

Influence of consumption behaviours, attitudes and barriers toward clothing repair

By

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A project submitted in partial fulfillment of the requirements for the degree of

Masters in Science in Textile and Clothing

Human Ecology

University of Alberta

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**Abstract**

Repairing clothing is an important aspect of clothing care routines that can have a positive impact on the environment. This is because through repair the useful life of a garment is extended which can lead to a reduction of clothing waste. In this paper, I will present survey research of consumers' consumption behaviours (Fashion shopping frequency, impulse shopping, style longevity and clothing quality), attitudes and potential barriers (such as repairing skills, tools/technologies for repairing, time/priority towards repairing and repairing expense for clothing repair) that influence the likelihood of consumers carrying out clothing repair. The purpose of the study was to investigate consumer's attitudes, behaviors and barriers that may influence their likelihood of engaging in clothing repair practices. Data were gathered from a survey of 437 respondents aged between 18-64 years who completed a clothing consumption study questionnaire. The repair questions were split into two types, independent variables (e.g., repair skills, tools/technology, time/priority toward repair and money constructs) and dependent variables (items related to conducting self-, paid or unpaid repair). The findings from this study indicated that having repair capabilities (repair skills and tools/technology to repair) as well as the time to make repairs (or making clothing repair priority) is highly related to people carrying out self-repair of clothing. Consumers who do not perceive the cost of professional repair to be a barrier are likely to engage in paid repair services. It was of interest that quality conscious consumers indicated that they are more likely to get their garments repaired from a professional (paid-repair).

## Introduction

The worldwide clothing and textiles industries are producing huge amount of clothing everyday, approximately 80 billion new pieces every year (*Environmental Impact*, n.d.). In the last few decades, there has been a major increase in fashion apparel consumption. This has been fuelled by the rise of fast fashion which is characterized by low-cost offshore production, inferior physical quality and fast turnarounds of styles, all of which leads to a high volume of clothing consumption and short periods of active use before garments are discarded (Degenstein et al., 2020). The availability of fast fashion may have led to people having less sentimental value for their apparel as they buy and discard of clothing more frequently (Laitala & Klepp, 2018). The availability of inexpensive clothing has increased the size of people's wardrobes, largely stimulated by impulse shopping and frequent fashion shopping. Subsequently, this excessive consumption of clothing results in an excessive amount of clothing waste. The rising demand for fashion clothing has also resulted in increased production for man-made fibres, such as polyester, which has nearly doubled in the last 15 years (*Technical Textiles Market Global Forecast to 2022 | MarketsandMarkets*, n.d.).

The extent of clothing and textile waste in Canada is not largely shown as Canadian statistics on textile waste is very limited (*Waste Reduction and Recycling – Overview*, n.d.). Reportedly, the average Canadian throws out 81 pounds of textiles annually ("The Average Person Throws Away 37 Kilograms of Textiles Annually," 2018). Within the City of Edmonton, textile waste makes up about 6% of total municipal waste (Degenstein et al., 2021). In the United States, the Environmental Protection Agency (EPA) calculated that in 2017 the municipal solid waste generated due to textiles was approximately 17.04 million tons, which is 5.83% of total waste generated. After removing recyclable and recovered waste, the remaining textile waste

dumped in landfills was estimated to be 9.64 million tons (US EPA, 2017). Moreover, from *The Facts about Textile Waste (Infographic)* (2014), the generation of textile waste in the US was estimated at about an average of 25 billion pounds, which equates to about 82 pounds of textile waste per US resident. Furthermore, in the United Kingdom, as estimated 1.2 million tonnes of household textile waste was collected in 2017, from which 340,000 tonnes of waste was made up of clothing waste (McQueen et al., 2020).

Most national, provincial and municipal governments have established guidelines for minimizing waste in order to reduce harm to the environment (City of Ottawa, 2019; Government of Alberta, n.d.). This is recognised as the hierarchy of waste management. The waste hierarchy is an order of preferences to use resources efficiently and effectively. The main aim of the waste management hierarchy is to reduce the amount of waste generated and to extract the maximum practical benefits from products (Hansen et al., 2002), while minimizing the amount of waste that ends up in landfills. Typically, there are five levels within the waste management hierarchy model (US EPA, 2017). These are: reduce, reuse, recycle, energy recovery and disposal. The least desirable point is the disposal of waste, and all other parts of the waste management hierarchy are intended to minimize the amount of waste arriving to this point. Waste disposal may also include considerable pre-treatment of the waste prior to final disposal in order to minimize the quantity and toxicity of the waste. Final disposal of waste is usually through deposition into landfills but can also include incineration without energy recovery occurring. A more desirable option than disposal is the fourth stage within the waste management hierarchy, that is energy recovery. Energy recovery may be in the form of usable heat, electricity, or fuel through a variety of processes recovered from the combustion of waste. This process is often called waste to energy (US EPA, 2017). Recycling the waste is preferable to energy recovery.

Recycling textiles can be performed by different processes such as mechanical, chemical and thermal methods. Although, recycling may be common for paper, glass and some plastics, recycling of textile waste is less common due to the difficulties of sorting and separating textiles into their individual components (Giordano, 2019). The paramount point on the hierarchy is source reduction and reuse, in other words, prevention or reuse of waste. Various ways to reuse garments can include renting, swapping, borrowing and trading. Trading can occur through sales at second hand shops, flea markets, garage sales, online marketplaces, charities and clothing libraries (Sandin & Peters, 2018). Reuse of garments can be done with or without further modification by giving it to a new owner or the original owner reusing it themselves (Fortuna & Diyamandoglu, 2017; Sandin & Peters, 2018).

As garment repair is an efficient way to extend the life of clothing, and therefore, may reduce consumption and prevent clothing waste, it is one way to achieve the ultimate goal of the waste hierarchy. Ideally, through these life-extension strategies, the prevention and production of new garments can be avoided which provides further environmental benefits (Fisher et al., 2008). Garment repair practices are less common than they were historically as people have less knowledge of sewing skills (McLaren & McLauchlan, 2015; Norum, 2013) and there is evidence that consumers may prefer to repair clothing where only minor damage has occurred and it can be repaired easily (Degenstein et al., 2020). Other factors such as the emotional attachment one may have toward a garment or owning high priced garments may encourage consumers to repair their clothing (Degenstein et al., 2020; Frick et al., 1973; Laitala, 2014; McLaren & McLauchlan, 2015).

There can be many barriers that prevent people from engaging in garment repair. Some of deterrents may be having limited sewing skills, the high expense of using professional repair services easily available, or attraction for new inexpensive clothes, and lack of time to carry out

repairs (Fisher et al., 2008). Fast fashion, poor quality garments, low-cost clothing, and impulsive shopping behaviours can discourage consumers from repairing their old garments and may instead encourage them to throw them out (Connor-Crabb & Rigby, 2019; Degenstein et al., 2020; Goworek et al., 2012; McLaren & McLauchlan, 2015). There may also be other barriers that prevent consumers from repairing their clothes when required. In order to explore what factors could encourage or enhance consumers to engage in clothing repair practices, increased understanding of the behaviours and perceptions held regarding garment repair is necessary.

### **Purpose of study**

The purpose of this study was to identify factors which may serve as barriers to encourage consumers towards clothing repair. The goal was to investigate the relationship between selected independent variables and garment repair. More specifically the following research questions were posed:

1. Do consumers who shop frequently and impulsively engage in less clothing repair strategies?
2. Do consumers who purchase higher quality clothing and search for clothing that will last a long time engage in more clothing repair strategies?
3. Do consumers who have positive environmental attitudes and are frugal engage in more clothing repair strategies?
4. Do consumers who are more egalitarian towards gender roles engage in less clothing repair strategies?
5. Does having repair skills, access to tools/technology, time to conduct repair result in consumers conducting clothing repair?

6. Do consumers who do not consider paid clothing repair to be too expensive engage in more clothing repair strategies?

## Literature Review

### Garment Repair

#### Types of garment repair

People dispose of their clothes for many reasons, with the two most commonly reported reasons being wear and tear upon the garment and poor fit (Laitala, 2014). Physical damage to the clothing is the primary reason consumers may discard their clothes in the trash (Degenstein et al., 2020). Repairing may be an effective way to ensure reuse of a garment and prevent it from becoming waste in landfills. In most cases, physical damage (e.g., torn seam) of clothing could be repaired and the need to dispose of clothing may be avoided. Therefore, acquiring the skills to mend ones' own clothes is a beneficial skill to learn as mending clothing rather than discarding damaged clothing can reduce the amount of waste generated in the future. Over the last few generations, the culture of alteration or repairing garments is diminishing, as the younger generation are less geared towards learning repairing skills (Laitala & Klepp, 2018). Repairing clothing oneself can be cost effective, although it may depend on the type of repair done to the garment. Repairing a garment is usually less damaging on the environment than purchasing a brand-new garment.

When a consumer decides to repair their garments, they have different options available to them. They can repair the garment themselves or get it repaired by someone else. Here there are three types of repair categories, self-repair, paid repair and unpaid repair. Self-repair of clothing involves the consumer repairing their clothes by themselves. Consumers who already have mending skills which may include both major and minor repairing skills and/or access to

tools to make repairs may likely carry out self-repair. Most often self-repair would be carried out by consumers in their home environment. Norum (2013) found consumers who have sewing skills try to practice sustainable clothing by mending their clothes at home. Other self-repair models can involve participating in repair communities at specific places where people gather to mend their clothing together (Niinimäki & Durrani, 2020). Laitala and Klepp (2018) found that most consumers were more willing to repair their clothes themselves rather than have clothing repaired by others, through paid or unpaid services. Paid repair is the mending of a garment in which consumers pay to get their clothes repaired from somewhere outside, for example, repaired by professional tailors (Laitala, 2014). Moreover, some fashion brands, typically higher end have started giving repair services on their brand clothes to promote easy repairing (Diddi & Yan, 2019). Consumers give their damaged garments to the store and collect the repaired garment later, this way consumers can have their garments repaired at low cost and with this added value service (e.g., *Returns, Repairs & Exchanges - Patagonia*, n.d.). The third type of repair is unpaid repair that may be done by a person who is usually well known to the individual, such as a family member or a friend (Fisher et al., 2008). Unpaid repair occurs when a consumer gets their clothing repaired by someone else without paying them any money in exchange. Fisher et al., (2008) noted that many of the participants in their study described clothing repair being done by parents or grandparents. Lack of skills, time or money can motivate people to adopt unpaid repair, rather than do it themselves or pay another to repair (Goworek et al., 2012). Repair models could also include more than one type of clothing repair. These are hybrid types of garment repair where individuals may pool together their resources such as sewing machines, threads and other sewing tools to conduct repair activities. Through this type of hybrid repair, they may also learn, or impart, new techniques to/from one other during repair activities. This

hybrid model of garment repair was supported in the research paper by Niinimäki & Durrani (2020), where they described public events that are organized to encourage people to repair their clothes.

