

Sustainable Menstruation:

Investigating the impacts of sustainability information interventions on willingness-to-pay for menstrual cup

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BACKGROUND

Sustainable menstruation refers to the practice of using menstrual hygiene products which benefit the user's health, social and economic wellbeing, and minimizes negative environmental impacts. Sustainable menstruation in Canada is impeded by the popularity of and partiality to disposable products like sanitary pads and tampons.

Each year, it is estimated that 20 billion sanitary pads, tampons, and applicators are sent to North American landfills, and each menstruating individual is estimated to produce between 125-150 kilograms of disposable menstrual waste in their lifetime¹. There are several reasons women may choose to use certain menstrual products over others, including, but not limited to cost, level of familiarity, convenience, recommendation by others, cultural norms, health concerns, and eco-friendliness.

The DivaCup is a durable, reusable menstrual cup which lasts its three years or more, providing its user with long-term cost savings (an estimated \$4,000 lifetime savings)², reduced menstrual waste (Table 1), and benefits for their health and everyday convenience³. This study explored the impacts of a sustainability information campaign on demand for the DivaCup menstrual cup among students at the University of Toronto. Understanding consumers' motivations and influencing factors associated with choice in menstrual hygiene products, and the barriers to adoption for sustainable products such as menstrual cups will offer an understanding on how to promote more sustainable menstrual hygiene habits.

RESEARCH QUESTION

What effect does providing information about the private or environmental benefits of menstrual cups have on women's willingness-to-pay for the Diva Cup?

ADDITIONAL SUPPORTING QUESTIONS:

- What types of women are likely to use the Diva Cup?
- Do women place different economic values on the Diva Cup depending on the types of information they receive about the product?
- What are the main factors that influence women's choice of menstrual hygiene products?
- What are the most effective communication channels for educating women about menstrual hygiene products?
- What is the current level of awareness and take-up of menstrual cup amongst this demographic?

RESEARCH OBJECTIVES

This research aims to identify the motivations for choice in menstrual hygiene product among this demographic, and whether raising awareness of the sustainability benefits of the DivaCup compared to disposable products such as sanitary pads and tampons will influence consumer behavior.

The main objective for this research is to provide insight into the impacts of sustainability education or information campaigns, and the susceptibility of this demographic to this type of information for necessity goods like menstrual hygiene products.

METHODOLOGY

This research used a mixed-method approach including 1) A survey, and 2) A randomized control trial experiment using an adapted version of the Becker-DeGroot-Marschak method⁴.

- 1) The **survey** collected information on the participant's motivations, perceptions, experiences, and consumer behavior related to menstrual hygiene products, including:
 - Preferred choice of product, sources of education received on products, importance of cost vs. sustainability in purchasing decisions, and previous knowledge or awareness of the menstrual cup.
- 2) The **randomized controlled trial experiment** first provided participants with one of three possible sustainability information treatments:
 - **Control** (no information provided on the sustainability benefits of the DivaCup)
 - **Private Benefits** (information provided on the socio-economic benefits of the DivaCup such as cost-savings and convenience)
 - **Environmental Benefits** (information provided on the DivaCup such as waste reductions and reduced resource demands)

Participants were then asked to choose between receiving a DivaCup or an Amazon Gift Card (in incrementally increasing values from \$5 up to the market price for the DivaCup) until they chose the gift card (indicating their maximum willingness-to-pay for the DivaCup). The participant then drew a random value from a bag. If the value drawn was **lower** than their greatest WTP for the Diva Cup, they received a DivaCup, and if the value drawn was **greater** than their WTP for the DivaCup, they received an Amazon gift card containing the drawn value.

Data Analysis

Linear regression analysis was used to explain the relationship between the information intervention treatments given to participants and their subsequent 1) Overall WTP for the Diva Cup, and 2) WTP a positive price (>\$0) for a DivaCup, while controlling for potential confounding independent variables such as age and previous use or knowledge of the menstrual cup.

KEY FINDINGS

SURVEY

PRODUCT PREFERENCES

- 92% of participants reported using disposable menstrual products
 - 19% reported using reusable menstrual products (6% reusable products only, 13% use of reusable products in combination with disposable products).
- 59% of participants use only non-insertable products (pads, menstrual underwear)

EDUCATION ON MENSTRUAL HYGIENE PRODUCTS

- The main source of education received on menstrual products varies among individuals
- Overall, participants received the most education on menstrual products from **peers**, and the least amount of education on menstrual products via self-directed research (Figure 1).

MOTIVATIONS FOR CHOICE IN MENSTRUAL HYGIENE PRODUCT

- The overall most important factor in participants' choice of product was **cost** and **recommendation of the product by others**. The least important factor is the convenience or the product's ease of use, or the accessibility of the product.

