Facilitators of, and Barriers to, Accessing Reproductive Care in Canada for Same-Sex Male Couples and Single Men

by

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Institute of Medical Science
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Abstract

Same-sex male couples (SSMCs) and single men (SM) are increasingly using assisted reproductive technologies (ART) to have children, yet research on their experience accessing care in Canada is limited. The objective of this preliminary study was to evaluate experiences of SSMCs and SM who have pursued ART in Canada. Data were collected from 08/2018 - 01/2019 through convenience sampling using a 58-item anonymous online survey. Seventy-two completed surveys were used for the analysis. Four of five participants (n=58, 80.5%) had a positive overall experience using ART. Resources such as high socio-economic status and social support were facilitators to accessing ART in Canada. Barriers to accessing care included: cost, time commitment, experience of stigma, and difficulties securing third parties when using ART. This research may guide practice and policy implications for reproductive healthcare services in Canada, such as provision of funding to make ART more accessible to all demographics.
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“There’s beauty in the struggle”- J. Cole
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List of Abbreviations

Presented in alphabetical order

AHRA – Assisted Human Reproduction Act

ART – Assisted Reproductive Technologies

ASRM – American Society for Reproductive Medicine

CARTR-BORN – Canadian ART Register-Better Outcomes Registry & Network

CBRC – Cross Border Reproductive Care

ICSI – Intracytoplasmic Sperm Injection

IP – Intended Parent

IUI – Intra-Uterine Insemination

IVF – In-Vitro Fertilization

LGBTQ+ – Lesbian, Gay, Bisexual. Transgender, Queer Plus

PGS – Pre-Implantation Genetic Screening

PGT-A – Pre-Implantation Genetic Testing for Aneuploidies

SM – Single men

SSFC – Same-Sex Female Couple

SSMC – Same-Sex Male Couple

UoT – University of Toronto
1 Literature Review

With regard to the use of third-party reproduction via assisted reproductive technologies (ART), the majority of reproductive care is focused on heterosexual couples accessing reproductive healthcare services after struggling with infertility (Daar et al., 2017). However, sexual and gender minorities are increasingly accessing ART in Canada, and reproductive healthcare practitioners are providing more and more care outside the scope of infertility. Specifically, same-sex male couples (SSMCs), same-sex female couples (SSFCs), single women, and single men (SM) pursuing parenthood may access ART in order to become biological parents in the context of their same-sex coupled relationship, or as a solo parent. In Canada, SSMCs and SM now comprise approximately 32% of intended parents (IPs) using ART to have children (Dixon, Librach, & Gandhi, 2019). As family structures and kinship configurations move away from the traditional heteronormative depiction, and reproductive technologies continue to advance, more individuals are pursuing their dreams of parenthood by creating the family formation of their choosing. Thus, the body of scholarly work that exists on accessing ART in Canada must be broadened to include the experiences of these non-traditional societal groups.

Although there is a dearth of existing literature on SSMCs and SM accessing ART in Canada, it is helpful to be familiar with what scholarly work has been established on third-party reproduction, as well as the pursuit of parenthood by sexual and gender minorities. Thus, the following literature review will present available research and elaborate on the details of the third-party reproduction pathway, the increased use of ART by the LGBTQ+ community, how ART use affects kinship structures, various pathways to parenthood for sexual and gender minorities, and finally established work on parenting in a non-heterosexual context. The goal of this broad literature review is to set the context for the current study, by providing detail on third-party reproduction via ART, as well as parenting pursuits by non-heterosexual individuals, and will serve to highlight the gaps in research with respect to SSMCs and SM pursuing ART in Canada.
1.1 Third-party Reproduction via ART

Third-party reproduction is any form of reproduction in which genetic material or gestation is provided by a third person or donor, other than the intended parents of the child (American Society for Reproductive Medicine, n.d.). Parenthood through third-party reproduction is a highly emotional process requiring complex decision-making and frequent problem solving, and thus carries the potential for significant psychological risk, making it an important topic of study (Greenfeld, 2015). In order to properly comprehend how third-party reproduction is utilized in reproductive healthcare today, it is important to understand in detail the methods used to facilitate reproduction and the various parties that are involved in the process. Thus, the following section aims to elaborate on the ART pathway, the roles of third parties and counsellors, the legal framework regarding ART use in Canada, and research on pursuing cross-border ART care.