### **Reasons for repairing garments**

The need to repair garments can be due to variety of reasons, such as poor initial workmanship, poor quality and construction of fabric used and stitches, and also wear and tear of the garment with time. People are motivated to mend clothes for different reasons such as personal reasons, emotional reasons, and to preserve quality garments. Laitala and Boks (2012) found the foremost reason why people mended clothes was due to the emotional attachment they had towards the garments. They found that the emotional connection people may have with certain clothing encouraged them to repair their damaged clothes in order to preserve and maintain the clothing for a longer period of time. This was supported in the research by Niinimäki & Hassi (2011), as they found an emotional bond with clothing corresponded to clothing being kept for longer.

Societal perception can also influence people's behaviour towards mending clothes. Consumers may be demotivated to repair when being seen wearing repaired clothes is considered socially unacceptable (Connor-Crabb & Rigby, 2019). Also in Connor-Crabb and Rigby, 2019, the researcher This was evident from Fletcher's (2014) and McLaren & McLauchlan's (2015) research examining different approaches that may be adapted by design researchers to promote the use and benefits of mended clothes. For instance, Fletcher (2014) stated that the traditional social perceptions of repair were entirely outdated and suggested that one way to motivate consumers to mend clothes could be if designers or artists wore repaired clothes with pride. This can also drive consumers and designers to create beautiful mended clothes which will eliminate the social stigma

behind the use of repaired clothes, in this way designers are trying to promote sustainable fashion (McDonald et al., 2014; McLaren & McLauchlan, 2015).

The likelihood that a consumer may carry out garment repair could be influenced by many intrinsic and extrinsic reasons. For example, clothing consumption behaviour and environmental attitudes could influence garment repair. There are also many barriers such as repair skills, lack of time or money that could also influence clothing repair. A further discussion and development of the research hypotheses are stated below.

### **Hypotheses development**

The hypotheses are developed by taking the relationship between consumers' behaviour such as, their frequency of shopping for fashion items, their impulse shopping, style longevity, quality consciousness and consumer attitude towards environment and frugality, with the dependent variables such as self repair, unpaid repair and paid repair. Hypotheses were also developed between the repair related independent variables such as repair skills, tools/techniques, time/priority and repair expense and the self-repair, unpaid repair and paid repair dependent variables.

### **Fashion Shopping Frequency and Impulse Shopping**

Fast fashion has been termed as 'throw away' garments where they may only be designed to last for a few wears (McLaren & McLauchlan, 2015). Fast fashion and low quality of the garment has propelled consumers to stop repairing and buy new clothing (Birtwistle & Moore, 2007). Lang et al., (2013) found that frequent fashion shoppers disposed of clothing more often. They explained that frequent shoppers required wardrobe space for new apparel purchases and would therefore get rid of old garments to make way for new items (Lang et al., 2013). Through garment repair, a consumer is extending the life of the garment. However, a frequent shopper may

find it easier to replace a garment than to repair an old one due to the need for wardrobe space. From the results of other researchers (Chen-Yu & Seock, 2002; Cook & Yurchisin, 2017; Joo Park et al., 2006) impulse buying can be due to many factors like low price, physical attraction and being fashion conscious consumers. It can be said that impulse buying may increase the percentage of shopping frequency, and therefore, an impulse shopper will be less likely think of repairing their garments. Based on this, the following two hypotheses were developed:

*Hypothesis 1 (H1): That fashion shopping frequency will negatively predict garment repair (self, paid and unpaid);*

*Hypothesis 2 (H2): That impulse buying will negatively predict garment repair (self, paid and unpaid).*

### **Style Longevity and Clothing Quality**

The style longevity of a garment is reflected upon by its long-lasting quality, construct and nature of the fabric (Joyner Armstrong et al., 2018). Therefore, fast fashion garments being a low cost, fast evolving consumer product, lack style longevity (Joyner Armstrong et al., 2018). Joyner Armstrong et al. (2018), stated that personal style can influence a persons' preferences for clothing, and a minimalist personal style would favour producing less waste and following sustainable consumption behaviours. Selecting styles that have longevity and can last for more than one season is one such consumption behaviour and such consumers may be more likely to engage in clothing repair. In McLaren & McLauchlan, 2015, it was concluded that consumers want to keep their garments for a longer time which may be due to their emotional attachment for the garment or due to the high quality of the material or workmanship.

The quality of a garment which also impacts longevity of the garment is described by a mixture of all the material components and techniques used to produce it like fabric, construction

and workmanship (Connor-Crabb & Rigby, 2019). A high initial cost can often be perceived to be considered high quality (Lang et al., 2013). Fashion sensitive consumers tend to be more interested in repairing high cost, high quality, designer branded or trendy garments (McNeill et al., 2020). Moreover, high priced designer brand clothing would be less likely to be disposed of and more likely to be repaired than low price, fast fashion clothing (Degenstein et al., 2020). In their wardrobe study, Connor-Crabb and Rigby (2019) also found participants would be inclined to repair garments they viewed as high quality with the aim of keeping the clothes for a longer period of time. Interestingly, garment repair could even be used to improve the quality of a garment if done correctly (Connor-Crabb & Rigby, 2019). Based on the literature, the following hypotheses were formulated:

*Hypothesis 3 (H3):* That seeking style longevity will positively predict garment repair (self, paid and unpaid);

*Hypothesis 4 (H4):* That quality consciousness will positively predict garment repair (self, paid and unpaid).

### **Environmental attitudes**

Researchers have examined the relationship between consumers' attitudes toward the environment and clothing related behaviours such as clothing disposal options (Morgan & Birtwistle, 2009; Shim, 1995) and second-hand clothing purchases (Seo & Kim, 2019). Consumers who had a high environmental awareness and a positive attitude toward the environment used more sustainable methods of getting rid of clothing which they no longer needed (Shim, 1995). In Seo and Kim's (2019) study they found that consumers with environmental concerns prefer to donate their old clothes instead of throwing them out. Preferences were also seen towards buying second hand clothes at non-profit thrift stores (Seo & Kim, 2019). Furthermore, concern for sustainable

fashion has been growing, and consumers may have turned second-hand shopping as the alternative consumption way for society and environment (Lundblad & Davies, 2016; Yan et al., 2012; Seo & Kim, 2019). Slow fashion is often connected with environmental care and awareness. Cataldi et al. (2010) stated that slow fashion encourages garment producers to produce sustainable clothing which means that all production processes included are not harmful for the environment (Cataldi et al., n.d.; Fletcher, 2008). Therefore, people who are sustainably minded tend to repair their clothes and try to take care of their garments for better life of the clothing. Such practices during the garment's lifetime may include washing and drying of the clothes as well as garment repair (Norum, 2013). In a survey of consumers in one US city, Diddi and Yan (2019) found that consumers would consider repair in their garments if they knew it would lead to a reduced environmental footprint. This suggests then that environmentally minded consumers might prefer to repair their clothes. With this perspective, the following hypothesis related to environmental attitude was proposed:

*Hypothesis 5 (H5): That a positive environmental attitude would positively predict garment repair (self, paid and unpaid).*

### **Frugality**

The concept of frugality relates to one who is prudent in avoiding waste. Lastovicka et al. (1999) describes frugality as a consumer's behavioural awareness towards the full use and re-use of resources. Frugal natured people tend to prefer to buy a lower number of garments (Goldsmith et al., 2014; Rose et al., 2010; Seo & Kim, 2019). Because looking after material resources is important to frugal consumers, then even if they do not have the skills to repair themselves, they may still see a benefit in spending money on maintaining something. In the study by Bove et al. (2009) they found that frugal shoppers shop for better prices or better value when needed, which

is the opposite of impulse shoppers. Furthermore, frugal consumers are style longevity conscious indicating that they prefer to buy clothes which last more than one season. As frugality has been linked to reasons behind people shopping for low-priced second-hand clothing, their preferences toward economizing and avoiding waste could lead to an increase in reuse of materials and also garment repair (Albinsson et al., 2010; Goldsmith et al., 2014). Based on the above literature the following hypothesis was developed:

*Hypothesis 6 (H6): That frugality would positively predict garment repair (self, paid, and unpaid).*

### **Mending as “Women’s work”**

A potential barrier to carrying out repairs by consumers may be the association of sewing and repairing as being a domestic chore that is carried out by women (Diddi & Yan, 2019; McLaren & McLauchlan, 2015). Laitala and Klepp (2018) stated that women are indeed more active in all clothing mending and making activities than men are. McLaren and McLauchlan (2015) found in their study, that many women in the older generation had learned repair skills, such as darning, when young but due to these negative connotations of “domestic chores and times of economic hardship” (McLaren & McLauchlan, 2015, p. 222) were less inclined to want to repair clothing as adults. This has been supported in other studies, where participants have also reported mending clothes as a domestic and unnecessary chore (Fisher et al., 2008). The perception of repair as domestic and “women’s work” may pose a deterrent for many young consumers who have not yet learned such skills through home economics classes, due to changes in high school curricula, or from older relatives (Laitala & Klepp, 2018; Norum, 2013). Female consumers who reject traditional roles and ideals may be less inclined to carry out self-repair, but they may still engage in paid or unpaid repair. With this perspective, the following two hypotheses were proposed:

*Hypothesis 7a (H7a):* That a traditional gender role attitude will positively predict self-repair;

*Hypothesis 7b (H7b):* That a traditional gender role attitude will negatively predict paid or unpaid repair.

