Environmental organisation and sustainable menstrual product manufacturers have the possibility to be the promoters of lowering environmentally damaging sanitary waste. Meenakshi (2019) argues that “neither the government or non -governmental organisations (NGOs) have taken cognisance of the extent of environmental damage caused by disposable menstrual products” (p.245).

3.4. Developing countries

India

This section will be categorised by location of where research has been carried out. It will look at studies conducted on sustainable menstruation products and menstruation awareness specifically in third world countries. Third world countries have been a focus for an increased number of research and studies the usage, uptake, and knowledge of sustainable menstrual products.

On a more global scale the United Nations promote their Sustainable Development Goals one of them being to “achieve gender equality and empower all women and girls” (Tiwary et al., 2018, p. 380). This brings into the discussion of publicising more about menstruation education to empower women to be curious and to feel more informed and to extinguish myths and taboos which may hold them back in their daily lives, also to stop the mortality rates increasing because of ill-hygiene, unwanted pregnancy, and potentially life-threatening infections (p.381).

Several studies relating to education and sustainable menstruation products have been carried out in India. Much of the literature reiterates taboos, shame, embarrassment, hygiene management issues and knowledge around menstruation and the menstrual cup (Chintan, 2017, Dweldi & Desai, 2020; Kaur et al., 2018 Meenakshi, 2019; Musaazi et al., 2013, Rashid, 2021; Srinivasan et al., 2019; Tiwary et al., 2018). Rashid (2021) notes that menstruation needs to stop being talking about in ‘hush-hush tones’ (p.2). Srinivasan et al., (2019) reiterates that there is inadequate awareness, large misconceptions and incorrect practices for young women managing their menstruation and that there is a need for the correct information to given to reinforce understanding of how women are affected physiologically when menstruating.

In third world countries menstrual hygiene management has become a topic of interest. Van Eijk et al., (2016) conducted a meta-analysis and systematic review of hygiene management among adolescent girls in India and found that the menstrual cup was not widely known, used, or mentioned in many studies conducted in India. The study stated menstrual cups were an acceptable product but generally women using insertable products could be related to concerns on virginity, despite there being no correlation between the breaking the hymen and virginity (van Eijk, 2016, p. 9). With a country like India where taboos and cultural and societal stigma surrounds menstruation, sustainable products may not be favourable with much of the research engaging with developing more on menstruation education. The literature mentions menstrual cups and reusable menstrual products (Chintan et al., 2017; Kaur et al., 2018; Meenaskhi, 2019; Rashid, 2021; Srinivasan et al, 2019; van Eijk, 2016) but out of this small sample there was only one by Rashid (2021) that directly focused on

the usage and education of the menstrual cup. This shows a disparity in the amount of research conducted on sustainable menstrual products in India and the opportunity for more to be done. Srinivasan et al., (2019) surveyed 758 students, male and female, and their awareness of menstrual cups was only 3.1% with the internet being their main source of information (p.1). This presents the opportunity for more information to be distributed about sustainable menstrual products on the internet. McLaren and Padhee (2021) argue that,

In India, as well as other countries in the global South, much of the focus has been on hygiene as well as access to products. While hygiene and access to products are important, addressing issues of social stigma and structural inequality also need to be prioritised. Initiatives that provide women and girls access to products and improved hygiene provide necessary material conditions for managing menstruation, but we argue that menstrual health should be viewed in the broader context of women's sexual and reproductive health rights (SRHR) (p. 132).

McLaren and Padhee (2021) highlight the need for research to be focused on other areas that help to alleviate taboos and promote menstruation as a normal bodily function and the opportunity to introduce and educate women on sustainable menstrual products.

Africa and other nations

Africa and Nepal have been countries of choice amongst sanitary product researchers. The research done has increased the emphasis on conducting studies on the uptake and knowledge surrounding sustainable menstrual cups. For example, studies have been carried out in Kenya, Malawi, South Africa, Uganda, Zimbabwe, and Nepal (Beksinska et al, 2020; Enzler, 2018; Musaaazi et al, 2013; Oster & Thornton, 201; Phillips-Howard et al, 2016; van Eijk et l, 2018; Zimbabwe, 2018). The studies represent the rise in education sharing about sustainable menstrual products and their usage and uptake. The nations studied were considered poor nations where menstrual hygiene products were less accessible, manageable, or hygienic (Enzler, 2018; Mudziyire et al., 2017; van Eijk et al., 2018). Van Eijk et al., (2018) conducted a longitudinal study where 192 girls between the ages of 14 and 16 years old at ten different schools in Kenya were given menstrual cups. The young women were given training, guidance on usage, puberty education and hygiene management instructions. The participants had repeated visits with a nurse who also recorded the colour of the cup relating to the usage of the cup. The study showed that 70.8% of participants were regularly using the cup throughout the time they were observed. This can be related back to the present study to suggest that

with information, support and training young women become more confident in the uptake and usage of sustainable menstrual products.

Nepal was another country that focused on the uptake of menstrual cups. Oster and Thornton (2012) had the aim on peer influence on the uptake of menstrual products. The researchers asked participants to list their close friends who were part of the study as well. A nurse spoke to the selected students each month about menstrual cup usage. Over approximately 18 months data was collected on whether a subject successfully used or tried the menstrual cup. By the end of the study Oster and Thornton (2018) found that 60% of the girls were using the cup and that after they had used it once there was an increase in usage. This suggests that support from a health professional or teacher or friends can be a factor for uptake and continual usage of sustainable menstrual products and that information can increase confidence with use of these products.

The literature shows a significant number of studies specifically on sustainable menstrual products carried out in third world countries. Yet there is a lack of studies on menstruation and sustainable menstrual products in developed countries. Not only do women in developing countries deserve to be educated on menstruation and alternative products but women in first world countries do as well.

3.5. Summary

To summarise the literature review in this chapter, it is noted that much of the literature about sustainable menstruation products and menstruation is coming from studies conducted in third world countries. This is not to disregard research coming from first world countries but should be acknowledged as a research gap that could be explored to create a more well-rounded view on the world's population of menstruating women. The narratives in the literature suggest that there is evidence of sustainable menstrual products being mentioned, specifically the menstrual cup, but not enough education about them in the media or at schools to become popular and more mainstream. Many of studies shown in the literature were carried out by female researchers. This could be seen as a bias in the research and could be a knowledge gap that males have not had the chance to explore. The lack of understanding and awareness on sustainable menstrual products between young women shows the need to take the issues discussed in the literature to higher powers, such as education providers and governments organisations that can spread the knowledge on a wider scale and potentially from a more neutral perspective.

The present study acknowledges that there has been research conducted on sanitary waste awareness, menstrual product usage and awareness in first world countries with women of all ages. The literature identifies that there is a gap for new research on the topics explored in the literature to be performed in first world countries, such as New Zealand, on how and where young women get their knowledge on the different products with more specificity on studies with young women and their awareness of sustainable menstrual products. The lack of literature on particularly sustainable menstrual products creates prospective for research to be conducted not just in New Zealand, but the United States or the United Kingdom to show a wider spread of knowledge and better representation of first world countries in menstrual product research.

Chapter 4. Methodology

4.1. Introduction

This chapter will explain more in depth the research philosophy and design used within the study. The chapter begins with the research philosophy. Then it is followed by an explanation of the research design. Following on, the next section will be discussing the questionnaire, the purpose, design, procedure, and data analysis. Furthermore, the same process will be done for the focus groups as well. The limitations, reliability and bias that relates to the study will be examined towards the end of the chapter. Lastly, the ethical considerations of the study will be reviewed with the summary ending the chapter.

4.2. Research philosophy and design

The research philosophy followed for the present study is pragmatism with a mixed method design. The research question focuses on how young women view sustainable menstrual products from the knowledge they have gained in their adolescence. It is an exploratory study to find out what the young women currently know and where the gaps in their knowledge were. A high school was chosen as it had the representative sample of participants needed for the study.

The pragmatic approach to the research allows “practical effect of ideas, and knowledge is valued for enabling actions to be carried out successfully” (Saunders et al., 2016, p.143). Creswell and Creswell (2018) assert that, in relation to pragmatism, the researcher can look at all approaches to the research and the ways they want to collect data, then come with a solution to the research question after (p. 10).

Mixed methods approach will be used for the purpose of this study. Saunders et al (2009) “recognise that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there may be multiple realities” (p. 144). This can be interpreted to mixed method design, using multiple different data collection methods to show many different outcomes to the present study. Supported by this the mixed methods approach was applied for the present study to allow multiple data collection methods to use. Leech et al., (2009)

assert that the mixed method approach gives the researcher flexibility in the techniques of data collection, emphasising a more holistic approach to the research (p.118).

The research uses an inductive approach to the data being collected. Braun and Clarke (2006) state that “an inductive approach means the themes identified are strongly linked to the data themselves” and not fitting it into a code that already exists or has preconceptions attached to it (p. 12). The present study has no predictions of what may be found. Dudovskiy (n.d.) notes that there is no hypothesis to start with and the researcher does not know what might be found and the nature of what is found until later into the research. Data has been collected through two methods: questionnaire and focus group. Questionnaires will gather (mainly) quantitative data from a group of high school females aged 16 year and over. Focus groups will be used to gather qualitative data from two groups of high school students. Braun and Clarke (2006) present this as an option to present research for it be inductive and exploring what comes of the research (pp. 23-24). For the present study the researcher will have limited involvement in the distribution of the questionnaire. However, the focus group will require the researcher to be involved by asking open questions, discussing them, and talking to the students about their thoughts and feelings towards sustainable menstrual products.