Most often, third-party reproduction requires the use of ART, which is an umbrella term for any technological advancements or laboratory techniques that facilitate human reproduction. Some examples of ART include intra-uterine insemination (IUI), \textit{in vitro} fertilization (IVF), or intracytoplasmic sperm injection (ICSI). Within third-party reproduction, any relationships formed with individuals in order to facilitate reproduction, are considered to be reproductive relationships (Dempsey, 2010). Finding appropriate reproductive relationships within third-party reproduction for IPs is a very important step in their journey to parenthood. IPs frequently require the formation of reproductive relationships with two separate third parties – an egg donor and a surrogate.

1.1.1 Surrogacy and Egg Donation

One ART technique used for many indications in reproductive care is surrogacy. A surrogate is defined as a female who “becomes pregnant, carries, and delivers a child on behalf of another individual” (Shenfield et al., 2005). Two specific types of surrogacy arrangements exist: genetic (also called “partial” or “traditional” or “true”) surrogacy, and gestational (also called “IVF surrogacy” or “full”) surrogacy. Genetic surrogacy is facilitated by using sperm from the intended father, or in some cases donor sperm, to impregnate the surrogate. Genetic surrogacy
does not necessarily require medical intervention and results in the surrogate having both genetic and gestational links to the child. In contrast, with gestational surrogacy an embryo is created using the sperm of the intended father or in some cases donor sperm, and an egg from the intended mother or from an egg donor, in the laboratory. The resulting embryo is then transferred into the uterus of the surrogate. In a gestational surrogacy arrangement, the surrogate who gestates the pregnancy to term and delivers the child has no genetic relationship to the child (Bergman, Rubio, Green, & Padrón, 2010; Blake et al., 2016; Dempsey, 2010; Norton, Hudson, & Culley, 2013). The first successful gestational surrogacy occurred in 1985 (Utian, Sheean, Goldfarb, & Kiwi, 1985). Gestational surrogacy is a more favorable practice, and far more common, than genetic surrogacy in both Canada and the US, as genetic surrogacy may carry greater potential for legal and psychological risks for all parties involved due to the surrogate’s genetic relationship to the intended child (Yee, Hemalal, & Librach, 2019). Furthermore, surrogacy may be compensated (also called “paid” or “commercial”) or uncompensated (also called “unpaid” or “altruistic”). In a compensated surrogacy arrangement, a surrogate is reimbursed for medical expenses and is also paid a separate fee for carrying the child. Conversely, in an uncompensated surrogacy arrangement, a surrogate is reimbursed for all expenses incurred in the surrogacy process, but no additional fee is paid for carrying the pregnancy (Dempsey, 2013); making it revenue neutral for her. IPs may also use “known” and “unknown” surrogacy. In “known” surrogacy, the surrogate has a pre-existing relationship with the IPs, and in “unknown” surrogacy, she has only met the IPs for the purpose of a reproductive relationship, often through an agency as an intermediary (Yee, Hemalal, et al., 2019). Canadian data reveals a very significant increase in the number of IVF cycles that involve surrogacy (Better Outcomes Registry & Network Ontario, 2018). Surrogacy was used in 2.7% of all ART cycles occurring in 2017 (Better Outcomes Registry & Network Ontario, 2018) in Canada and in 2.5% of cycles in the USA in the same year (Society for Assisted Reproductive Technology (SART), 2019). Overall, surrogacy success rates depend on various factors, such as the age of the egg provider, embryo quality, how many embryos are transferred, and if genetically-screened embryos are being used (May & Tenzek, 2016).