### **Repair skills**

A lack of sewing and basic clothing repair skills can become a barrier to conducting clothing repair (McLaren & McLauchlan, 2015). In a study by Diddi and Yan (2019) it was found that paid mending was preferred by consumers due to a reported lack of skills, as well as time, and lack of the necessary tools for repair. Some garments require high level of skills to repair, such as damaged heavy embroidery or a torn patch (Norum, 2013). Degenstein et al. (2020) found many participants were willing to repair garments which had only a small amount of damage, but when the damage was more severe they were less likely repair the garment and dispose of it instead. In many studies, baby boomers have been found to possess the sewing skills which encourage them to repair garments creatively (Lapolla & Sanders, 2015; Norum, 2013). Whereas, generally those in the younger generation tend may lack such skills (Norum, 2013). Thus, based on the literature the following hypotheses were formulated:

*Hypothesis 8a (H8a):* That having repair skills will positively predict self-repair of clothing;

*Hypothesis 8b (H8b):* That having repair skills will negatively predict paid and unpaid clothing repair.

### **Tools/technologies for repairing**

Having access to tools and technology that enable repair can make it easier to carry out self-repair of clothing and may motivate consumers to repair their own clothes. For example, in the research by Nazlı, (2021), he found that not having access to the necessary repair tools, or not having the knowledge of where to get them from, can act as a demotivator for people to repair

more often. This has been recognized by some sustainable fashion brands like ‘Nudie Jeans’ who have started an innovative way to make their consumers repair their clothes. Nudie Jeans does offer in store repair, but for the consumers who cannot visit the store, they have offered to do mail-order repair kits (*Repair Kit Order - Nudie Jeans*, n.d.). Thus, the following exploratory hypotheses were developed:

*Hypothesis 9a (H9a):* That having the tools/technology to repair will positively predict self-repair of clothing;

*Hypothesis 9b (H9b):* That not having the tools/technology to repair will positively predict paid and unpaid repair of clothing.

### **Time/priority toward repair**

Lacking the time to repair is a common barrier faced by consumers which prevents them from mending their damaged clothes (Degenstein et al., 2020; Goworek et al., 2012a; Laitala & Klepp, 2018). In the study reported by McLaren and McLauchlan (2015), most of the respondents reported that garment repair was a very time-consuming process and is one among the top three reasons (with the other two being repair skills and repair expense) why consumers do not repair their clothes. This was also supported by Laitala and Klepp (2018), where they found that consumers reported repairing garments to be a time-consuming activity in general. Therefore, it tended to be older women who reported having more free time were more likely to engage in clothing repair activities, whereas, women with children were less likely to repair because they had less time to do so (Laitala & Klepp, 2018). Lack of time can be attributed to today’s busy lifestyle and less priority set to such sedentary activities (Laitala & Klepp, 2018). In view of the barrier that time or giving priority toward repairing clothing, then the following hypotheses were developed:

*Hypothesis 10a (H10a):* That having the time or prioritizing garment repair will positively predict self-repair of clothing;

*Hypothesis 10b:* That having the time or prioritizing garment repair will negatively predict paid or unpaid clothing repair.

### **Repair expense**

The availability of inexpensive and latest fashionable clothes and ever-changing trends encourages people to buy new clothes and discard damaged or old ones (McLaren & McLauchlan, 2015). The relative cost of clothing, particularly low-quality fast fashion apparel items, may act as a barrier to repair. The cost of replacement of a damaged item could be so low that it is deemed easier to replace clothing than spend the time or money to repair it (Diddi & Yan, 2019; Goworek et al., 2012). Due to the low cost of many fast fashion items of clothing then the perceived benefit of repairing clothing, particularly paying for clothing to be repaired is much less likely (Fisher et al., 2008). On the other hand, sometimes the high cost of getting garments repaired by professionals may encourage consumers to self-mend their clothes if they have sufficient repairing skills (Goworek et al., 2012). Goworek et al., (2012) also found that some of their participants occasionally used repair services offered by dry cleaners, but that this option was considered to be too expensive by many of them. Most participants did not carry out clothing repairs themselves, though some had older female relatives who did this for them. Therefore, based on this reasoning the following hypotheses were formed:

*Hypothesis 11a (H11a):* That consumers who consider repair not to be expensive will conduct paid clothing repair;

*Hypothesis 11b (H11b):* That consumers who consider repair to be expensive will conduct self-repair of clothing and unpaid repair of clothing.

## Methodology

### Questionnaire

A questionnaire was developed and administered online via Google Forms to University of Alberta students. University students are often studied in fashion consumption research, and their experiences with repairing clothing is of particular interest given that extant research shows that younger consumers are less likely to repair than older generations (McLaren & McLauchlan, 2015).

The questionnaire was split into seven sections and each section is designed to analyse the consumer attitude towards garment repair (see Appendix 1). The first section (Section A) related to shopping consumption behaviour such as fashion shopping frequency, impulse shopping, style longevity and quality consciousness. The second section (Section B) had questions related to garment repair. Section C and Section D included questions related to environmental attitude (including one attention check question) and frugality, respectively. Section E, had questions related to gender attitude such as the gender linked and gender transcendence scales. Section F included questions that enquired about the recent clothing consumption. Finally, Section G was the demographic section of the questionnaire. In total there are 79 questions in the survey.

For the first five sections (Sections A to E), all the measurement scales were a 5-point Likert scale, where response options were “strongly disagree”, “disagree”, “neither agree nor disagree”, “agree” and “strongly agree”. The scales in Sections A, C, D, and E were all taken from established scales in the literature. The fashion shopping frequency and quality consciousness scales were both taken from Lang et al. (2013). The impulse shopping scale was adapted from Cook and Yurchisin (2017) which had been adopted from Rook and Fisher (1995). The term “fast fashion” in Cook and Yurchisin’s (2017) impulse shopping scale was replaced with the term “clothing”. Style longevity was measured using four questions taken from Joyner Armstrong et al., (2018). The

environment scale was adapted from Shim (1995), with three additional questions developed. The frugality scale was taken from Lastovicka et al., (1999). The gender transcendence and gender linked scales were adopted from Baber and Tucker (2006). For the garment repair questions there were no established scales that could be used directly from the literature. Instead, these questions were made up of items taken from different researchers (Diddi & Yan, 2019; Lang et al., 2013; Smith, 2018) and some additional items were developed.

The questionnaire was distributed to University of Alberta students from 7<sup>th</sup> November to 27<sup>th</sup> November, 2020. The protocols, recruitment notices and questionnaire were reviewed and approved by the University of Alberta's Research Ethics Board 2.

### **Data analysis**

Demographic information, household income and apparel spending were described as frequencies. No further analysis was carried out on the demographic data. Responses to Likert questions were transformed to numerical values for analysis from 1 to 5 (1 = strongly disagree). Items that were reversed coded were transformed accordingly before analysis (i.e., 1 = strongly agree). Descriptive statistics were calculated showing the mean and standard deviation for each item. Where previously validated scales were used a confirmatory factor analysis (CFA) was run to ensure that the scale items loaded on the one construct. Then the internal validity of the construct items was measured using Cronbach's alpha reliability. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. According to criterion reliability coefficients of .70 or greater are considered to show good correlation (Nunnally & Bernstein, 1995).

The repair questions were split into two types, independent variables (e.g., repair skills, tools/technology, time/priority toward repair and money constructs) and dependent variables

(items related to conducting self-, paid or unpaid repair). For the independent variables related to possible barriers to repair a CFA was conducted to see how the scale items performed. The Cronbach's alpha value was calculated for each construct. A CFA was not conducted for the dependent variables and each item (question) was kept separate.

Hypotheses were tested by conducting Pearson's correlations with each scale for each dependent repair item. Statistical analysis was conducted using SPSS 16.0.

## Results

In total, 451 survey responses were collected from which 437 were useable. From which 293 (67.0%), 120 (27.5%) and 27 (5.5%) participants belonged to the age groups of 18–24 years, 25–34 years and 35+ years, respectively. From the survey participants report 79.6% were females, 16.5% male and 3.9% non-binary (see Table 1). Additional information about the survey participants' household income, number of clothes purchased in the last 3 months and the amount spent of clothes in the last 3 months were collected in the survey. A summary of these results are shown in Table 2.

### Validation of scales

#### Validation of established scales

The mean and standard deviation (SD) for each item of eleven established scales, and Cronbach's alpha values are shown in Table 2. All but one of the established scales exhibited relatively high reliability coefficients with Cronbach's alpha value being .70 or higher (Nunnally & Bernstein, 1995). The gender transcendence construct was the only established scale that did not exhibit high internal validity with a Cronbach's alpha of .57. Therefore, gender transcendence was not used for further analysis. Cronbach's alpha values for the other constructs were: impulse shopping scale ( $\alpha = .87$ ), fashion shopping frequency scale ( $\alpha = .84$ ), style longevity scale ( $\alpha = .74$ ),

quality consciousness scale ( $\alpha = .84$ ), environmental awareness scale ( $\alpha = .86$ ), frugality scale ( $\alpha = .80$ ) and gender linked scale ( $\alpha = .81$ ).