4.3. Method 1: Questionnaire

4.3.1. Purpose of the questionnaire

The purpose of the online questionnaire is to collect quantitative data from a group of young women about their awareness and likelihood of usage of sustainable menstrual products and to see their perceptions of sustainable menstrual products. It will ask the young women about where they gain knowledge about products, investigate their perceptions of the different sustainable menstrual products and to ascertain if they have seen, heard, or tried any of the products prior to this questionnaire. The questionnaire was anonymous and completed online with open and closed questions, so the group of young women can express themselves freely and answer honestly.

4.3.2. Questionnaire design

The questionnaire was designed using the online platform and template from Google forms, specifically by the researcher for this research project, a copy can be found in Appendix G. The synopsis gave a brief overview of the identity of the researcher to create a rapport with the

respondents, the research topic, the purpose of the questionnaire and the approximate time it would take to answer the questions to enable a faster response mode (Ekinci, 2015, p. 129; Saunders et al., 2016, p. 439). It was to be a self-completed questionnaire that participants chose to take part in (Saunders et al., 2016, p. 440). The questions were designed to be closed questions about topics targeted to the young women on their knowledge, thoughts, and feelings about sustainable menstrual products. The questionnaire, see appendix G, had classification questions, behavioural and attitudinal questions (Ekinci, 2011, pp. 35-46). To collect the information on the group demographic nominal questions were placed at the beginning with multiple choices to have the broadest inclusivity (Ekinci, 2011, p.53). Likert scales (Ekinci, 2011, p. 55; Kumar, 2014, pp. 204-209) were used to ask ordinal questions to seek the attitudes and behaviour of the young women towards menstrual products, for example how likely they were to use the sustainable menstrual products.

4.3.3. Procedure

The questionnaire was created using a Google form template and a link was sent to the approved high school distribution channel of group email directly from the supervising teacher to all those 16 years and over in years 11, 12 and 13. The questionnaire was open for a full 2 weeks from the date of distribution, with the ability to do it on any electronic Wi-Fi device available for example, at home, at school, sitting on the bus. The anonymity aspect of the questionnaire was to encourage more participants to share their thoughts and feelings and “to encourage a higher response rate” (Ekinci, 2015, p. 103). This time limit and accessibility puts a boundary around the data collection also gave the participants enough time to contribute. By using Google forms, an online platform, it allowed the questionnaire to reach the widest group of people in the shortest space of time and the possibility of a higher response rate.

4.3.4. Participants and sampling

The sample was purposive sample. Andrade (2021) states that “a purposive sample is the one whose characteristics are defined for a purpose that is relevant to the study. The findings of a study based on convenience and purposive sampling can only be generalized to the (sub)population from which the sample is drawn and not to the entire population” (p.1). The participants were a mixture of 16–19-year-old high school students. The questionnaire was completed by 73 participants. Based on the

2020 roll of the school for these age groups (292), this represents 25% of the population. Using this group of people gave a representative sample of students at this high school age group.

There was no option of gender due to the questionnaire being sent to an all-girls school, the Education Review Office (2017) states that all the students attending were female. Information about the group demographics was collected by age range and the ethnicity of the participants as illustrated in the table below. The table below is used to compare, the ethnicity data from the questionnaire and the data from the Education Counts School rolls and SGHS 2017 ERO Report (Education Counts, 2021).

Table 2 Number of ethnicities at the high school

Age	Questionnaire Participants	SGHS ages 2020 ERO Report	Ethnicity	Questionnaire Participants	SGHS 2020 ERO Report
16	45.2%	138	Pākehā	78.1%	672
17	41.1%	117	Māori	8.2%	245
18	12.3%	37	Pacific	6.8%	50
19	1.4%	0	Asian	4.1%	46
			Other	2.8%	19

The larger group were the European and Pākehā (78.1%), Māori (8.2%), Pacific peoples (8.2%), Asian (4.1%), African (1.4%) and Asian/Pākehā (1.4%) which reflects the Education Review Office's (2017) most recent report on the schools. The sample is well matched for all but the Māori participants. This shows that Pākehā participants are overrepresented in the present study and the Māori participants are underrepresented. The total sample was 25% of the students aged 16 and over at the chosen high school which is a fair representative sample for the present study.

4.3.5. Data analysis

According to Fisher and Marshall (2008) descriptive statistics are numerical and graphical techniques used to organise, present, and analyse data (p. 95). The quantitative data has been analysed to present descriptive statistical responses to the questions and presented in a series of graphs, tables, and pie charts. There was the opportunity for open questions for the students to say which menstrual products they used, multiple choice questions on the young women's thoughts and feelings on periods and shown in the form of commonalities. The thoughts and feelings on

sustainable menstrual products and the likelihood of usage of sustainable menstrual products are grouped into similar ideas.

4.4. Method 2: Focus groups

4.4.1. Purpose of the focus groups

The purpose of the focus groups was to seek out what the young women already know and perceive about sustainable menstrual products. As Saunders et al., (2016) state focus groups are “a group interview that focus upon a particular issue, product, service or topic by encouraging discussion” (p.420), so the aim of these focus groups was to look at young women’s awareness of different sustainable menstrual products, what they feel about them and where they find and learn about them through open discussions.

4.4.2. Focus group

A single sex female high school was selected as the location for this study, as it provided a representative and easily accessible group of participants. The principal of the school was sent an email which outlined the perimeters of the study, including samples of data collection methods. The email also asked for permission and support for the research to take place. Permission and access were granted by the principal and the research was given a contact teacher to use as a support person and accessing the students for the study. As outlined above, a health teacher was made the contact teacher for the study. This teacher has access to year 9 and year 12 health classes and so, these become the classes which were incited to be in the focus groups. The structure of each of the two focus groups and aim of each section is shown in Table 3.

Table 3 Focus group order and the purpose for each section

Activity	Purpose
Questionnaire 1	To see if the young women had seen or heard of any of the sustainable menstrual products.
Open questions	To create talking topics for open discussions on the young women’s thoughts and feelings on sustainable menstrual products.
Viewing of the sample products	This allowed the young women to touch, feel and converse with each other about the samples.
Questionnaire 2	To find out the likelihood of usage of the sustainable menstrual products presented to them.

There were 8 year 9 students in the first focus group and 9 year 12 students in the second. The location was the health classroom at the chosen high school to create familiarity and a place that the students felt comfortable, this also means the researcher is less dominating in this environment (Krueger, 1994, p.7). All the students were asked to first fill out a short questionnaire, see a copy in Appendix I. The focus group was semi structured, with a set of predesigned questions specifically for the study (see a copy in Appendix H), with organic development conversation as well. Krueger (1994) states that “the inductive properties of qualitative research assume that the researcher makes decisions and refines the quest for knowledge en route” (p.141). Then the young women were able to examine the sustainable menstrual products to form their own opinions on them. At the end a different short questionnaire, see Appendix J, was given to them to see how they felt after having the session.

4.4.3. Procedure and participants

The researcher and health teacher had a meeting prior to any information distribution. The researcher gave a concise explanation about the present study to be relayed to the potential participants from chosen classes. The health teacher explained the research information to the students and gave out participant information sheets and consent forms. The year 9 students needed their guardian to read the information sheet and sign the consent form if they wanted to take part (See Appendix C and Appendix D). The year 12’s could read the information sheet and sign the consent form for themselves (see Appendix E and F). The participants were selected by the health teacher on a first come first served basis from the students who returned signed consent forms. The year 9 focus group had 9 participants with a mix of nationalities and the year 12 focus group had 8 participants with 7 European/ Pākehā students and only one of a different nationality. All were female and attended the chosen school. The sample was a purposive sample chosen specifically for the focus group (Andrade, 2021, p. 1). The students were prewarned about being voice recorded with a Dictaphone and that the researcher would be taking notes. The year 9 focus group lasted 39 minutes and the year 12 students lasted 37 minutes.

4.4.4. Data analysis

From the focus group discourse analysis was used to analyse the qualitative data (Saunders et al., 2016, pp.604-608). It was used to see what running themes came from the focus groups. The

research was analysed to explore how the recurring themes “construct or constitute social reality and social relations through creating meanings and perceptions” (Saunders et al., 2016, p. 604) amongst the young women in the group. The discourse from the two separate focus groups was analysed together. The researcher was looking for words which were repeated in the focus group conversations about the products or the feelings of the young women. Braun and Clarke (2006) call this type of analysis a thematic analysis as is it flexible in collecting rich and detailed, but potentially complex data (p.5).

4.5. Limitations and Delimitations

This section discusses the limitations of the present study, the online questionnaire and then the focus groups. Then the delimitations of the present study, online questionnaire and then the focus groups. Lastly the reliability and bias of the present study will be explored.

Limitations

The sample profile was small and cannot represent the whole population of young women in New Zealand. The present study was conducted by a female researcher which was had limiting language that was focused on female menstruators and could not include all menstruators. The literature review showed that this area of research was lacking and cannot be compared to or be based on another. The inexperience of the researcher was a limitation as the scope of discussion was small and cannot be representative for the whole field of research. Another limitation was the data was analysed by the researcher, as it was all interpreted and self-reported.