COST OR SUSTAINABILITY: WHAT IS MORE IMPORTANT?

- The cost of products was ranked as more important than its sustainability benefits (Figure 2).

KNOWLEDGE OF THE MENSTRUAL CUP

- The overall study population reported a **moderate** level of awareness of the menstrual cup prior to the study (knowledge of its purpose, but no knowledge of its sustainability benefits).
- 23% of participants had never heard of a menstrual cup prior to the study.
- Women who *had* heard of the menstrual cup prior to the study reported learning about them from the media, the internet, or from peers. Less than 15% of participants had heard of the menstrual cup from healthcare providers, school, or their parents.

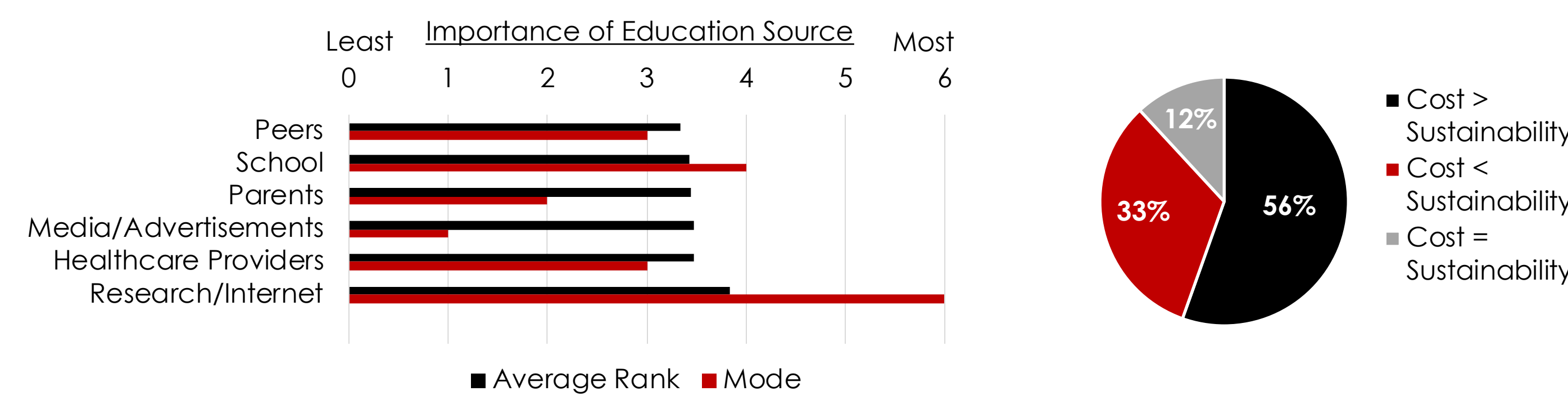


Figure 1. Average overall ranking (and mode ranking) of the importance of sources of education received by participants on menstrual hygiene products, from greatest amount of education received from a source (1) to least amount of education received from a source (6).

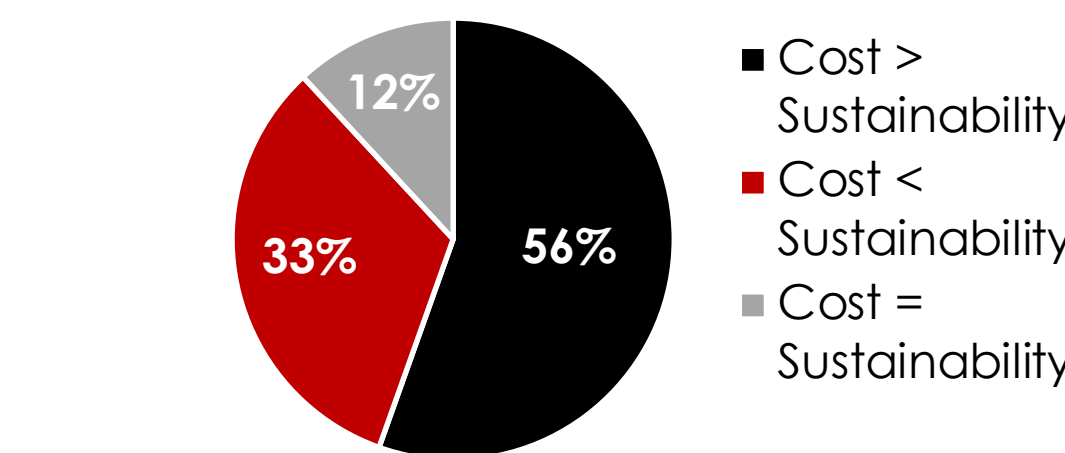


Figure 2. Participants' ranking of the importance of sustainability/waste and cost in their everyday purchasing decisions from not important (1) to very important (5).