Some gestational surrogacy arrangements, such as those for SSMCs and SM require embryos to be created prior to implantation. Thus, IPs must form a reproductive relationship with an egg donor. In 2015, egg donation was used in nearly 10% of all ART cycles in the US, with live birth
rates upwards of 50% per cycle (Centers for Disease Control and Prevention, American Society for Reproductive Medicine, & Society for Assisted Reproductive Technology, 2017). Egg donation is complex in nature, as the health and best interest of both the donor and the recipient must be taken into consideration. The goal of egg donation is to retrieve eggs from the donor in order to create embryos for the IP’s reproductive use, while minimizing the time required for donors to be in the clinic, as well as minimizing risk to the donor’s health during the egg donation process. Unlike sperm donation, egg donors undergo a much more intensive and invasive process, requiring controlled ovarian hyperstimulation using fertility medications, and a surgical procedure for egg harvesting. Furthermore, the decision to donate eggs involves a significant time commitment in order to complete the donation process (Melnick & Rosenwaks, 2018). Egg donation treatment protocols have been adapted over the years through medical advances to optimize ovarian stimulation and oocyte retrieval practices while minimizing the potential medical risks to the donor (Melnick & Rosenwaks, 2018).

Canadian studies found that women are motivated to participate in third-party reproduction for a variety of reasons. Such reasons may include being sympathetic to the struggles of infertility, having an altruistic desire to help others start a family, or feeling a calling to participate as an egg donor or surrogate (Yee, Blyth, & Ka Tat Tsang, 2011; Yee, Hitkari, & Greenblatt, 2007; Yee, Goodman, & Librach, 2019). There are greater numbers of women willing to participate in third-party reproduction as egg donors than as surrogates. There are several reasons that likely explain this. Firstly, in virtually all fertility clinics, surrogates must already have their own children before they can participate as a surrogate, whereas donors do not have this restriction. This limits the number of women who would qualify for each. Secondly, the substantial time commitment required to carry a pregnancy may deter women from participating in this form of third-party reproduction. Thirdly, for women in marital or other relationships with a partner, the surrogacy could impact their own relationship, both from a sexual and emotional point of view. For single women, their ability to form new partner relationships could be impacted. Fourthly, undesired body changes may affect their decision. Fifthly, from a psychosocial point of view, more women hold values that allow them to donate eggs to a third-party in order to facilitate a conception for others, as opposed to gestating a baby for relinquishment purposes. In support of this, research has shown that women who choose to be egg donors vs. surrogates hold dissimilar and distinctive beliefs about the role of gestation and genetics (Braverman & Corson, 2002).
Finally, due to the lack of privacy when gestating a baby versus donating eggs, family and other social relationships may be affected if there are others in the surrogate’s life who do not agree with, or support, their choice to be a surrogate.

Choosing a separate egg donor and surrogate when using ART, as opposed to utilizing genetic or traditional surrogacy can be advantageous as IPs can have a greater choice of genetic material, allowing IPs to select donors whose physical traits and ethnicity may be similar to their own. Since there is less choice available when finding a surrogate, the use of an egg donor allows IPs to select surrogates without needing to be concerned about genetics (Mitchell & Green, 2007).

The process through which surrogates and egg donors are selected may have an impact on the reproductive relationships that are established. While agencies and clinics encourage IPs to develop a relationship with surrogates before and throughout the pregnancy, egg donors are usually chosen based on donor catalogues, with or without direct contact (Dempsey, 2015; D. Murphy, 2015). Ongoing contact between donors and IPs is relatively uncommon, as opposed to gestational surrogates, where it is common. If participants select anonymous egg donors they would not have any contact with them at all, whereas if they select known donors they may have some contact during and after the donation process (Carone, Baiocco, & Lingiardi, 2017). Reasons why IPs tend not to develop close relationships with their donors may be that the genetic connection the donor has with their intended child can be viewed as threatening to the idea of a cohesive family, or because the donors involvement in the ART pathway is brief and therefore may be viewed as distant (Blake et al., 2016; Mitchell & Green, 2007). A study by Blake et al., 2016 found that following the birth of their child, 83% of fathers in SSMC relationships had an ongoing relationship with their surrogates, while only 25% met with their egg donors, and the majority of these fathers were satisfied with the frequency of contact they had with their surrogate following the birth of their child. Having such contact may be advantageous when disclosing the use of ART to children, but IPs may worry that enduring contact could undermine the quality of their relationships with their child. These concerns have also been cited with regards to third-party reproduction in a heterosexual context. Further research is necessary in order to better understand how SSMCs and SM develop reproductive relationships with third parties and how these men view the importance of maintaining ongoing relationships with third parties.
1.1.2 The Role of Counsellors in the ART Pathway