There may also be some bias in the online questionnaire distribution as the young women were expected to have Wi-Fi and an electronic device to answer it on which cannot be the case for all participants.

The focus groups were a small sample that cannot represent the population of young women in New Zealand of the same age bracket. The questions that were asked may have incited certain types of answers from the young women. The presence of the researcher was a limitation which may create a bias towards the questions being asked and decrease the opportunity to discuss other topics that could relate to the research. As the participants and researcher are female this also creates a bias as

the thoughts and perceptions were only seen from their perspective. The study is focused on young women that menstruate or have menstruated.

Delimitations

The study was very niche which was a delimitation as it may allow more freedom to explore the topic and bring in new ideas and thoughts. As the present study is recent it allows other researchers to explore, progress and further impact this area of researcher.

A delimitation for the online questionnaire was that it was anonymous which created the opportunity for a better response rate. The online questionnaire was for a group of young women that represented a small part of the general population. The questions were specific to the young women and had some bias towards what was being researched. The researcher was female which may hold some bias towards the topic of research, but let's down the boundary between students and researcher as they had a commonality in gender identity. The time limit given to submit the online questionnaire was controlled and it was open o be answered for two weeks.

A delimitation of the focus groups was the small sample size which was more manageable with richer qualitative data to be analysed. Having a small sample helped the researcher pick out running themes and allowed the young women freedom of expression. As a female researcher there was bias, as language and questions were from a female perspective and for a specific reason. The results can be generalised to young women of the same age group. The location of the focus groups was a classroom which had a familiarity to the participants to make them feel comfortable to answer questions honestly.

4.6. Ethical considerations

To seek approval an ethics application was lodged with the Southern Institute of Technology's ethics committee. Appendix A shows the ethics application, it explained the study, stated the aims and objectives and the type of participants for the research. There was a summary of how the data would be collected in an online questionnaire and focus groups at a chosen high school and further criteria for the participants. Appendix B shows the approval letter from the Southern Institute of Technology to carry out the research. Following this, the researcher emailed the principal at the chosen high school with the ethics committee approval letter, the participant information sheets and consent

forms for parents and for the 16 years and older respectively and a sample of the online questionnaire and examples of the focus group questions (see Appendix B, C, D, E, F, G and H) to ensure all the information was given before the high school chose to take part. This was to explain the full scope of the research. Gaining approval from the school was pivotal for the research to go ahead. The principal consented for the school to take part and helped to facilitate the distribution of the online questionnaire and conducting the focus groups. The researcher completed a police vetting process and produced evidence of COVID-19 vaccination status in order to gain access to the school grounds. The online questionnaire and focus groups ethical considerations will be discussed further in the sections below.

4.6.1. Method 1: Questionnaire

The online questionnaire in appendix G, was made to be answered anonymously. The chosen school gave permission for the online questionnaire to be distributed for the researcher by the supervising teacher via school email. This was due to privacy and confidentiality rules at the school. The online questionnaire was made to be accessed on most electronic devices anytime and in any location to reach the widest audience. At the start of the questionnaire in appendix G the blurb explained the purpose of the questionnaire, the target audience, where the results were going to and where to get more information. All the participants contacted were 16 years and over and could give their own implied consent. The participants had the choice to submit and take part, end, and withdraw or not participate. If the participant clicked the 'submit' button at the end of the questionnaire the researcher assumed that the participant consented for that data to be used in the research. Saunders et al., (2016) state that implied consent is "where agreement to take part leads to the researcher to assumed that data may be analysed, used, stored and reported as he or she wishes without clarifying this with the participant" (pp 251-252). The participant may not have fully understood their rights and place in the research. After submitting, the questionnaire could not be retracted as they were anonymous. The questionnaire data was stored on a password protected computer that could not be accessed but anyone but the researcher.

4.6.2. Method 2: Focus groups

There were two focus groups, one with year 9 students who were 13 or 14 and another with year 12 students who were 16 or 17 years old. The year 9 students were given participant information sheets

and consent forms for their caregiver to read and sign. The caregiver could read, assess and explain the risks to the student, so they could both understand the nature of the research the student would take part in (see appendix C and D for reference). This type of informed consent meant that the guardian and participant had all the information about the research, where the data was going to be used, how it would be stored, the general procedure of the focus group and who to contact if the caregiver had any other questions regarding the research topic.

Similarly, the year 12 participants who were 16 or 17 years old were given the same information but the wording for the participant information sheet and consent form was specifically towards their age group. The students could assess the risks and decide on the nature of the study for themselves, as they are deemed competent enough to make an informed decision for themselves (Office of Children's Commissioner, n.d.) and sign the consent form themselves (see appendix E and F). The supervising teacher acting on behalf of the researcher at the chosen school gave out the forms and collected them back in from the year 9 and the year 12 students. By giving back the signed consent forms this showed that the participants actively wanted to take part. The supervising teacher chose the participants on a first come first served basis from the students that brought back their signed consent forms.

The young women were asked not to use their names on any of the questionnaire given out to them, they were informed that they would be voice recorded, so they could be anonymous. The research was conducted in the school grounds and a familiar environment to the young women, the researcher could be at risk by not having a supervising teacher there. A pre-done criminal justice check was declared, and covid-vaccination declaration was shown to the supervising teacher before the researcher allowed contact with the students to lower risk to the students.

4.7. Summary

This chapter has discussed the pragmatic research philosophy for the study and the methods approach that highlighted the two ways of data collection. The inductive research design allowed for exploration and movement within the research topic for things to be changed and with no expectation of what results were found. The online questionnaire was intended to collect quantitative data from a demographic of young women to see where got their information about sustainable menstrual products and their thoughts and feelings towards them.

The focus group allowed a talking platform to collect richer qualitative data straight from the target audience for the research, where the participants could present their thoughts and opinions on how they wanted to be educated and gain more knowledge about menstruation and sustainable menstrual products.

To reiterate the objectives of the study, they were.

1. To determine how young women get knowledge of sustainable menstrual products.
2. To investigate the significance of education and resources on sustainable products.
3. To ascertain which sustainable menstrual products are preferred and why.

Chapter 5. Findings and Analysis

5.1. Introduction

This chapter will discuss the findings and themes that have come from the qualitative and quantitative data. A total of 73 young women aged 16-19 answered the questionnaire. The numerical data will be shown and explained from the online questionnaire in the form of graphs and tables.

The qualitative data was collected from two focus groups with year 9 students who were 13 or 14 years old and year 12 students who were 16 or 17 years old. The researcher showed the students sustainable menstrual products, gave a brief introduction to each, and asked the students questions on their thoughts and feelings about them. The focus groups have been analysed together following Braun and Clarke's (2006) thematic analysis approach. Three themes have been identified in the data through a thematic analysis approach.

5.2. Results

5.2.1. Method 1: Online questionnaire

The questionnaire was completed by 73 young women who attended a single sex high school. Participants were asked about their menstrual product choices in question 3 of the online questionnaire. Table 4 illustrates the responses. This was an open question and participants could list more than one response.

Table 4 Menstrual product choices

Pads	Tampons	Period underwear	Menstrual cup	Reusable pads	Liners	Contraceptive
34	33	6	4	0	1	3

The question was open for the young women to list what menstrual products they chose to use whilst on their period. The results show the most popular products that the young women chose to use. The most popular was pads, then tampons, period underwear, menstrual cups and some of the young women stated they were using contraception. It is worth noting that reusable sanitary pads were not mentioned at all.

Question 4 from the online questionnaire asked participants where if they had seen, heard of, touched, or never heard or seen any of the sustainable menstrual products before. Table 5 presents the results. The participants could tick the choice that applied to them or a combination of the answers.

Table 5 Results on if participants had seen, heard, or touched sustainable menstrual products

	Touched it	Seen it	Heard of it	Never heard of or seen it
Menstrual cup	16	37	37	0
Reusable pad	8	18	36	21
Reusable period underwear	22	38	31	0

Period underwear rated the highest of the products the participants had touched and seen. Menstrual cups rated highest on participants who had heard of the product. Reusable pads were the least known product to be seen or heard of.

In question 5 participants were asked where they had seen the different sustainable menstrual products. Table 6 highlights the different answers. It was multiple choice and participants could choose more than 1 option.

Table 6 Where young women gain information about sustainable menstrual products

	Through friends	Through family	Social media	Internet/websites	Brochures/ information leaflets	School	Not applicable
Menstrual cup	19	17	52	13	3	11	1
Reusable pad	4	8	41	8	0	4	22
Reusable period underwear	15	19	60	17	4	3	0

The table above shows where young women have obtained information about sustainable menstrual products. For all three products, in green writing, social media has the highest number of responses and, in red, writing, brochures and leaflets with the least number of responses.

Students were asked how they felt about menstrual bleeding in question 6. Figure 1 illustrates the responses. There was a premade list of answers where one or more could be chosen. There was also the option to add more answers or statements.