*Table 1: Respondents Demographics Characteristics (N=437)*

Demographics	No. of participants	Percentage
Age		
18-24	293	67.0
25-34	120	27.5
35-44	18	4.0
45-59	2	0.5
60+	4	0.9
Gender		
Female	348	79.6
Male	72	16.5
Non-binary	17	3.9
Household Income		
Under \$15,000	70	16.0
Between \$15,000 and \$29,999	83	19.0
Between \$30,000 and \$49,999	37	8.5
Between \$50,000 and \$74,999	31	7.1
Between \$75,000 and \$99,999	36	8.2
Between \$100,000 and \$150,000	53	12.1
Over \$150,000	31	7.1
Prefer not to answer	96	22.0
Number of items purchased in last 3 months.		
0 item	59	13.5
1-2 items	104	23.8
3-5 items	160	36.6
6-10 items	75	17.2
10+ items	39	9.0
Amount spent on clothes in last 3 months.		
\$0	60	13.7
Between \$1-\$100	153	35.0
Between \$100-\$300	137	31.4
Between \$300-\$500	51	11.7
Between \$500-\$1000	30	6.9
\$1000+	6	1.4

*Table 2: Construct alpha scores and descriptive statistics of the established scales*

<b>Scale Items</b>		<b>Mean</b>	<b>SD</b>	<b><math>\alpha</math></b>
<b>Fashion shopping frequency (FSF)</b>				<b>.84</b>
I purchase new clothing more often than my friends	1.97	1.10		
I buy new clothing often, even if I don't need it	2.20	1.19		
<sup>a</sup> I make clothing purchases only when needed	2.62	1.14		
<b>Impulse shopping (IS)</b>				<b>.87</b>
I often buy things spontaneously from clothing retailers	2.20	1.09		
"Just do it" describes the way I buy things at clothing retailers	2.00	0.99		
I often buy things without thinking at clothing retailers	1.78	0.88		
"I see it I buy it" describes my behaviour in clothing retail environments	1.68	0.88		
"Buy it now, think about it later" describes the way I act in clothing retail environments	1.65	0.85		
Sometimes I feel like buying things on the spur-of-the-moment when I am shopping at clothing retailers	3.08	1.23		
I buy things according to how I feel at the moment when I am shopping at clothing retailers	2.71	1.16		
Sometimes I am a bit reckless about what I buy at clothing retailers	2.40	1.15		
<b>Style longevity (SL)</b>				<b>.74</b>
I prefer to purchase clothing I know I can utilize for a long time	4.39	0.65		
I typically purchase clothing I know will fit my personal style for a long time	4.20	0.78		
When purchasing clothing, I like to know it will work with my personal style for a long time	4.22	0.76		
I prefer to purchase clothing that is more timeless	3.84	0.81		
<b>Quality consciousness (QC)</b>				<b>.84</b>
I care more about the quality of clothing than price	3.13	1.06		
I make a special effort to choose the very best quality clothing	3.25	1.02		
<sup>a</sup> In general, quality is not the first factor I look for when I go shopping	3.47	1.05		
I usually buy high-quality brands	3.11	1.05		
I care a lot about fabric quality when I buy new clothing	3.83	0.99		
<b>Environmental attitude (EA)</b>				<b>.86</b>
Environmental issues are very important to me	4.42	0.74		
Everybody should try to preserve the environment for future generations	4.67	0.54		
I have more important issues to deal with other than environmental concerns	3.73	1.08		
We should be consuming products that can be recycled	4.51	0.62		
Too much emphasis is placed on environmental issues and concerns	4.39	0.85		
Our governments should be taking more action toward combating climate change	4.48	0.85		
We should be reducing our use of plastics in order to protect the environment	4.60	0.65		
Environmental issues are not important to me]	4.56	0.65		

<sup>a</sup>Reversed scored.  $\alpha$ , Cronbach's alpha.

*Table 2 (continued)*

<b>Scale Items</b>	<b>Mean</b>	<b>SD</b>	<b><math>\alpha</math></b>
<b>Frugality (F)</b>			<b>.80</b>
If you take good care of your possessions you will definitely save money in the long run	4.57	0.57	
There are many things that are thrown away that are still quite useful	4.38	0.80	
Making better use of my resources makes me feel good	4.51	0.62	
If you can reuse an item you already have, there's no sense in buying something new	4.32	0.82	
I believe in being careful with how I spend my money	4.39	0.71	
I discipline myself to get the most from my money	4.00	0.99	
I am willing to wait on a purchase I want so that I can save money	4.36	0.78	
There are things I resist buying today so I can save for tomorrow	4.35	0.71	
<b>Gender linked (GL)</b>			<b>.81</b>
A father's major responsibility is to provide financially for his children	2.00	1.10	
Men are more sexual than women	2.10	1.08	
Some types of work are just not appropriate for women	1.70	1.05	
Mothers should make most decisions about how children are brought up	1.94	0.97	
Mothers should work only if necessary	1.64	0.87	
Girls should be protected and watched over more than boys	2.15	1.04	
Only some types of work are appropriate for both men and women	1.66	1.00	
For many important jobs, it is better to choose men instead of women	1.40	0.73	
<b>Gender transcendence (GT)</b>			<b>.57</b>
<sup>a</sup> People can be both aggressive and nurturing regardless of sex	1.34	0.58	
<sup>a</sup> People should be treated the same regardless of their sex	1.37	0.73	
<sup>a</sup> The freedom that children are given should be determined by their age and maturity level and not by their sex	1.33	0.62	
<sup>a</sup> Tasks around the house should not be assigned by sex	1.35	0.79	
<sup>a</sup> We should stop thinking about whether people are male or female and focus on other characteristics	1.69	0.93	

<sup>a</sup>Reversed scored.  $\alpha$ , Cronbach's alpha.

### **Development and validation of repair scales**

The questions related to clothing repair are shown in Appendix 2. There were eleven questions from Q32 to Q43 that related to the independent variables measuring possible barriers to repair (i.e., skills, tools, time and money). A confirmatory factor analysis was conducted for each of the four constructs. Firstly, by examining the Cronbach's alpha value for each construct, it was found that the Cronbach's alpha for the repair skills was .70, which was acceptable. However, the item-total correlation scale for Q34 was .28, which was well below the usual .50 used to access

item-total scale correlation (Kang & Johnson, 2011; Tian et al., 2001). Therefore, Q34 “*Some clothing repairs are too difficult for me to do myself*” was removed from the scale and the Cronbach’s alpha value increased to .74 for the remaining three questions (Q32, Q33, Q35). For repair tools/technology construct the Cronbach’s alpha value was .63 for three questions (Q36, Q37, Q38). This was below the .70 value which is deemed the minimum for indicating good correlation and reliability of the scale. A preliminary exploratory factor analysis (EFA) (data not shown) had indicated that survey respondents had responded to the items that related in the skills and tools/technology questions in a similar manner. Therefore, another CFA was carried out to determine whether questions from Q32 through to Q38 loaded together. With the inclusion of the items which comprised the repair skills construct and the items which comprised the repair tools/technology construct the Cronbach’s alpha value of .80 was achieved. This new construct which came out of the data was renamed repair capability. Repair capability includes having the skills to repair and access to the tools to carry out repair.

Furthermore, for the construct that was associated with consumers having the time and giving priority to clothing repair the Cronbach’s alpha value was .73 for three questions (Q39, Q40, Q41). This was more than .70 value which is deemed the minimum for indicating good correlation and reliability of the scale. However, Q26, “*Repairing clothing is part of my routine*”, was also considered to be a question that could be incorporated into this time/priority toward repair construct. Another CFA was carried out to determine whether questions (Q26, Q39, Q40, Q41) loaded together. With the inclusion of Q26, the Cronbach’s alpha value increased to .77 and therefore, Q26 was included as part of the scale which measured the time/priority toward repair construct.

Only two items had been included in the study that captured the construct referred to as repair money. These were Q42 “*The cost of clothing means it’s not worth repairing a garment*” and Q43 “*I do not get my clothes mended because alteration (repair) services are too expensive*”. The Cronbach’s alpha value was very low for these two items at .42. Therefore, it was deemed that only Q43 should be retained as a single item construct, as it was associated with the use of paid repair services. However, this question would not be able to justify whether people are willing or not to spend of repair expense. The final set of items that made up each of the independent variables related to barriers toward repair are shown in Table 3.

*Table 3: Construct alpha scores and descriptive statistics of the independent variables*

Scale Items	Mean	SD	$\alpha$
<b>Repair Capability (RC)</b>			.80
I am confident in my ability to make minor repairs to clothing (e.g., sew on a button, mend a small hole)	3.83	1.24	
I would know how to repair a damaged garment	3.17	1.18	
I know where to look for information on how to repair my clothes	3.79	1.14	
I have the necessary tools (eg, needle, thread) for making minor repairs to clothing	4.20	1.05	
<sup>a</sup> I do not have access to a sewing machine to make clothing repairs	3.13	1.60	
<sup>a</sup> I don’t know where to buy mending tools from	3.95	1.06	
<b>Time/priority towards repair (TPTR)</b>			.77
Repairing clothing is part of my routine	2.30	1.08	
<sup>a</sup> I find I do not have the time to make clothing repairs	2.85	1.09	
<sup>a</sup> Of all the tasks in my life repairing clothing is not high on my list of priorities	2.20	1.02	
<sup>a</sup> I do not mend my clothes because it is too time consuming	3.35	1.12	
<b>Repair Expense (RE)</b>			
<sup>a</sup> I do not get my clothes mended because alteration (repair) services are too expensive	2.91	1.12	

<sup>a</sup>Reserved scored.  $\alpha$ , Cronbach’s alpha.