RANDOMIZED CONTROLLED TRIAL

- Participants in the 'Private Benefits' treatment group reported the highest average WTP for a DivaCup
- Only 17% of study participants were willing to pay the actual market price for a Diva Cup (\$40).
- Both 'Private Benefits' and 'Environmental Benefits' treatments were found to produce a significant response in participants' WTP a positive price (>\$0) for a DivaCup, but not in their overall WTP for a DivaCup.
- Individuals who use **insertable menstrual hygiene products**, who received the 'Private Benefits' and Environmental Benefits' information treatments were 28 percentage points and 25 percentage points more likely to pay a positive amount for a menstrual cup than participants who received the Control treatment, respectively (p=0.015 and p=0.039).

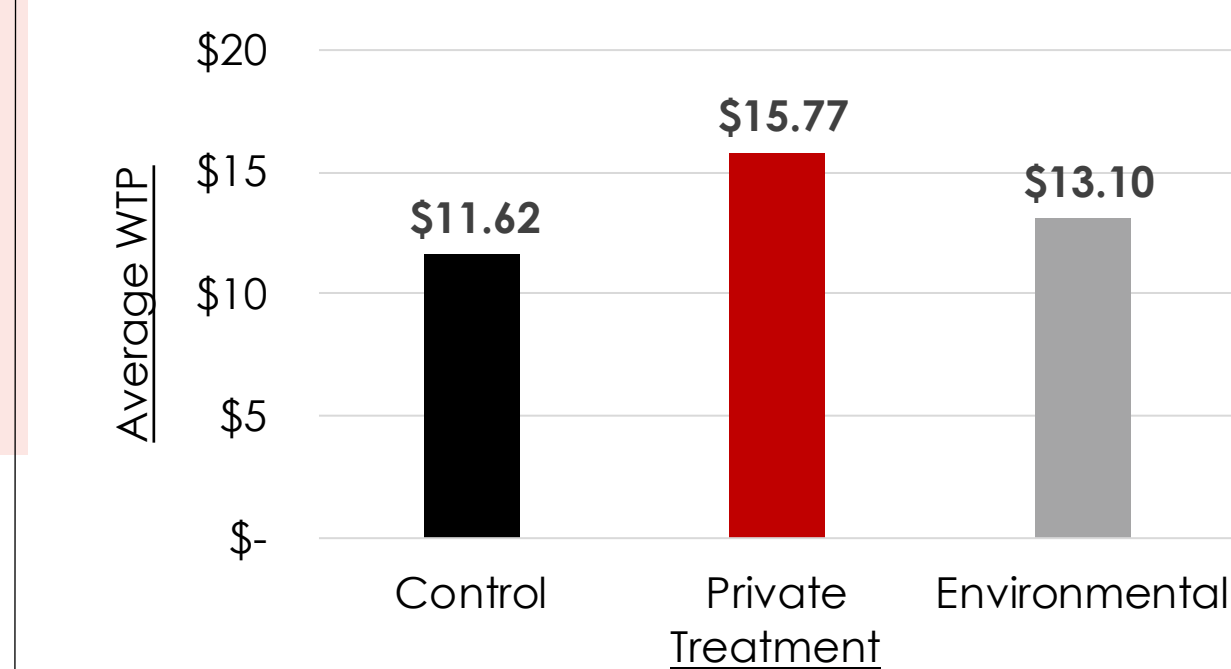
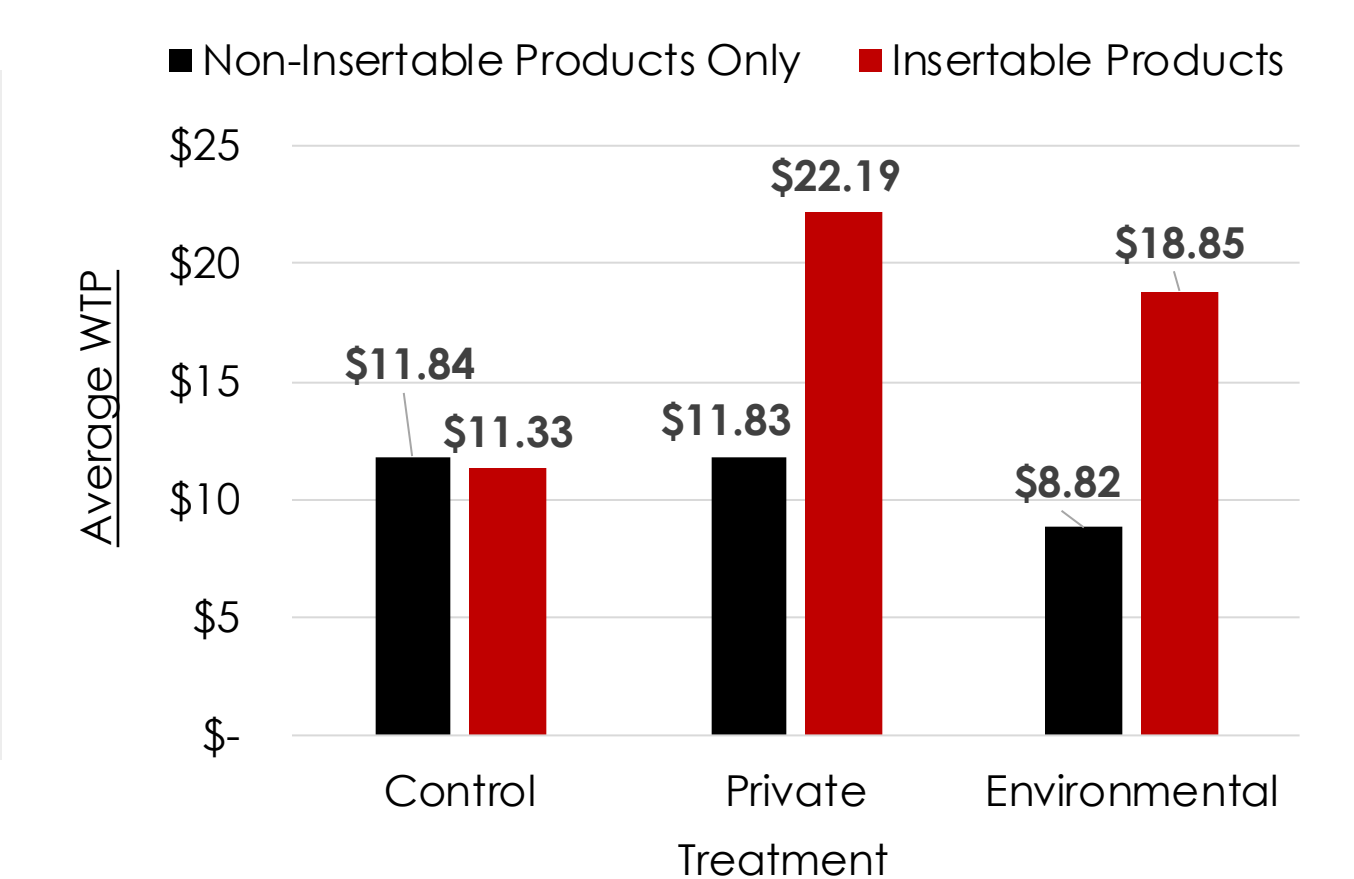