Figure 1 The feelings towards menstrual bleeding

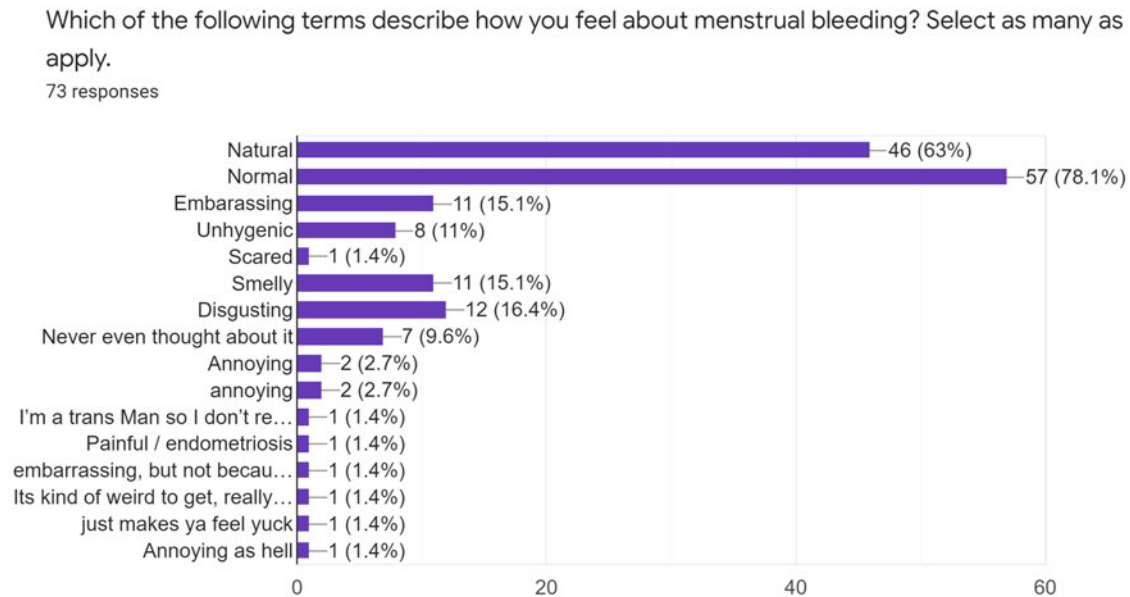
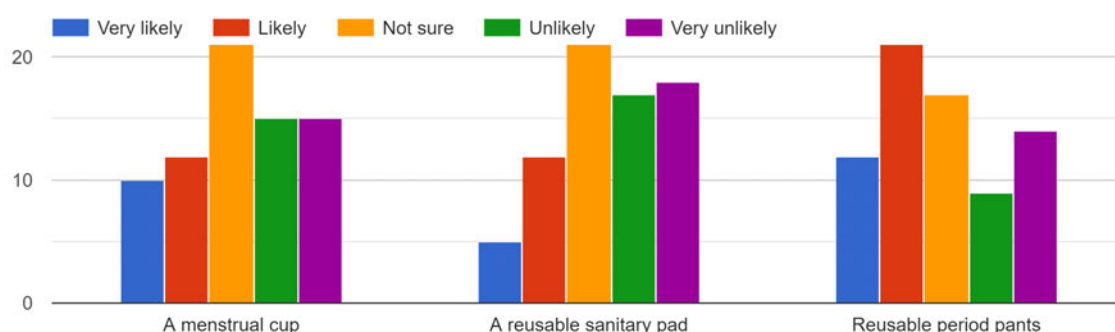


Figure 1 documented the different answers. It was noted that ‘natural’ and ‘normal’ are the most popular answers. There were significantly less participants choosing ‘embarrassing’, ‘disgusting’ and ‘smelly’ as words to describe menstrual bleeding. After the answer ‘never even thought about it’, participants have added in their own statements.

Question 7 was a Likert scale, to ask how likely young women were to use or try the three different sustainable menstrual product options.

Figure 2 Likelihood of young women choosing sustainable menstrual product

How likely are you to use/try the following products



The likelihood of the young women trying or using these products was low, many saying that they were unsure about using them. Reusable sanitary pads were the least likely item to be used or tried, reusable period underwear were the most likely sustainable menstrual products the young women would use or try.

In question 8 the young women were asked to guess how long they thought each sustainable menstrual product lasted. There were four different options to choose from and the students could only tick one answer per menstrual product.

Table 7 How long sustainable period products last

	1 year	2 years	10 years	15 years +
Menstrual cup	35	17	15	6
Reusable sanitary pad	52	18	2	1
Reusable period underwear	40	30	2	1

Table 7 shows that 1 year was the most common answer for how long all the sustainable period

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
I would use a menstrual cup, but it is too expensive	1	11	30	23	8
I would use reusable sanitary pads, but they are too expensive	0	9	31	23	10
I would use reusable period underwear, but they are too expensive	3	16	23	20	11
I would use a menstrual cup, but I don't know where to get it	5	12	16	28	12
I would use reusable sanitary pads, but I don't know where to get them	10	12	21	19	11
I would use reusable period underwear, but I don't know where to get them	3	7	27	22	14
I would use reusable period products if I knew more about them	10	28	23	9	3
I would use/try a reusable menstrual product if it were free	28	20	15	6	4
Making environmentally conscious choices is important to me but not for period products	8	16	24	19	6

products lasted which is shows a lack of education and information sharing about the different products.

Question 9 was another Likert scale about different statements on the reasons why or why the young women were using or not using sustainable menstrual products. The statements gave the options ranging from strongly agree to strongly disagree about the nine statements.

Table 8 reasons why and why women are using or not using sustainable menstrual products

The most common answer for the question about product expense showed disagreement to using menstrual cups and reusable sanitary pads. Again, for the menstrual cup and reusable sanitary pad disagreed with using the product if they knew where it was available, whereas reusable period underwear was the product that the young women would use if they knew where to obtain them. The prevalent answer to note was that the participants would use or try the sustainable menstrual products if they knew more about them. If the products were free students would be likely to try them. There was a lot of disagreement over the usage of the products. Environmental impacts did not seem to

play a part in period product choice. 31% of the participants 'not sure' answer for all questions show a lot of uncertainty around the products.

Summary of the questionnaire results

- Young women are stilling using one-time disposable products more commonly than sustainable menstrual products.
- Social media is a way to target young women to advertise and inform them about sustainable menstrual products.
- Reusable period underwear, from the analysis, seemed to be the most likely product that young women were likely to use or try.
- Young women have heard and have seen menstrual cups, reusable sanitary pads and reusable period underwear but are still lacking information regarding sustainable menstrual products to make an informed decision about using them, environmental impact where to obtain the products and how much they cost.

5.2.2. Method 2: Focus Groups

Questionnaire snapshot

The first focus group was held with young women, year 9 students who were 13 or 14 years old. The second with another group of young women, year 12 students (aged 16-17). There were seventeen participants in total that took part in the focus groups. Firstly, the students filled out a short questionnaire on if they had seen or heard of the different sustainable menstrual products, then the researcher asked a series of predesigned questions about the products prior to the participants being able to touch and feel the reusable products. The participants were then able to touch and talk to the researcher and each other about the products, then the researcher asked further questions about they felt about the different products. At the end of the focus groups the participants filled out another short questionnaire about how likely they were to use the different sustainable menstrual products that were discussed and explored in the focus group. These two questionnaires were designed to provide a quick 'snapshot' of the participants' knowledge and attitudes before and after the focus groups.

Questionnaire 1 of the focus groups where the participants were asked multiple-choice questions on whether they had seen or heard of the different sustainable menstrual products. The results from the focus group questionnaire 1 for year 9 and year 12 are compared together.

Table 9 have the participants seen or heard of the different menstrual products?

	Yes	No	Not sure
Menstrual Cup	12	2	3
Reusable period underwear	17	0	0
Reusable sanitary pad	12	4	1

The results show that reusable period underwear was the most familiar to them.

Questionnaire 2 asked the participants in a new series of multiple-choice questions, after taking part in the focus group discussion on the different sustainable menstrual products, how likely they were to use the different products. Both the year 9 and year 12 groups results are combined.

Table 10 Likelihood of sustainable product usage

	Very Likely	Likely	Not sure	Unlikely	Very unlikely
Menstrual cup	2	3	8	2	2
Reusable period underwear	5	11	0	1	0
Reusable sanitary pads	2	4	5	5	1

The results from questionnaire 2 shows that the young women are mostly likely to choose reusable period underwear over the other products.

Focus group discussion thematic analysis

The three themes that were present in the data from both focus groups were, talking about not talking, which was a discussion about sharing about not sharing thoughts and feeling about menstruation and period products. The second theme was disguising the red which was dialogue about their feelings of menstrual bleeding. The last theme was screened exploring where the participants got their knowledge and preconceptions of the sustainable menstrual products from.

Talking about not talking

The young women reported not knowing how, where or who to talk to in relation to seeking new information about the different sanitary items available to them. The general census was they wanted

to learn about all sanitary product options at school where they learnt with their peers and either from their health class or someone educated specifically in that area.

Most participants reported that they had never had an informal discussion with anyone prior to this one, about reusable menstrual products, how to use them, where to buy them, the material, and the cost. From questionnaire 1 the results showed that most of the participants in the focus groups had seen or heard of the different sustainable products, so they were not completely new to them. One participant started, “you (the researcher) are the first person who has sat down with us and explained about these reusable products”. Their mother or close female relatives were the place they got their basic knowledge of the products. Their mothers and female relatives are the ones they received their first knowledge on periods and the products that were chosen by them were what the girls would use for themselves. It was noted a cultural point was to only use menstrual products that were on the outside of the body which can be common in many countries regarding a young woman’s virginity.