### Descriptive Analysis/results

The means and standard deviations for each item within constructs are shown in Table 2 and Table 3. The overall mean values of constructs were calculated and used for testing the

hypotheses. The two constructs that related to shopping frequency or impulsiveness of clothing shopping behaviour were low as compared with the other constructs examined in this study. The overall mean for fashion shopping frequency was 2.3 ( $SD = 1.1$ ), and for clothing impulsive shopping the mean was 2.2 ( $SD = 1.0$ ). This suggests that the consumers in the study were not high impulse shoppers and did not shop for fashion items often. However, clothing consumption that related to acquiring quality clothing that may last for a longer period of time were higher. That is, for style longevity the mean score was 4.2 ( $SD = 0.8$ ) and the mean score for quality consciousness was 3.4 ( $SD = 1.0$ ). This suggests that consumer preferences while shopping are to shop for garments that meet their style and are good quality garments. In terms of environmental attitude and frugality, the mean scores were calculated to be 4.4 ( $SD = 0.7$ ) and 4.4 ( $SD = 0.8$ ), respectively. These higher means score suggest that the respondents in the study do care about the environment and are frugal. The mean score for gender linked construct was low at 1.8 ( $SD = 1.0$ ). This indicates that respondents were quite egalitarian and not traditional in their attitudes towards gender roles.

Mean scores for repair capability and time/priority toward repair were calculated to be 3.7 ( $SD = 0.9$ ) and 2.7 ( $SD = 1.1$ ) respectively. A higher mean score indicates that consumers are more confident in their repair skills and have access to tools/technology, as well, they do not see time as a barrier toward repair and may see repairing garments as a priority. The mean score for the repair money construct was 2.9 ( $SD = 1.1$ ).

The repair practice questions were categorized as “repair or get repaired”, “self-repair”, “paid repair” and “unpaid repair”. The mean values and SD for each item included in these repair practice questions are shown in Table 4.

*Table 4: Mean and standard deviation of repairing practice*

<b>Repair type and questions</b>	<b>Mean</b>	<b>SD</b>
<b><i>I repair or get repaired:</i></b>		
I will repair clothing myself or get it repaired, when I really like the garment	4.19	0.90
I always repair or get repaired, high priced garments	3.51	1.05
I always repair or get repaired, fast fashion garments	2.58	1.05
<b><i>Self-repair:</i></b>		
I mend my own clothes	3.20	1.24
I make minor repairs to clothing, such as sew on a button or mend a small hole	3.95	1.16
<sup>a</sup> I never repair my clothing myself, even when the damage is minor	3.78	1.19
<b><i>Paid Repair</i></b>		
I take clothing that doesn't fit to a clothes repair/alteration service	2.33	1.13
I use a seamstress/tailor when I cannot repair myself	2.81	1.33
<sup>a</sup> I never have my clothing repaired by someone else	3.76	1.13
<b><i>Unpaid Repair</i></b>		
I ask my family and/or friends to help mend my clothes	3.62	1.18

<sup>a</sup>Reversed scored.

### Hypothesis testing

Hypotheses were tested by carrying out Pearson's correlations for each independent variable against the dependent variables that were the repair practice questions. To simplify the analysis, some questions originally asked were not included in each of the categories (shown in Table 4). The repair or get repaired category continued to include the three questions that referred to specific garment types (i.e., garments I really like, high-priced garments and fast fashion garments). However, the two of the self-repair questions were removed and only Q27 "*I mend my own clothes*" was retained for self-repair. Paid repair was measured using only Q23 "*I use a seamstress/tailor when I cannot repair myself*". The unpaid repair question was measured using only Q31 "*I ask my family and/or friends to help mend my clothes*".

Table 5 shows the results for the Pearson's correlations. Table 6 shows the hypotheses that were formulated and whether they were supported.

*Table 5: Pearson's correlation table*

	IS	FSF	SL	QC	E	F	GL	RC	TPTR	RE
<b>Repair or get repaired:</b>										
Garments I really like	-.077	.063	.147**	.073	.202***	.167***	-.187***	.360***	.334***	.242***
High priced garments	.045	.033	.232***	.189***	.204***	.149**	-.193***	.304***	.353***	.238***
Repair Fast fashion	.023	.028	-.019	-.033	.065	.064	-.006	.250***	.446***	.151**
<b>Self-repair:</b>										
Mend own clothes	-.107*	-.047	.101*	-.011	.079	.186***	-.147**	.714***	.618***	.156**
<b>Paid repaired:</b>										
Use seamstress/tailor	.043	.130**	.196***	.305***	.042	.004	.003	.072	.160**	.369***
<b>Unpaid repaired:</b>										
Ask family/friends	-.053	-.062	.002	-.031	.120*	.088	-.033	-.088	-.011	.083

Correlation is significant - \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$  (two-tailed)

IS: Impulse shopping; FSF: Fashion shopping frequency; SL: Style longevity; QC: Quality consciousness, E: Environment, F: Frugality, GL: Gender linked, RC: Repair capability, TPTR: Time/priority towards repair, RM: Repair expense

### ***Hypotheses 1 and 2: Fashion Shopping Frequency and Impulse Shopping Frequency***

For Hypothesis 1, that fashion shopping frequency would negatively predict garment repair, it was not supported. Whereas, for impulse shopping (Hypothesis 2) there was a negative correlation between self-repair, but not for any of the questions that involved repairing of specific clothing types (i.e., well liked, high-priced or fast fashion garments), nor paid or unpaid repair questions. Therefore, Hypothesis 2 was only partially supported. Impulse shoppers do not engage in self-repair of clothing, but there was no relationship between the other types of clothing repair.

### ***Hypotheses 3 and 4: Style Longevity and Quality Consciousness on Repair Practice***

Partial support for Hypothesis 3, that style longevity would positively predict clothing repair was found. Style longevity was positively correlated with repairing clothing the consumers really like, and high-priced garments. As well, a positive correlation was found for using a seamstress/tailor when they could not repair themselves (paid repair). A small significant correlation was also found ( $r = .196, p<0.001$ ) for self-repair indicating that consumers are less likely to self repair their clothes. However, no significant correlations were found for repair of fast-fashion garments, or unpaid repair, therefore, participants who care about style longevity may not tend to repair fast fashion garments or use unpaid repair service.

*Table 6: Hypotheses results for constructs*

Hypotheses	Results of the Hypotheses
<b>Fashion Shopping Frequency</b>	
<i>H1.</i> That fashion shopping frequency will negatively predict garment repair (paid, unpaid and self)	Not supported
<b>Impulse Shopping</b>	
<i>H2.</i> That impulse buying will negatively predict garment repair (self, paid and unpaid)	Partially supported
<b>Style Longevity</b>	
<i>H3.</i> That style longevity will positively predict garment repair	Partially supported
<b>Quality Consciousness</b>	
<i>H4.</i> That quality consciousness will positively predict garment repair.	Partially supported
<b>Environmental attitude</b>	
<i>H5.</i> That positive (strong, high) attitudes to the environment would positively predict garment repair	Partially supported
<b>Frugality</b>	
<i>H6.</i> Hypothesize that frugality would positively predict garment repair (paid, unpaid and self)	Partially supported
<b>Mending as ‘Women’s work’</b>	
<i>H7a.</i> That a traditional gender role attitude will positively predict self-repairing	Not supported
<i>H7b.</i> That an egalitarian gender role attitude will positively predict paid-repairing (or no mending)	Not supported
<b>Repairing Capabilities</b>	
<i>H8/9a.</i> That having repairing capabilities will positively predict garment repair (self)	Supported
<i>H8/9b.</i> That having repairing capabilities will negatively predict garment repair (paid, unpaid)	Not supported
<b>Time/priority toward repair</b>	
<i>H10a.</i> That having time to repair will positively predict garment repairing (self)	Supported
<i>H10b.</i> That having me to repair will negatively predict garment repairing (paid, unpaid)	Not supported
<b>Repair expense</b>	
<i>H11a.</i> That consumers who consider repair not to be expensive will conduct paid clothing repair.	Supported
<i>H11b.</i> That consumers who consider repair to be expensive will conduct self-repair of clothing and unpaid repair of clothing.	Not supported

Hypothesis 4, that quality consciousness would positively predict clothing repair, was also only partially supported. Interestingly, quality conscious consumers repair garments that are high-priced. Quality conscious consumers would also be more likely to have their clothing repaired by a professional (paid repair). However, no significant correlations were found between quality

consciousness and self-repair or unpaid repair, indicating that quality conscious consumers are not willing to self repair or go for unpaid repair.

#### ***Hypothesis 5: Environmental Attitude***

For Hypothesis 5, that environmental attitude would positively predict clothing repair, this hypothesis was partially supported. This is due to environmental attitude is highly correlated with repairing clothes consumers really like and high-priced garments. A small positive correlation was found ( $r = .120, p < 0.05$ ) for using unpaid services like consumers asking their friend or family to repair clothes. However, no correlations were found between environmental attitude and self-repair or paid repair, indicating that consumers who have positive attitude towards environment are not willing to self repair or do paid repair.

#### ***Hypothesis 6: Frugality***

Hypothesis 6, that frugality would positively predict clothing repair, was also only partially supported. This was because frugality was significantly correlated with the clothing repair done by consumers for the high-priced garments, and those they really like. A significant correlation was found ( $r = .186, p < 0.001$ ) for self-repair of clothing, indicating that consumers are willing to self repair. However, no significant correlation was found for the fast fashion garments nor between frugality and paid or unpaid repair, therefore, frugal consumers are not willing to repair fast fashion garments and do not appear to go for paid or unpaid repair.

#### ***Hypothesis 7: Mending as ‘Women’s work’***

Hypothesis 7a, that traditional gender role attitude would positively predict garment repair, was not supported. There were significant negative correlations found between the questions that involved repairing of specific clothing types (i.e., well liked, high-priced or fast fashion garments), self-repair and unpaid repair questions. However, Hypothesis 7b, that an egalitarian gender role

attitude will positively predict paid repairing (or no mending), was not supported. As no correlation was found between gender linked and paid repair services. The results indicated that the consumers were more egalitarian, but that they were more inclined to self-repair clothing.