Figure 3. Average overall willingness to pay for a DivaCup per treatment group.

Figure 4. Average overall willingness-to-pay for a DivaCup for women separated into two strata based on survey responses: 1) Women who use only non-insertable menstrual hygiene products (i.e. sanitary pads, menstrual underwear), and 2) Women who use insertable menstrual hygiene products (i.e. tampons, menstrual cup, menstrual sponge).



DISCUSSION

There are numerous influencing factors which play a role in women's choice of menstrual hygiene products. Two of the key influences found in this study are the **education** women receive on the product, and its **cost**.

Education campaigns focusing on sustainability can be effective tools to influence consumers to consider purchasing a menstrual cup at all (pay more than \$0).

Women who already use insertable menstrual hygiene products are also more likely to consider purchasing a DivaCup and respond more significantly in their WTP when made aware of its socioeconomic (private) sustainability benefits than its environmental benefits, although both elicited a positive response.

Table 1. Comparison of annual waste quantities and associated costs of disposable sanitary pads and menstrual cups (based on the average number of women of menstruating age in Canada and City of Toronto waste management costs)⁵.

	Waste Produced (tonnes/year) ^{7,8,9}	Waste Management Cost (\$/year)
SANITARY PADS	22,570.5	\$5,439,490.50
MENSTRUAL CUPS	90.9	\$21,907

In order to achieve adoption of menstrual cups by 74% of Canadian women (individuals who were willing to pay \$15-40 for a DivaCup) the government would need to allocate around \$11.7 million CAD per year to subsidize this product (assuming this study's findings are consistent across the Canadian female population).

RECOMMENDATIONS

In order to improve awareness and adoption of sustainable menstruation:

- 1) **FORMALIZE SUSTAINABILITY EDUCATION IN SCHOOLS**, including considerations of sexual health and menstrual hygiene management.
- 2) **SUBSIDIZE SUSTAINABLE MENSTRUAL HYGIENE PRODUCTS** such as menstrual cups by provincial or federal governments (Table 1).
- 3) **UTILIZE INFORMATION CAMPAIGNS** and advertising of socioeconomic (and environmental) sustainability benefits of menstrual products like menstrual cups by companies who produce them to improve awareness and increase demand.

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