The young women wanted and suggested that advertisements and information sheets should be put in their school bathrooms about all the different menstrual products that were available to them. The teacher was a popular suggestion of where they wanted to learn and have practical lessons on the usage of the products, with diagrams and videos to help stem the concerns they may have and to abolish any taboos.

The topic of not talking created many uncertainties and distrust amongst the young women and they were able to voice them during the focus group, as they had not been able to do so prior to this. Peer support in the room gave the girls confidence to speak as they had not been able to find a safe space amongst themselves to talk about them or to receive information in this type of informal setting before.

Nervousness seemed to hold the room of young women as they discussed something unknown to them. They felt they needed instruction and training sessions to feel more confident. Even though there was much discussion on the different products the hold of the disposable products was still present as the other ones were new and not seen in the supermarket or local shops where the girls could view them frequently or be able to see a sample.

Disguising the red

Discussing their feelings of why or why they would not use the different products, many of the participants asserted that seeing the red menstrual blood was what held them back from choosing sustainable menstrual products. The reusable sanitary pads that were shown to the young women had white as the main colour. The contrast of red to white is significant, bold and could stain which seemed to deter the young women from wanting to use the product. This is exemplified in the words of one participant saying that “the red blood just looks gross”.

During the discussion between the young women the word “gross” was mentioned multiple times throughout the focus group, most commonly regarding the actual look of the blood, then towards their feeling of it and leakage causing stains or for other people to know they were on their periods. Discretion was a theme that they wanted from their product choice as they were afraid of their peers knowing they were on their period and that the blood stains were scary. As one participant reaffirmed that “I don’t want people to know I am on my period or leak anywhere, it’s just embarrassing.”

From a show of hands in the room the product that they rated most popular was the black period underwear as they felt it would be the most absorbent, the least invasive, least embarrassing and they claimed would be the easiest to wash and take care of. They did not want the blood to be seen by others in the washing stage and black would disguise the red coloured blood. The menstrual cup was seen to be too invasive, intimidated the young women as they did not feel they could trust that it would hold their menstrual blood. The young women said the reusable sanitary pads were the simplest, saved money, was eco-friendly and was useful and as the most like the products they already used. They were still worried that they would leak, and they did not want to see their blood on the pad itself. The questionnaire at the end of the focus group reiterated that reusable period underwear was the most popular option.

Screened

The participants reported that a popular place to see different sustainable product options were social media platforms, to name the most popular Tik Tok, Instagram and Snapchat were mentioned multiple times. Tik Tok and Snapchat for reusable underwear with popular young female celebrities or other young women modelling them. One participant explained “oh yeah, on Tik Tok you see the girls dancing about in their period undies looking all cool and stuff.” Instagram is where they said they had seen menstrual cups and period underwear. The products that were the least common,

known about or advertised on social media were the reusable sanitary pads. The advertisements they felt were specifically targeted at them through these different social media platforms.

The marketing done by the manufacturers and suppliers is useful initially for young women to be made aware of the products, yet the participants felt they learnt more by touching, feeling, and asking questions about the different sustainable and disposable menstrual products. The participants expressed that the ability to research the products from a phone, tablet or computer screen was a safe and private space where they can inform themselves on the different sustainable menstrual products. Screens were not a barrier for the young women to gain some information but a barrier that marketers have yet to cross to be able to show young women their products in a more public space.

Advertisements and social media are a way that sustainable products are shown to the young women even though they may not be influenced to buy them. Yet this form of information does not allow them hands on experience or the ability to touch the products, to ask questions and voice their concerns.

Many of the young women had never even seen or touched the products before and professed their want to be shown and ‘trained’ on how to use the different products and not just be shown on a video or social media. This is embodied in the statement by one participant stated, “thank you for teaching us I have learnt a lot.” Their own concerns about lack of knowledge gave way to suggesting what they wanted to know and where they wanted to see it, for example, one participant explained that “it would be good to see posters in the schools’ bathrooms or see the stuff in health class at school”, also it was suggested that selling the products in local supermarkets would make the products more accessible.

5.3. Discussion

Online questionnaires

The online questionnaire results looked at the thoughts and general feelings on sustainable menstrual products from a group of young women aged 16-19 at a single sex high school. The results of the question show the target audience to be representative of the New Zealand population young women attending high school.

One key finding from the online questionnaire showed that a large portion of the students had seen or heard of the products, but many had not had the chance to touch the products. This is a vital opportunity for marketers and sustainable product brands for creating uptake and usage of the products. Liu et al., (2021) notes that “as young people increasingly turn to technology, marketers will likely use their data to design future menstrual product campaigns, which in turn may shape girls’ perceptions of menstruation and its management” (p.1). This shows that advertising and marketing is a vital and private way for displaying different menstrual product options to young women.

The results of the online questionnaire also suggest that most of the young women thought that periods were normal and natural. Wootton and Morison (2019) reported that “constructing menstruation as ‘a normal thing’ and drawing on the discourse of menstruation as natural allowed participants not only to resist stigma associated with femininity, but also to construct alternative positive positions as women” (p. 96). As menstruation is a process that women go through regularly, the research promotes acceptance and regularity towards it. The words smelly, disgusting, unhygienic and embarrassing were also noted as common words to describe periods by participants. This can be related to the study by Kaur et al., (2018) where periods were seen to be “unclean and polluting” (p.2).

One key finding from the online questionnaire is that young women’s product choice was largely towards one-time use disposable products. A small portion of respondents used reusable products, but reusable sanitary pads were not mentioned at all, showing their lack of usage amongst the young women. This gives the opportunity to expand young women’s knowledge as much of the literature in chapter 3 encourages. The results on the actual products used for the young women’s period correlate with studies conducted on the uptake of menstrual cups. For example, Chintan et al., (2017) found that the 100 women who participated in the research mostly used pads and tampons (p.81). After having an informal session, information supplied to them and the opportunity to go away and try the product 85% of the women stated they would use the menstrual cup (p.81). From Meenakshi’s (2019) research on the taboo in consumption of sustainable menstrual products a participant mentions that the uptake would be slow for sustainable menstrual products and should be a choice of free will and social constructs and traditional products are still steering women away from the alternatives (p.250). This can be related to the questionnaire results on the likelihood of young women wanting to use or even try the different sustainable menstrual products with or without

information provided to them. Meenakshi's (2019) study has similar findings to the present study where the results suggest that the young women would use sustainable menstrual products if they knew more about them.

A further finding from this research is that social media and friends are the most common places where the participants get information on different sustainable products. Fahs (2016) suggests that menstrual activists are using social media as a channel to get topics around menstruation into the public eye. Likewise, the literature also suggest that peers can be an influence on the uptake of the sustainable menstrual products as Oster and Thornton (2012) found in their study on menstrual cup uptake in Nepal with young women at schools. Both in the present study and in Oster and Thornton's (2012) study, findings show that young women were more likely to use the menstrual cup after talking and consulting with each other as talking and discussion help build confidence.

Phillips-Howard (2016) conducted a feasibility study on young women's usage of menstrual cups and disposable sanitary pads in correlation with school drop-out rates and sexual and reproductive health (p.7). To help overcome this, donations of a free second menstrual cup for each menstrual cup sold is becoming more (p.7). The online questionnaire results show there would be more uptake on sustainable menstrual products if they were free and some of the young women believed the menstrual cup, reusable sanitary pads and the reusable period underwear were expensive. There are companies or charities that have started to do this with their products in New Zealand, more specifically for reusable period underwear and menstrual cups. The initiatives look at either donating sustainable menstrual products or promoting customers to buy those products for others (Awwa, 2021; Dignity, 2021, Modibodi, 2021 Mycup, 2021; Wā Collective, 2021).

Focus Groups

As outlined above, three main themes could be seen in the focus group results, talking about not talking, disguising the red and screened. These themes can also be seen in other studies in this area. For example, talking about not talking can relate back to feminist discourse theory in chapter 2. Tennant and Brookes (1998) and Culling (2001) suggested that the 1960s and 1970s feminism and menstruation became more of a talking topic with discussions, information collecting and sharing about periods and menstruation.

One key find from the focus groups is regarding the theme disguising the red, where the young women stated that they were uncomfortable and embarrassed about their period. This relates back to the theory of the politics of disgust which Wootton and Morison (2019) discuss, stating that this self-regulation is upheld through the politics of disgust, not only women’s own desires to control their own “gross bodies,” (2019). In a study carried out at a health clinic by Chintan et al., (2017) the female participants described feeling soggy and afraid of staining in public (p. 81). Wootton and Morison (2019) found in their research teenage girls describing their period as ‘gross’, ‘yuck’ and ‘disgusting’ (p.94).

Another key finding from the focus group, screened, and disguising the red, relates to menstrual product advertisements on television using blue liquid to represent menstrual bleeding. For example, Koskenniemi (2021) notes that it has not been until very recently that a redder blood like liquid has been allowed to be shown (p.6). This represents a shift in how the media sees periods, by not hiding the reality and screening it from young women. Phillips-Howard (2016) suggests that “different marketing strategies among the available brands are evolving” (p.7). The literature suggests that the act of showing and talking about the products to young women increases the opportunity of uptake of the sustainable menstrual products. The show products in their real forms, for potential customers and users to touch them.

How the data collection methods triangulate

The online questionnaire and focus groups are compared to see if any of the results correspond with each other and to see where there are any differences and gaps. The main findings from the questionnaire and the focus groups are summarised in Table 11.