#### ***Hypotheses 8/9: Repairing Capabilities- Repairing Skills and Repairing Tools***

Due to the change in approach to analysing the data modified hypotheses were proposed for repair skills and repairing tools/technology. This is because a new construct was created that merged repair skills and tools/technology together. New Hypotheses 8/9a and 8/9b were formed. For Hypothesis 8/9a, that repair capabilities would positively predict garment repair, the hypothesis was fully supported. This was because there was a highly significant positive correlation between repair practice questions and repair capabilities, for repairing garments that were well liked, high-priced or fast fashion garments. Furthermore, a high correlation was found ( $r = .714$ ,  $p < 0.001$ ) for the self-repair of clothing. This means that people with repair capabilities are likely to mend their own clothes. Hypotheses 8/9b, having repairing capabilities will negatively predict paid and unpaid garment repair, were not supported. There were no correlations found for paid repair or unpaid repair services.

#### ***Hypothesis 10: Time/Priority Toward Repair***

For Hypothesis 10a, that having the time and giving priority to garment repair would positively predict clothing repair, was supported. There were significant positive correlations between time/priority toward garment repair and repairing clothing the consumers really like, high-priced garments and fast fashion clothing, as well as with self-repair, which was ( $r = .714$ ,  $p < 0.001$ ). That is, those respondents who stated time was not a restriction for them were more likely to repair their own clothes. Hypothesis 10b, that having time to repair will negatively predict paid and unpaid garment repairing, was not supported. This was because a small significant positive

correlation (rather than a negative correlation) was found ( $r = .160$ ,  $p < 0.01$ ) for using a seamstress/tailor when they could not repair themselves (paid repair). As well, no correlation was found for using unpaid repair services, suggesting that consumers who do not have time/priority towards repair, are not going to use unpaid service.

### ***Hypotheses 11: Repair Expense***

Hypothesis 11a, that consumers who consider repair not to be expensive will conduct paid clothing repair, was supported. This is because repair expense was positively correlated with repairing clothing the consumers really like, high-priced garments and significant correlation is found for fast fashion garments. A positive correlation was found ( $r = .369$ ,  $p < 0.001$ ) between repair expense and using paid repair services, therefore, this suggests that consumers who do not see the cost of repair to be too high are willing to use a seamstress or tailor when they cannot repair themselves. However, Hypothesis 11b, that consumers who consider repair to be expensive will conduct self-repair of clothing and unpaid repair of clothing, was not supported. A small significant positive correlation was found ( $r = .156$ ,  $p < 0.001$ ) for using a self-repair and no significant correlation was found for using unpaid repair services. Therefore, the participants who consider repair expense to be too high, also not use unpaid repair service due to repairing expense.

## **Discussion**

Clothing repair is an important garment life-extension strategy that may reduce the level of clothing waste that is generated day by day. Scholars have reported that young people are less likely to repair today than they were traditionally as sewing skills are not taught in schools (Laitala & Klepp, 2018; Norum, 2013). Fisher et al., (2008) stated in their study that many participants get their garments repaired by parents or grandparents, concluding that traditional skills are fading away these days and only people who have sewing skills, which are either taught in their school

or by their parents or grandparents, are carrying out garment repair. There are many other barriers that may prevent consumers from carrying out clothing repair practice such as fast fashion, poor quality garments, low-cost clothing, and impulsive shopping behaviours, time constraints and the financial cost associated with repairing clothing (Connor-Crabb & Rigby, 2019; Degenstein et al., 2020; Goworek et al., 2012a; McLaren & McLauchlan, 2015).

In the current study of mainly university students, it was found that repair of garments is carried out by some of the university students' respondents, and that the likelihood of repairing clothing is related to whether the garments are really liked or those which are of higher quality. As well, some significant correlations were found between the attitudes and behaviours, such as shopping preferences for quality clothing and long-lasting styles, environmental attitudes and frugality with garment repair, although none of these hypotheses were fully supported.

Firstly, it was found that the type of garments can influence how likely a person would be to repair when necessary (see Table 4). It was clear from the survey results that people were more likely to carry out repair on garments that they really like, as well as those that were high priced. These results are consistent with the work of previous researchers (Laitala & Klepp, 2018; McLaren & McLauchlan, 2015; McNeill et al., 2020) who also found that consumers prefer to repair garments they like the most or those they have some emotional connection to. Furthermore, in other studies it was found that high-priced garments were more likely to be repaired than low-priced and fast fashion garments (Degenstein et al., 2020; McNeill et al., 2020). In the current study, fast-fashion clothing was less likely to be repaired but quality conscious consumers repair both high priced and fast fashion garments. Another characteristic of clothing was the complexity of the repairs that were to be carried out. In examination of the responses from participants on the types of self-repairs they may do, higher mean values ( $3.95 \pm 1.16$ ) were found for minor repairs

than for the more general mending question ( $3.20 \pm 1.24$ ). This suggests that there is a preference toward minor repairs; which was also supported with findings from other studies (Degenstein et al., 2020; Laitala & Klepp, 2018).

The majority of the hypotheses in this study were only partially supported rather than fully supported. This may be due to the relationship of different types of clothing repair that can be conducted (i.e., self-repair, paid repair and unpaid repair) and with repairing clothing. For all constructs, utilizing the help of a family member or friend in making clothing repairs (unpaid repair) was not significantly correlated. Generally, the findings mentioned in the literature review showed that when people did not feel there were certain physical, material or practical barriers to repair (e.g., skills, tools, time) they were more likely to carry out self-repair. Other, but weaker, relationships were found between clothing consumption behaviours, environmental attitude and frugality.

An exploration of the results of the current study showed that consumers with repair capabilities are much more likely to repair their garments themselves and not engage in paid repair (see Table 5). Thus, having repair capabilities indicates that consumers have sufficient knowledge and skill in order to make garment repairs as well as having access to the necessary tools/technologies to carry out repair. Consumers who have the skills may not need to pay someone else to mend their clothing so they can save some money by repairing themselves.

Consumers who did not consider time as a barrier to making repairs or saw repairing as a priority were more likely to engage in self-repair (see Table 5). This was supported in a previous study where some participants who were interviewed about clothing repair activities indicated that they did not think that repairing was a time consuming task (Connor-Crabb & Rigby, 2019). On the other hand, consumers who do consider time as a barrier to carrying out clothing repair, will

be less inclined to engage in repair practices themselves. For example, based on Laitala and Klepp's (2018) study they found older women tended to report having more free time and were more likely to engage in clothing repair activities, whereas, women with children were less likely to repair because they had less time to do so.

Furthermore, consumers who did not deem the cost of repairing to be a barrier, were more likely to get their garments repaired by professionals. It was, however, interesting to note that consumers who did not perceive paying for clothing repair to be a financial barrier, also engaged in repairing clothing themselves (i.e., self-repair). There is the possibility that people who see value in repairing clothing are those who may engage in multiple aspects of repair (self- and paid). It is possible that consumers who care about getting clothing repaired are also willing to pay someone to do it, they can carry out minor repairs like sewing a button or re-sewing loose stitching of a hem or seam. However, for more complicated repairs that require more work, these consumers would more likely to get it repaired by a professional. Therefore, it could be that people who actually are capable of doing some of their own mending may also engage in paid repair when they cannot do the mending themselves.

When examining the types of repair that are carried out by the respondents in this study, it was notable that using paid repair services were less likely than self-repair (Table 4). However, consumers who looked for long-lasting styles and for quality when shopping for clothing were more likely to use paid repair services. In particular, quality conscious consumers would pay a professional rather than mend clothing themselves, as no significant correlation between mending one's own clothing and quality consciousness was found. This finding suggests that consumers who are more aware of quality in their garments, may be unwilling to carry out mending themselves due to a lack of confidence in the end quality. By not doing it themselves, this may

prevent further damage of a high-quality garment if the mending goes wrong, or perhaps having repair done by a person with a high skill level may also result in a repair that can be hidden. As Connor-Crabb and Rigby (2019) noted in their research some people do not like the look of repairs on garments.

Surprisingly, those who shopped for fashion frequently also were more likely to use paid-repair services. This was unexpected because it was hypothesized that those who shop frequently probably have a lot of clothing and would be more likely to repair less and dispose of more clothing. Apparently, we can say from the results that the participants are fashion engaged consumers. Therefore, this could be a reason that consumers who shop a lot may have really good clothing collection or maybe they just like to shop. However, more work should be done to find out more clear results on this topic, therefore further research is required to find out why.

The hypothesis for fashion shopping frequency and impulse shopping was not supported by responses from participants. The overall mean for fashion shopping frequency questions and impulse shopping questions was quite low with means of 2.3 and 2.2 respectively. This indicated that many of these consumers do not tend to engage in impulse shopping nor in shopping for fashion frequently. This could possibly explain why the hypotheses were not supported. The sample was comprised of university students, predominantly young students. This sample may not reflect the diversity of the general population, where some young people who have a disposal income due to having a full-time job, may shop more frequently. As many young university students will have low disposable incomes, then they may not shop for clothing as much at this stage. However, the reduction in shopping frequency could also have been influenced in some degree by the current situation of the pandemic. It may be of interest to conduct another survey of university students in future years.

The fast fashion industry has many negative consequences upon the environment related to increasing frequency and amount of disposal. As repair can extend the life of a garment as it will increase the quality of the garment. Ideally, through these life-extension strategies, the production of new garments can be avoided which provides further environmental benefits (Fisher et al., 2008). In this study it was somewhat surprising that there was not stronger support for the hypothesis that consumers with a strong environment attitude would engage in clothing repair. This could be because the participants are not aware about the fact that garment repairing will help the environment. As well as there could be a reason that questions were not directly targeted to the understanding of a consumer in regard to the impact of clothing on the environment. Some of the respondents may be aware about the negative environmental issues in the fashion industry whereas, some others may not be aware. However, they still stated that they care about the environment, and may perform other environmentally conscious activities. Moreover, it was of interest that environmental attitude was the only construct where there was a small significant correlation shown with unpaid repair, albeit small (see Table 5). It was interesting that they were likely to elicit help for repair from friends or family members. Perhaps this may be because of those environmentally conscious consumers who do care about the environment and do value having clothing repaired, may lack the capabilities, do not have the time to do repair themselves, or they do not have the financial resources to pay for someone to do it. These barriers to self-repair or paid repair could motivate people to adopt unpaid repair. Norum (2013), stated that environmentally concerned consumers were willing to get their garments repaired or repair it themselves if they do not have the tools and skills. In general, the university sample in the current study was a population that had a high environmental attitude as compared with the other constructs and the mean was 4.4 ± 0.7. That is, they were aware that the environment should be taken care of and that action was

needed. However, due to the high environmental attitude among the majority of respondents may have led to this hypothesis being only partially supported by the results, as consumers are willing to go for unpaid repair, but not self or paid repair. In a more diverse population perhaps it may have been supported.