Table 11 Main findings from the online questionnaire and focus groups

	Online Questionnaire	Focus groups
Knowledge and awareness	52% of young women agreed that they would use menstrual products if they knew more about them.	Talking about not talking – The participants noted that they rarely spoke about periods and menstrual products at school or with friends.
Attitudes	Reusable period underwear was the product option that 15% of	Disguising the red – Young women felt embarrassed about seeing their own menstrual blood.

	the young women chose with the highest likelihood of usage.	
Information sources	47% of the answers from the young women rated social media was the most common way to obtain information about sustainable menstrual products.	Participants noted that they saw and heard of the products from social media platforms which is behind a screen and not touching the physical product.
Attitudes	The most common answers to describe menstrual bleeding were, 'normal' and 'natural'.	
Attitudes		The young women described their periods as 'gross', 'embarrassing' and 'uncomfortable'.
Attitudes	Young women are stilling using one-time disposable products more commonly than sustainable menstrual products	
Attitudes		The young women suggested a combination of products, mostly commonly disposable sanitary pad with reusable period underwear.
Information sources		The young women suggested putting information about sustainable menstrual products around the school and in the bathrooms, they wanted to see videos, diagrams, have training on product usage and be taught about them in health class.
Attitudes		The concerns about the products were that they were uncomfortable, that you might see the menstrual blood, if the products were secure or leak. The students recognised that the products would be use less plastic.
Knowledge and awareness	The participants were unaware of longevity of the products and did not feel they had to be environmentally conscious about menstrual products.	

The present study looked at how young women perceived sustainable menstrual products, where they gained information and which products they preferred. The online questionnaire and focus groups

share similar findings in relation to the lack of knowledge the young women spoke about or obtained which relates to the lack of uptake of the products. Previous research showed that education and training on the products increased the uptake and usage of sustainable menstrual products, specifically the menstrual cup (Beksinska et al., 2020; Madziyire et al., 2018; Oster & Thornton, 2012; Phillips-Howard et al., 2017; Rashid, 2021; van Eijk, 2018).

In the online questionnaire and focus groups the findings regarding young women's attitudes towards sustainable menstrual products, for example, were more than 50% of the themes. Information sources and knowledge and awareness were lacking. This shows that there is the opportunity to create places where young women can obtain information and be exposed to the different sustainable menstrual products. This can lead to increasing the likelihood of uptake and continuous usage.

The online questionnaire results showed that the period underwear was the option that young women would choose to use. Similarly, in the focus groups young women stated that periods were 'gross', they were 'embarrassed' and 'uncomfortable' at the sight of their own blood and would opt for the coloured period underwear as it was a 'safe' option to use. There was a lack of studies on period underwear, which made the present study difficult to compare to another or find any running patterns, yet the focus group and online questionnaire showed them to be the more popular product of choice. The disposable sanitary products rated most popular in the online questionnaire and the products that were deemed 'invasive' or showed the blood red colour were not popular from the young women's perspective in the focus group. While there are limited studies on how young women feel about reusable sanitary pads, what little research that has been done does not reflect the key findings here, that young women did not want to use them because of seeing their own blood and having to wash them made them feel 'uncomfortable' and 'embarrassed'.

From the results of the online questionnaire and focus groups social media channels were comparatively noted to be the place where young women obtained information and exposure to sustainable menstrual products.

5.4. Summary

The chapter has presented the results from the questionnaire and focus groups. The study highlights the lack of information and knowledge that young women receive regarding sustainable menstrual products and the results show which channels this could be conducted through. The questionnaires,

completed by 73 young women, showed that a knowledge gap for young women can be filled using social media to give them information about sustainable menstrual products. The lack of knowledge around sustainable menstrual products showed from the online questionnaire on the likelihood of uptake of the alternative products.

Two focus groups with students in year 9 and year 12 were also conducted. The results found that there was a genuine concern about not talking about menstruation and the lack of knowledge the participants felt that they had. The nervousness around menstruation and period blood reiterates the need for more research and education to close the knowledge gap in the field of research. Hands on training and workshops were suggested by participants as they only received some information from advertisements and social media channels.

Chapter 6. Recommendations and Conclusion

6.1. Purpose of the research

The aim of the research was to look at the perceptions of young women on sustainable menstrual products. The findings from the study are important because they highlight a knowledge gap on sustainable menstrual products.

To determine how young women get knowledge of sustainable menstrual products.

Findings from the online questionnaire showed that young women preferred to get information in the private space of social media platforms. The two focus groups showed named Instagram, Tik Tok, Snapchat and Facebook as example of the social media platforms which the young women obtained information about the different products. The young women in the focus groups wanted to see information around their school and to be given workshops and information directly from their school.

To investigate the significance of education and resources on sustainable products.

The online questionnaire showed that due to the lack of education and knowledge about the products the uptake on sustainable menstrual products would be low, as young women were unaware of the products, where to obtain them, their cost and the environmental impacts of the products.

After asking young women in two focus groups at the chosen single sex high school about their uptake on sustainable menstrual products. They felt that they needed workshops and training about the different sustainable menstrual products

To ascertain which sustainable menstrual products are preferred and why.

The online questionnaire distributed to a group of young women (16-19) showed that reusable period underwear was the most likely to be used amongst the young women and the reusable sanitary pads were the least likely to be used out of the three sustainable menstrual products discussed in the present study. Tampons and one-time use only sanitary pads were still the most popular products used out of all the menstrual products.

In chapter 2 the feminist theory of menstruation recognises the importance of talking and sharing information with the goal to decrease taboo, stigma and health problems related to menstruation amongst women. The industry analysis showed the most recent products that women could consider using. An online questionnaire and two focus groups were conducted to speak to young women about how they felt about sustainable menstrual products. The findings showed concern and lack of knowledge on the sustainable menstrual products, this meant that the uptake and usage would be less.

6.2. Relationship to previous research

Chapter 3 explored the literature relating to taboos on menstruation, environmental impacts of one-time use only products and the awareness of sustainable menstrual products. Thus, defying the status quo and creating more normalcy towards menstruation management hygiene, cultural and social factors. Fahs (2016) argues that “menstrual activists want both men and women to develop stronger and more nuanced critical consciousness about the social constructedness of menstruation” (p.4). The literature in chapter 3 concurs a sense of discovery and information gathering towards to menstruation and menstrual products, to see how audiences react or the uptake on the products. The studies by Chintan et al., (2017), Enzler, (2018), Kaur et al., (2018), Meenaskhi, (2019), Mudziyire et al., (2017), Oster and Thorton (2012), Rashid, (2021) Srinivasan et al, (2019), van Eijk, (2016), van Eijk et al., (2018) showed that there was a large focus on menstrual cup education, training, and promotion of uptake on the product. This allowed the present study to have relevance in the menstruation field of research and to add to the body of knowledge relating to sustainable menstruation and education about the different products and apply it to the present study.

The specificity of this research creates a niche that fits into the fields of health, psychology, and the environment. The implications of not teaching young men and women about menstruation and sustainable menstrual products creates an ongoing cycle of uncertainty and knowledge gap. With the internet becoming substantially more popular and available around the world, the accessibility to information is there. Information can be created more easily, circulated, and displayed in more places, to wider audiences. The feminist theory of talking about menstruation can continue through this type of research and help to increase the menstrual products industry and expand knowledge

toward sustainable menstrual products, their purpose and all the options that are available to adolescent menstruators.

6.3. Limitations of the present study

The study was small and carried out in one school in one city in New Zealand, therefore the extent to which it is generalisable is a potential issue.

The sample may not be representative of the wider population of young women in New Zealand. For example, the percentage of Māori participants was small therefore is not representative of the school. Also, the sample was not inclusive of all menstruators for example those who identified as young trans men, non-binary and other menstruators. One limitation of this study concerns the time constraint of the research and could not be controlled by the researcher to fully explore all the areas around the research topic. Furthermore, the study was conducted by a female researcher who could not have interpreted the data in all different ways that could represent the population of young women being studied. This creates a bias towards the study.

Another limitation of this study relates to the online questionnaire. The language used in the questionnaire was targeted towards young women who were menstruating or using menstrual products. The words used were not neutral and could not be inclusive of all menstruators

A limitation of the focus groups was that only a certain number of students took part due to the resources, time constraints and the qualitative data being collected. The sample size may not have been representative of young women attending high school in New Zealand. Even if the participant wanted to take part the caregiver may not have wished them to, this is missing out on potential rich data from the target audience. The participants were from a single sex high school and so it is not known if the girls at co-ed schools share the same opinions and if the results would be the same.

6.4. Recommendations for future research and practice

Future practice

The study has the possibility to be repeated at a co-ed school to see if the opinions and feelings of the young women to see if the results of the online questionnaire and the focus groups would be similar.

The online questionnaire could give the option of what young women want to learn about sustainable menstrual products. This creates an opportunity to create a program that develops the young women's knowledge and they receive an in depth and purposeful opportunity to learn about the products available to them.

The methods of data collection could be made to reach a larger audience. For example, all age groups of young women could be asked to take part in an online questionnaire to generate a wider response rate. The focus groups could be expanded to be conducted through all year groups and multiple groups done from each year group to gain a larger sample that would better represent the wider population of the gender and age group that the present study is targeted towards.

For future practices to further explore the present study, the opportunity to widen the audience to be inclusive of all menstruators, non-binary, and trans-men. This means the language would have to be more neutral, the participants more open of their identity's, the questions asked in online questionnaire and focus groups to be less female orientated.

There is the option to see how those who identified as males might react to the topic of research. To change the online questionnaire questions to target young male students on their knowledge and perceptions of sustainable menstrual products. This opens a different perspective and helps to build an understanding for all genders to become well informed and supportive of each other. Having all genders studying about menstruation and the anatomy of all genders can create more equality and respect of each other as individuals and groups.

Future research

The rise in menstrual activism is an opportunity to contribute to this field of research. The lack of knowledge amongst the young women in the present study creates an opportunity for how education can be conducted, presented, and disseminated to young women on women's topics such as sustainable menstrual products, menstruation management, menstrual hygiene, menstrual health, environmental impacts of disposal menstrual products, menstrual product marketing and consumer choices.

A recommendation for future research is to look at how to develop a curriculum with the focus on menstruation education that includes training, instructing, diagrams, mannequins, real life products

to touch, feel and talk about. Interactive workshops that allow adolescent menstruators to gain as much information for themselves about products, health and psychology that goes with menstruation.

Advertising plays a large role in information gathering for any products, not just menstrual products. It is an opportunity to create marketing strategies that are aimed at young menstruators. The marketing to be realistic and truthful, provoking real life experiences and not fantasied or ideal situations around menstruation and menstrual products. The present study highlighted that social media is where young women are getting information from. Marketing companies and menstrual product companies could talk directly through social media to their target market, giving them information in picture form or with short clips about the different sustainable menstrual products. The companies could speak directly to their audience through focus groups to encourage information sharing, product buying and to show the young women samples of the different products as well.

Gender and sexuality politics plays a role in menstruation research as periods are not just experienced by young women, who were the target of the present study, but also non-binary and trans men. This is an area of study for someone who has the experience in gender and sexuality politics can investigate to see how menstruation is viewed, how products are perceived, and marketing affects their choices.

The present study focused on three sustainable menstrual products, menstrual cups, reusable sanitary pads, and reusable underwear. Through the research there was found to be more sustainable menstrual product options menstrual discs, reusable tampons, and reusable applicators. These products give the prospect to expand the study to include these products to see if they are known about, used, or advertised. The same study design could be used with the other discovered products and the research project reconducted or, all six products could be studied in the same project.

Sustainable menstrual products highlight the shocking amount of disposable waste that comes from one-time disposable products that menstruators may not be aware of. The same as informed people about health issues from smoking on the product packing to the need for recycling, menstruators should be in some way informed about the waste they are creating from their menstrual product choices. The need for countries to talk about landfill and waste is brought to the surface, promoting longer-lasting, safer, and more effective products, not just for menstruation but products in general. This is an opportunity to steer customers and the next consumer generation away from consumerist frenzy culture to more conscientious and eco-friendlier consumerism, where there is more thought

towards the products that are being bought. In turn this requires companies to be honest and to manufacture products in an environmentally friendly way.

Sustainability, menstrual management, marketing, and education are all fields of research that can be included under the topic of management directly or indirectly. When a menstruator can feel comfortable, feel fully informed on menstruation and more in control of themselves, they can become more effective at school, at work and in their daily lives. Governments supporting and promoting well-being, teaching about self-care could allow people to manage themselves which is better. This is a key part of growing up and becoming a purposeful member of society that can function highly and healthily.

6.5. Conclusion

After discussing the topic of perceptions towards sustainable menstrual products the need for information to be shared and learnt about is prompted. The online questionnaire and focus groups highlighted the need to help young women gain knowledge about menstrual products, more specifically sustainable menstrual products. Themes throughout the research highlighted a range of concepts such as advertising, environmental impacts of products, consumerism, feminism, and menstruation. These topics all provide opportunities to further explore this field of research. The opportunity for more openness can deconstruct taboos, stigma, and societal constraints around menstruation as a natural bodily process. There is the opportunity to promote sustainable menstrual products, through different advertising, marketing, and buying channels, as an alternative option to the mainstream products available in the supermarkets.

The study has been able to contribute and widen the field of research looking at managing menstruation and the way young women view and feel about the products they use. As noted by Fabs (2016) the niche choice of topic is an opportunity to ‘advocate for more education about the menstrual cycle and more openness about discussing menstruation in health settings, classrooms, and within the home’ (p. 4). The lack of knowledge around the topic of menstruation is creating uncertainty for young women in their lives and possibly closing off opportunities for a target market for sustainable menstrual product companies. From the findings of the perceptions of products there shows an ignorance that needs to be overcome via channels such as social media and through the education system. The need for knowledge sharing about sustainable menstrual products can

contribute to the uptake and usage of alternative products to encourage more women to be menstrual activists.

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Appendix B. Participant Information sheet under 16



Young women's perceptions of sustainable menstrual products in New Zealand

Information sheet for parents and participants

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether to allow your daughter to participate. If you decide to let your daughter participate, I thank you. If you decide she may not take part, there will be no disadvantage to her of any kind and I thank you for considering my request.

Introduction

My name is Jo Spencer, I am currently a student studying for a Master's in Applied Management at the Southern Institute of Technology here in Invercargill.

What is the aim of the project?

The project aims to explore young women's perceptions of the current sustainable menstrual products, such as menstrual cups, reusable pads, and period underwear, that are available to them. I want to find out what the young women know already, their perception and their opinions on the options listed above. I want to see if there has been a change of product awareness with a younger generation and how menstrual products options affects their choices.

What type of participants are being sought?

I am looking to invite young women who attend Southland Girls' High School. They are at an age where they are only just starting their menstruation journey. They are potentially more influenced by their peers, by their education and social media regarding the range of products they might choose to use or experiment with. I am looking for a group of young women from year 9 and a group from year 12.

What will participants be asked to do?

Should your daughter agree to take part in the focus group, it will be no more than 45 minutes to 1 hour. The level of participation is entirely voluntary. Your daughter will not be made to answer or speak about anything she does not wish to, and her identity will be anonymous. The focus group will be led by the researcher. It will start with a short questionnaire about what your daughter might already know about sustainable menstrual products and where she may have seen or heard about them. This focus group will take place in a classroom at the school during a lunch time.

Then there will questions regarding sustainable menstrual products, and your daughter can answer with her own opinions and knowledge of the products, and your daughter may ask questions as well. Then at the end of the session a different questionnaire will be given to her to look at product choices and her awareness. Only issues relating to sustainable

menstrual products will be discussed. Please be aware that your daughter may decide not to take part in the project at any time without any disadvantage to her of any kind.

Can participants change their minds and withdraw from the project?

Your daughter may withdraw from participating in the focus group at any time up until the point at which the data is anonymised and amalgamated into the report, without any disadvantage to yourself/your daughter of any kind.

What data or information will be collected and what use will be made of it?

The focus group will be voice recorded and only the researcher or supervisor will be allowed to listen to it. The questionnaires in the focus group will be used to look at any differences of answers after taking part in the focus group.

Your daughter will be asked to use a pseudonym for the purpose of the questionnaires and voice recording. All information will be kept confidential, and the data will be used by the researcher for the purposes of this study.

What will happen to the results?

The results of the project may be presented in the research project and a copy of the report may be available in the Southern Institute of Technology Research Bank (Invercargill, New Zealand). You or your daughter are most welcome to request a copy of the results of the project should you both wish.

How will the data be stored?

The data collected will be securely stored in such a way that only the researcher will be able to gain access to it. At the end of the project any raw data on which the results of the project depends will be retained in secure storage for five years, after which it will be destroyed.

What if you have any questions about the project?

If you have any questions about the project, either now or in the future, please feel free to contact:

Researcher: Josephine Spencer
Southern Institute of Technology



Supervisor: Dr Sally Bodkin-Allen



This research has been approved by the Human Research Ethics Committee at SIT.

If you have concerns about the **ethical conduct** of this research or the researchers, the following procedure should occur.

Write to the following:

The Secretary of the Human Research Ethics Committee
Southern Institute of Technology
133 Tay St
INVERCARGILL 9840 NZ
Tel: 03 211 2699

All information is confidential and will be handled as soon as possible.

Appendix C. Consent form under 16



Declaration of consent to be in a focus group on young women's perceptions of sustainable menstrual products in New Zealand

Participants 16 years and over

I have had the scope and nature of the research fully explained to us. Any questions about the research have been satisfactorily answered, and I understand that I may request further information at any stage.

I accept and note that:

1. My daughter's participation in this research is entirely voluntary.
2. I understand she may withdraw from participation in the focus group at any time up to the point where the data is amalgamated without explanation, disadvantage, or disincentive.
3. Any information given during the focus group is being utilized solely for the purpose of the specific research project and will not be disclosed to any other person or agency without my express consent.
4. The focus group will be voice recorded for later transcription.
5. This information may be incorporated into the research report, but actual names or other characteristics that may lead to identification of individuals or organisations will not be disclosed.
6. I or my daughter may request to view any completed drafts or sections of the research report to which I have contributed, at any time.
7. A copy of the completed research report will be made available to me, on request, at the conclusion of the research.

DECLARATION

I have read and understood the information set out on this form, and give my informed consent to be interviewed in accordance with the stated terms and conditions.