Frugality is described as a “lifestyle trait reflecting disciplined acquisition and resourcefulness in product and service use” (Lastovicka et al., 1999, p. 96). As the frugal consumer is one that would take care of their material resources and be more likely to care for a product that they already own to get more use out of it than purchase a replacement. This study measured the frugality by analysing the concerns towards resources of a consumer. Therefore, results showed that a frugal consumer should be a consumer that is more likely to carry out repair activities including paid and unpaid repair. Frugality was associated with self-repair of clothing but not with paid or unpaid repair. It could be that some of the respondents who indicated they were frugal in nature also did not like to spend money on something like clothing repair. The types of frugality, whether it is more financial based where consumers care more about money, or more material based where consumers care more about resources, could be different. As well, a relatively low-income population like students, frugality may be temporary due to having a low-disposable income. The complexity of frugality and how this influences clothing repair warrants further investigation.

The results show that the survey participants were more egalitarian than traditional in terms of attitudes to gender roles. The mean value for the gender linked questions were very low, which indicated that the majority of the participants did not agree with the traditional roles related to gender. There is the possibility that a more diverse sample could have yielded different results in terms of the relationship between gender role attitudes and clothing repair. As this sample

contained only university students, their responses were fairly homogenous to gender roles. The association with domestic chores and mending as “women’s work” has still been indicated as a potential barrier to clothing repair (Laitala & Klepp, 2018; Norum, 2013), but in the current research the hypotheses that more egalitarian consumers would be less likely to carry out clothing repair was not supported. It could be possible that the scale used to indicate egalitarian or traditional gender role attitudes was not the most appropriate for this study. In future research more questions could be developed that more directly target this potential repair barrier. Therefore, more work on identifying the potential barrier consumers have toward clothing repair based on gender should be done.

### **Conclusions and Recommendations**

#### **Conclusions**

In this study, a survey of 437 university students was carried out for this study. This study’s findings were consistent and confirmed other researcher’s work who have identified that there are certain barriers (i.e., lack of repair skills, lack of time and cost) that can reduce the likelihood of consumers repairing their clothing. It was evident from the survey of this sample of university students that having the capability to carry out clothing repair does influence the likelihood they will repair their own clothing, as the results showed that there is a high positive correlation between repair capability and self-repair. That is, those who express confidence in their repair skills and have access to tools/technology will be more likely to engage in self-repair of clothing. There is the possibility that bringing back more education about how to conduct clothing repair will encourage people to repair as they will be more confident in their skills and learn where to access tools. This has been recommended by Norum (2013), who found that not enough people have basic sewing education and therefore skills to repair. However, we are seeing increased awareness on

social media platforms such as Youtube, Instagram and Facebook, encouraging consumers to repair or repurpose clothes and promoting reusage and sustainability benefits.

As well, a lack of time was another barrier which prevents people from repairing their garments. This study showed that for people who do not perceive time to be a barrier to repair are more likely to self-repair as they prioritise garment repair and have or make time for such activities. Furthermore, those who do not see the cost of paying for clothing repair services are more likely to engage in paid-repair.

Maintaining quality of clothing was also shown to be important for quality conscious consumers as they are highly likely to pay for professional clothing repair services rather than mend themselves. Many of the hypotheses from this research were not fully supported, and only partially supported. This was to some degree due to the lack of a relationship between unpaid repair and attitudes/behaviours tested.

## **Recommendations**

There were some limitations in this study that could be addressed in future research. Firstly, as indicative in some of the attitude and shopping behaviour scales it was clear that the sample of university students were quite homogeneous. For example, as a group overall they rated high on the environmental attitude and frugality scales, and low on the impulse shopping and fashion shopping frequency scales. The university population may be more similar and not reflect the diversity of the general population. Therefore, it is possible that if the sample had been more diverse, and therefore more representative of the wider Canadian population, that more of the study hypotheses may have been fully supported. As well, as student's may have a low disposable income, then they may not shop as much at this stage in their lives, which could relate to lower shopping frequency. Therefore, in future research distributing this survey to a more representative sample of

the Canadian population is recommended. Moving forward, the study should focus on enriching the sample size by incorporating diverse demographics and gender balance. Furthermore, pertinent questions can be raised on environmental awareness, consumer attitude towards fashion sustainability and slow fashion.

In this survey, the repair tools/technology and repair skills were merged together to form a construct that was called repair capability. However, this is a limitation in that it is not possible to determine the impact of having skills and having access to tools/technology to conduct repair. Therefore, in future studies it would be worthwhile to re-examine the questions used for these constructs more carefully and add additional questions so that the effect of repair skills and repair tools/technology can be separately analyzed.

Some questions in the dependent variables addressing repair practice addressed more than one concept. For example, “*I always repair or get repaired, high priced garments*”, in this question, it cannot fit in only one type of repair, it encompasses all of the repair types (i.e., self-repair, paid or unpaid repair). Therefore, there are many opportunities for future study. Overall, more specific questions related to sewing and garment repair can be added for future studies.

The potential barrier to repair, that carrying out repair is seen negatively as “women’s work” was to be measured using an established gender-linked scale. However, the gender-link construct was likely not the most appropriate for this particular study on garment repair. Therefore, it would be beneficial to create questions in the future study that more specifically target this attitude towards carrying out domestic activity of repair.

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# Clothing Consumption

TITLE OF STUDY: Clothing Consumption Study

PRINCIPAL INVESTIGATOR: Dr. Rachel McQueen  
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STUDENT RESEARCHER: Ms. Ayesha Jain

INVITATION TO PARTICIPATE: We invite you to take part in our research study about your clothing consumption and use.

PURPOSE OF THE STUDY: We wish to learn about your practices related to the consumption of clothing. This includes your practices related to buying clothing and mending clothing. Along with questions related to clothing consumption and care, we are also interested in your attitudes toward the environment and gender roles.

PARTICIPATION: If you wish to participate in this study, please complete the online survey. The survey should take you approximately 10-15 minutes to complete. Once you have completed the survey, please choose the "submit" button.

BENEFITS: There are no direct benefits to you for participating in this study.

RISKS: There are no risks associated with participating in this study

CONFIDENTIALITY AND ANONYMITY: The information you share will remain strictly confidential and will be used solely for the purposes of this research. The only people who will have access to the research data are the researchers. While we will ensure that your responses are kept confidential, the online survey is hosted by Google so is housed on a US database and subject to US privacy laws, which gives the government the right to access all information held in electronic databases. Your anonymity is guaranteed since we are not asking you to provide your name or any personal information that could identify you.

DATA STORAGE: Survey data will be collected and stored in Google Forms. Once downloaded, electronic copies of the survey will be encrypted and stored on a password-protected computer of the principal investigator.

VOLUNTARY PARTICIPATION: You are not obligated to take part in this study. If you begin the survey and change your mind you can withdraw during the survey. If you choose to withdraw midway through the electronic survey simply close the link. Since the survey is anonymous, once you have submitted your responses it will no longer be possible to withdraw them from the study.

Please note, that if you are a student in Dr. McQueen's HECOL 170 course your participation in this survey will not be tied to course grades in any way.

**INFORMATION ABOUT THE STUDY RESULTS:** If you want to learn about the results from the study, please email the principal investigator, Dr. Rachel McQueen.

**CONTACT INFORMATION:** If you have any questions or require more information about the study itself, you may contact the principal investigator by email at [rachel.mcqueen@ualberta.ca](mailto:rachel.mcqueen@ualberta.ca).

The plan for this study (Pro00103458) has been reviewed by a Research Ethics Board at the University of Alberta. If you have any questions regarding your rights as a research participant or how the research is being conducted you may contact the Research Ethics Office at 780-492-2615.

Please print a copy of this consent form for your own records.

By proceeding to the next page, you are indicating that you understand this consent form, are at least 18 years of age, and agree to take part in this study.

\* Required

## Section A

To what extent do you agree or disagree with the following statements related to purchasing clothing?

1. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I often buy things spontaneously from clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
"Just do it" describes the way I buy things at clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I often buy things without thinking at clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
"I see it I buy it" describes my behaviour in clothing retail environments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
"Buy it now, think about it later" describes the way I act in clothing retail environments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Sometimes I feel like buying things on the spur-of-the-moment when I am shopping at clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I buy things according to how I feel at the moment when I am shopping at clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Sometimes I am a bit reckless about what I buy at clothing retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I purchase new clothing more often than my friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I buy new clothing often, even if I don't need it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I make clothing purchases only when needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I prefer to purchase clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know I can utilize for a long time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I typically purchase clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know will fit my personal style for a long time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
When purchasing clothing, I like to know it will work with my personal style for a long time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I prefer to purchase clothing that is more timeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I care more about the quality of clothing than price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I make a special effort to choose the very best quality clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
In general, quality is not the first factor I look for when I go shopping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I usually buy high-quality brands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I care a lot about fabric quality when I buy new clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section B

To what extent do you agree or disagree with the following statements about repairing clothing?

21. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I will repair clothing myself or get it repaired, when I really like the garment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I always repair or get repaired, high priced garments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I use a seamstress/tailor when I cannot repair myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I always repair or get repaired, fast fashion garments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I take clothing that doesn't fit to a clothes repair/alteration service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. \*

Mark only one oval per row.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Repairing clothing is part of my routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. \*

Mark only one oval per row.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I mend my own clothes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. \*

Mark only one oval per row.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I make minor repairs to clothing, such as sew on a button or mend a small hole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. \*

Mark only one oval per row.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I never repair my clothing myself, even when the damage is minor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I never have my clothing repaired by someone else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I ask my family and/or friends to help mend my clothes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

32. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I am confident in my ability to make minor repairs to clothing (eg, sew on a button, mend a small hole)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I would know how to repair a damaged garment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Some clothing repairs are too difficult for me to do myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I know where to look for information on how to repair my clothes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have the necessary tools (eg, needle, thread) for making minor repairs to clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I do not have access to a sewing machine to make clothing repairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I don't know where to buy mending tools from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I find I do not have the time to make clothing repairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Of all the tasks in my life repairing clothing is not high on my list of priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I do not mend my clothes because it is too time consuming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The cost of clothing means it's not worth repairing a garment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I do not get my clothes mended because alteration (repair) services are too expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C

To what extent do you agree or disagree with the following statements related to the environment?

44. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Environmental issues are very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Everybody should try to preserve the environment for future generations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

46. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have more important issues to deal with other than environmental concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

47. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
We should be consuming products that can be recycled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

48. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Too much emphasis is placed on environmental issues and concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

49. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Our governments should be taking more action toward combating climate change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

50. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
We should be reducing our use of plastics in order to protect the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

51. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Environmental issues are not important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section D

To what extent do you agree or disagree with the following statements about spending/saving money?

52. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
If you take good care of your possessions you will definitely save money in the long run	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

53. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
There are many things that are thrown away that are still quite useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

54. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Making better use of my resources makes me feel good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

55. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
If you can reuse an item you already have, there's no sense in buying something new	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

56. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I believe in being careful with how I spend my money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

57. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I discipline myself to get the most from my money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

58. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I am willing to wait on a purchase I want so that I can save money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

59. \*

*Mark only one oval per row.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
There are things I resist buying today so I can save for tomorrow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section E

To what extent do you agree or disagree with the following statements related to gender-linked attributes?

60. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
People can be both aggressive and nurturing regardless of sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

61. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
People should be treated the same regardless of their sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

62. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The freedom that children are given should be determined by their age and maturity level and not by their sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

63. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Tasks around the house should not be assigned by sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

64. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
We should stop thinking about whether people are male or female and focus on other characteristics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

65. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
A father's major responsibility is to provide financially for his children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

66. \*

Mark only one oval per row.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Men are more sexual than women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

67. \*

Mark only one oval per row.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Some types of work are just not appropriate for women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

68. \*

Mark only one oval per row.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Mothers should make most decisions about how children are brought up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

69. \*

Mark only one oval per row.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Mothers should work only if necessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

70. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Girls should be protected and watched over more than boys	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

71. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Only some types of work are appropriate for both men and women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

72. \*

*Mark only one oval per row.*

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
For many important jobs, it is better to choose men instead of women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section F

73. In the last 3 months, how many items of clothing would you have purchased for YOURSELF (for example, outerwear, suits, dresses, skirts, slacks, sweaters, sleepwear, sportswear, specialized clothing, hosiery?) \*

*Mark only one oval.*

- None
- One item
- 2 items
- 3 items
- 4 items
- 5 items
- 6 items
- 7 items
- 8 items
- 9 items
- 10 items
- More than 10 items of clothing      *Skip to question 75*

Section F (cont.)

74. In the last 3 months, how much did you spend on clothing for YOURSELF (for example, outerwear, suits, dresses, skirts, slacks, sweaters, sleepwear, sportswear, specialized clothing, hosiery?) \*

*Mark only one oval.*

- \$0      *Skip to question 77*
- Between \$1-\$50      *Skip to question 77*
- Between \$50-\$100      *Skip to question 77*
- Between \$100-\$200      *Skip to question 77*
- Between \$200-\$300      *Skip to question 77*
- Between \$300-\$400      *Skip to question 77*
- Between \$400-\$500      *Skip to question 77*
- Between \$500-\$600      *Skip to question 77*
- Between \$600-\$700      *Skip to question 77*
- Between \$700-\$800      *Skip to question 77*
- Between \$800-\$900      *Skip to question 77*
- Between \$900-\$1000      *Skip to question 77*
- Between \$1000-\$1250      *Skip to question 77*
- Between \$1250-\$1500      *Skip to question 77*
- Between \$1500-\$1750      *Skip to question 77*
- Between \$1750-\$2000      *Skip to question 77*
- Greater than \$2000      *Skip to question 76*

#### Section F (cont.)

75. If you have purchased more than 10 items over the last 3 months for yourself. How many items of clothing would you have purchased?

---

*Skip to question 74*

#### Section F (cont.)

76. If you spent more than \$2000 on clothing for yourself in the last 3 months.  
Approximately, how much did you spend?
- 

Section G

Please answer the following related to demographic questions

77. What is your age (in years) \*
- 

78. You identify your gender as: \*

*Mark only one oval.*

- Female
- Male
- Non-binary

79. What is your annual household income? \*

*Mark only one oval.*

- Under \$15,000
- Between \$15,000 and \$29,999
- Between \$30,000 and \$49,999
- Between \$50,000 and \$74,999
- Between \$75,000 and \$99,999
- Between \$100,000 and \$150,000
- Over \$150,000
- Prefer not to answer

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Google Forms

## **Appendix 2.**

S.no.	Survey Questions
1	I often buy things spontaneously from clothing retailers
2	"Just do it" describes the way I buy things at clothing retailers
3	I often buy things without thinking at clothing retailers
4	"I see it I buy it" describes my behaviour in clothing retail environments
5	"Buy it now, think about it later" describes the way I act in clothing retail environments
6	Sometimes I feel like buying things on the spur-of-the-moment when I am shopping at clothing retailers
7	I buy things according to how I feel at the moment when I am shopping at clothing retailers
8	Sometimes I am a bit reckless about what I buy at clothing retailers
9	I purchase new clothing more often than my friends
10	I buy new clothing often, even if I don't need it
11	I make clothing purchases only when needed
12	I prefer to purchase clothing I know I can utilize for a long time
13	I typically purchase clothing I know will fit my personal style for a long time
14	When purchasing clothing, I like to know it will work with my personal style for a long time
15	I prefer to purchase clothing that is more timeless
16	I care more about the quality of clothing than price
17	I make a special effort to choose the very best quality clothing
18	In general, quality is not the first factor I look for when I go shopping
19	I usually buy high-quality brands
20	I care a lot about fabric quality when I buy new clothing
21	I will repair clothing myself or get it repaired, when I really like the garment
22	I always repair or get repaired, high priced garments
23	I use a seamstress/tailor when I cannot repair myself
24	I always repair or get repaired, fast fashion garments
25	I take clothing that doesn't fit to a clothes repair/alteration service
26	Repairing clothing is part of my routine
27	I mend my own clothes
28	I make minor repairs to clothing, such as sew on a button or mend a small hole
29	I never repair my clothing myself, even when the damage is minor
30	I never have my clothing repaired by someone else
31	I ask my family and/or friends to help mend my clothes
32	I am confident in my ability to make minor repairs to clothing (eg, sew on a button, mend a small hole)
33	I would know how to repair a damaged garment
34	Some clothing repairs are too difficult for me to do myself
35	I know where to look for information on how to repair my clothes
36	I have the necessary tools (eg, needle, thread) for making minor repairs to clothing
37	I do not have access to a sewing machine to make clothing repairs
38	I don't know where to buy mending tools from
39	I find I do not have the time to make clothing repairs
40	Of all the tasks in my life repairing clothing is not high on my list of priorities
41	I do not mend my clothes because it is too time consuming
42	The cost of clothing means it's not worth repairing a garment

43	I do not get my clothes mended because alteration (repair) services are too expensive
44	Environmental issues are very important to me
45	Everybody should try to preserve the environment for future generations
46	I have more important issues to deal with other than environmental concerns
47	We should be consuming products that can be recycled
48	Too much emphasis is placed on environmental issues and concerns
49	Our governments should be taking more action toward combating climate change
50	We should be reducing our use of plastics in order to protect the environment
51	Environmental issues are not important to me]
52	If you take good care of your possessions you will definitely save money in the long run
53	There are many things that are thrown away that are still quite useful
54	Making better use of my resources makes me feel good
55	If you can reuse an item you already have, there's no sense in buying something new
56	I believe in being careful with how I spend my money
57	I discipline myself to get the most from my money
58	I am willing to wait on a purchase I want so that I can save money
59	There are things I resist buying today so I can save for tomorrow
60	People can be both aggressive and nurturing regardless of sex
61	People should be treated the same regardless of their sex
62	The freedom that children are given should be determined by their age and maturity level and not by their sex
63	Tasks around the house should not be assigned by sex
64	We should stop thinking about whether people are male or female and focus on other characteristics
65	A father's major responsibility is to provide financially for his children
66	Men are more sexual than women
67	Some types of work are just not appropriate for women
68	Mothers should make most decisions about how children are brought up
69	Mothers should work only if necessary
70	Girls should be protected and watched over more than boys
71	Only some types of work are appropriate for both men and women
72	For many important jobs, it is better to choose men instead of women
73	In the last 3 months, how many items of clothing would you have purchased for YOURSELF (for example, outerwear, suits, dresses, skirts, slacks, sweaters, sleepwear, sportswear, specialized clothing, hosiery?)
74	In the last 3 months, how much did you spend on clothing for YOURSELF (for example, outerwear, suits, dresses, skirts, slacks, sweaters, sleepwear, sportswear, specialized clothing, hosiery?)
75	If you have purchased more than 50 items over the last 3 months for yourself. How many items of clothing would you have purchased?
76	If you spent more than \$4000 on clothing for yourself in the last 3 months. Approximately, how much did you spend?
77	What is your age (in years)
78	You identify your gender as:
79	What is your annual household income?