Name of Research Subject/Participant Name of Researcher

.....
Signature

.....
Signature

Date **Date**

Appendix D. Participant Information 16 and over



Young women's perceptions of sustainable menstrual products in New Zealand

Information sheet for participants 16 and over

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether to participate. If you decide to participate, I thank you. If you decide not to take part, there will be no disadvantage to you of any kind and I thank you for considering my request.

Introduction

My name is Jo Spencer, I am currently a student studying for a Master's in Applied Management at the Southern Institute of Technology here in Invercargill.

What is the aim of the project?

The project aims to explore young women's perceptions of the current sustainable menstrual products, such as menstrual cups, reusable pads, and period underwear, that are available to them. I want to find out what the young women know already, their perception and their opinions on the options listed above. I want to see if there has been a change of product awareness with a younger generation and how menstrual products options affects their choices.

What type of participants are being sought?

I am looking to invite young women who attend Southland Girls' High School. They are at an age where they are only just starting their menstruation journey. They are potentially more influenced by their peers, by their education and social media regarding the range of products they might choose to use or experiment with. I am looking for a group of young women from year 9 and a group from year 12.

What will participants be asked to do?

Should you agree to take part in the focus group, it will be no more than 45 minutes to 1 hour. The level of participation is entirely voluntary. You will not be made to answer or speak about anything you do not wish to your identity will be anonymous. The focus group will be led by the researcher. It will start with a short questionnaire about what you might already know about sustainable menstrual products and where you have seen or heard about them. This focus group will take place in a classroom at the school during a lunch time.

Then there will be questions regarding sustainable menstrual products, and you can answer with your own opinions and knowledge of the products, and you may ask questions as well. Then at the end of the session a different questionnaire will be given to you to look at product choices and your awareness. Only issues relating to sustainable menstrual products will be discussed. Please be aware that you may decide not to take part in the project at any time without any disadvantage to yourself of any kind.

Can participants change their minds and withdraw from the project?

You may withdraw from participating in the focus group at any time up until the point at which the data is anonymised and amalgamated into the report, without any disadvantage to yourself of any kind.

What data or information will be collected and what use will be made of it?

The focus group will be voice recorded and only the researcher or supervisor will be allowed to listen to it. The questionnaires in the focus group will be used to look at any differences of answers after taking part in the focus group.

You will be asked to use a pseudonym for the purpose of the questionnaires and voice recording. All information will be kept confidential, and the data will be used by the researcher for the purposes of this study.

What will happen to the results?

The results of the project may be presented in the research project and a copy of the report may be available in the Southern Institute of Technology Research Bank (Invercargill, New Zealand). You are most welcome to request a copy of the results of the project should you wish.

How will the data be stored?

The data collected will be securely stored in such a way that only the researcher will be able to gain access to it. At the end of the project any raw data on which the results of the project depends will be retained in secure storage for five years, after which it will be destroyed.

What if you have any questions about the project?

If you have any questions about the project, either now or in the future, please feel free to contact:

Researcher: Josephine Spencer
Southern Institute of Technology



Supervisor: Dr Sally Bodkin-Allen



This research has been approved by the Human Research Ethics Committee at SIT.

If you have concerns about the **ethical conduct** of this research or the researchers, the following procedure should occur.

Write to the following:

The Secretary of the Human Research Ethics Committee
Southern Institute of Technology
133 Tay St
INVERCARGILL 9840 NZ
Tel: 03 211 2699

All information is confidential and will be handled as soon as possible.

Appendix E. Consent form over 16



Declaration of consent to be in a focus group on young women's perceptions of sustainable menstrual products in New Zealand

Participants 16 years and over

I have had the scope and nature of the research fully explained to me. Any questions about the research have been satisfactorily answered, and I understand that I may request further information at any stage. I accept and note that:

8. My participation in this research is entirely voluntary.
9. I may withdraw from participation in the focus group at any time up to the point where the data is amalgamated without explanation, disadvantage, or disincentive.
10. Any information given during the focus group is being utilized solely for the purpose of the specific research project and will not be disclosed to any other person or agency without my express consent.
11. The focus group will be voice recorded for later transcription.
12. This information may be incorporated into the research report, but actual names or other characteristics that may lead to identification of individuals or organisations will not be disclosed.
13. I may request to view any completed drafts or sections of the research report to which I have contributed, at any time.
14. A copy of the completed research report will be made available to me, on request, at the conclusion of the research.

DECLARATION

I have read and understood the information set out on this form, and give my informed consent to be interviewed in accordance with the stated terms and conditions.

Name of Research Subject/Participant Name of Researcher

.....
Signature

.....
Signature

Date **Date**

Appendix F. Online questionnaire

Hi there, my name is Jo Spencer, and I am a student at the Southern Institute of Technology in Invercargill studying a Master of Applied Management. The aim of my research is to look at young women's knowledge, awareness, and choice of sustainable menstrual products here in New Zealand. I am looking for young women who go to high school and are 16 and over to take part. It will only take a few minutes of your time and your answers will remain confidential and anonymous.

The questionnaire asks you for your opinions, knowledge of menstrual cups, reusable pads, and period underwear. Young women at your school in years 11, 12 and 13 who are 16 years and over will be asked to fill in the questionnaire. Information from this questionnaire will help my research to explore how these menstrual products are viewed by the next generation of young women and how your product awareness affects your longer-term choices.

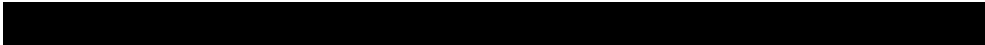
Please answer as best you can, there are no right or wrong answers just your own opinions. Please don't put your name on the questionnaire. No one else will know what you write. You don't have to fill out the questionnaire if you don't want to. Please answer every question as best as you can.

By completing the questionnaire and submitting, you are agreeing for your answers to be used in my research project. The completed questionnaires will be stored in a password protected computer for a period of 5 years, and then destroyed.

Thank you very much for helping me with my research.

Jo Spencer

Southern Institute of Technology



Ethical approval for this research has been granted by the Human Research Ethics Committee at SIT

Which products (if any) do you usually use?

Long answer text

Have you ever seen/heard of a menstrual cup?

- Yes
- No
- Not sure

Have you ever seen/heard of a reusable sanitary pad? *

- Yes
- No
- Not sure

Did you take part in a focus group at your school on sustainable menstrual products? If 'yes' *
please do not answer this questionnaire.

Yes

No

How old are you? *

16

17

18

19

What is your ethnicity? *

- Maori
- Pacific Peoples
- Asian
- South or central American
- European/Pakeha
- Other...

What menstrual products do you usually use? (Please list below) *

Long answer text

Have you ever heard of any of these sustainable/reusable menstrual products? *

	Touched	Seen it	Heard of it	Never heard or see...
Menstrual cup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reusable pad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Period underwear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have heard of any of the products listed above, where have you seen/heard of them? *

	Through fri...	Through fa...	Social Med...	Internet w...	Brochures/...	School	Not Applic...
Menstrual ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reusable ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reusable u...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which of the following terms describe how you feel about menstrual bleeding? Select as many as apply. *

- Natural
- Normal
- Embarrassing
- Unhygienic
- Scared
- Smelly
- Disgusting
- Never even thought about it
- Other...

How likely are you to use/try the following products *

	Very likely	Likely	Not sure	Unlikely	Very unlikely
A menstrual cup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A reusable sani...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reusable perio...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How long do you think each of these products lasts? *

	1 year	2 years	10 years	15 years+
A menstrual cup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A reusable sanitary...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reusable period un...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please read and answer the following statements. *

	Strongly agree	Agree	Neither agree n...	Disagree	Strongly disagr...
I would use a m...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use a m...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use reu...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use reu...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use reu...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use reu...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use reu...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use/try ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making environ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix G. Focus group questions

Where do you typically get the most information about sanitary products from?

Where would you like to see more information about sanitary products?

If you want to share what are the reasons you chose the product that you currently use?

What are your impressions of the product?

If you have ever seen or heard of these products, where have you seen or gotten information about them?

Do you have any thoughts on the menstrual cup?

Do you have any thoughts about the reusable pads?

Do you have any thoughts about the reusable period underwear?

Have you ever touched or felt any of these products before?

Do you have any concerns about any of the products?

If you would use any of the products, which would you choose and why? If you want to share.

Do you know what any of the products are made of?

Appendix H. Focus group questionnaire 1

Questionnaire 1 - year 9 and year 12

Form description

What is your name for this focus group? (please do not use your real name) *

Short answer text

Do you or have you have menstruated?

Yes

No

Have you ever seen/heard of a reusable period underwear? *

Yes

No

Not sure

Do you have any concerns or thoughts about reusable menstrual products? *

Long answer text

Appendix I. Focus group questionnaire 2

Questionnaire 2 - year 9 and year 12

Form description

What was your name from the focus group? (Please do not write your real name) *

Short answer text

How likely are you to use/try the menstrual cup? *

- Very likely
- Likely
- Not sure
- Unlikely
- Very unlikely

How likely are you to use/try a reusable sanitary pad? *

- Very likely
- Likely
- Not sure
- Unlikely
- Very unlikely

How likely are you to use/try reusable period underwear? *

- Very likely
- Likely
- Not sure
- Unlikely
- Very unlikely

Do you have any further comments or thoughts regarding sustainable and reusable menstrual products. *

Long answer text