The pursuit of ART involves several considerations that can have long-term implications for one’s family life. It is important to ensure that IPs understand the various psychological, social, and medical demands of third-party reproduction. Thus, counsellors serve a very unique role in the ART pathway. It is recommended that all individuals involved in third-party reproduction undergo counselling prior to ART treatment (Havelock, Liu, Levitan, Petropanagos, & Kahn, 2016). For SSMCs and SM in particular, the experience of pregnancy may be entirely new. These populations may require more education and counseling regarding female reproduction when compared to heterosexual couples that may approach reproductive healthcare practices with a history of infertility (Greenfeld & Seli, 2011). As these men will become very involved with their surrogates who will gestate a child for them, it is important that they clearly understand the pregnancy process, the treatment demands, the medical management of pregnancy and delivery, and the risks involved in pregnancy for the gestational carrier and their child (Greenfeld & Seli, 2011). Therefore, in addition to doctors and nurses, counsellors are critical for discussing the psychosocial aspects of assisted reproduction and pregnancy with IPs.

It is also imperative to ascertain whether men have adequate support in their pursuit of parenthood (Greenfeld & Seli, 2011). Having a supportive social network can help to mitigate the potential adverse effects of discrimination and minority stress that LGBTQ+ individuals may experience when parenting (Lindsay et al., 2006; McNair & Commission, 2004; Rawsthorne, 2009). Gay men choosing to become parents may lack support from their own families when choosing to pursue parenthood (Greenfeld, 2015). However, existing research has shown that for the most part, gay men who undergo ART to become parents have families who were supportive of them initially coming out, when entering a same-sex relationship, as well as deciding to become parents (Greenfeld & Seli, 2011). However, this may not always be the case as members of the lesbian, gay, bisexual, transgender, queer + (LGBTQ+) community frequently experience family dissolution, social stigmatization, and potentially even violence in their lives (Greenfeld & Seli, 2011). Thus, counsellors play a vital role in assessing IPs social support and what family encouragement or alternative support systems may exist for them and their future family (Greenfeld & Seli, 2011).
Furthermore, ART comprises a series of complex steps. Information regarding the treatment process, legal documents, as well as issues such as disclosure of some or all aspects of the process to their child(ren), family members, and outsiders are several aspects of ART that are important to discussed in the counseling process (Norton et al., 2013). Research has shown that male IPs using ART to have children are often in a long-term partnered relationship and have put much consideration into fatherhood and starting a family with their partner (Greenfeld & Seli, 2011). Regardless of the level of preparation IPs have in advance; most clinics make it mandatory or highly recommend for them to have one or more sessions with a counsellor who is familiar with the ART pathway, before pursuing parenthood through ART. Upon beginning ART, IPs must select an egg donor and a surrogate too, and counseling on how to approach this process is recommended (Havelock et al., 2016). Additionally, SSMCs should be attentive to deciding whether one partner or both partners will contribute to the biogenetic paternity of their child(ren) (Greenfeld & Seli, 2011). This decision is quite significant and it is beneficial to discuss the implications of this choice with a counsellor. For those IPs who choose to fertilize eggs with sperm from both partners, counseling should include considerations of treatment outcome and managing expectations, as often only one partner will be the biological parent of the child when one embryo is transferred in each cycle (Greenfeld & Seli, 2011). Thus, the selection of genetic material and disclosure of such information are topics that counsellors can provide assistance with during treatment preparation. Counselling during the ART process will benefit from knowledge gained through research dedicated to the pursuit of ART by SSMCs and SM, as such work may provide more information on how to best advise such IPs.

1.1.3 Pre-implantation Genetic Testing

Another technique that is being used more in ART due to recent scientific advances is pre-implantation genetic screening (PGS) or more recently known as pre-implantation genetic testing for aneuploidies (PGT-A). PGT-A is used to perform a very early form of prenatal diagnosis before the embryo is transferred to the surrogate. Its aim is to improve the outcome of ART treatment by testing embryos for chromosomal aneuploidies, in order to choose a normal testing embryo for implantation. PGT-A has been shown to improve successful implantation rates, shorten the time to pregnancy, and reduce the incidence of miscarriage (El-Toukhy & Braude, 2013). These outcomes are very advantageous for the surrogate, and as a result, they are often
very pleased when the IPs chose to utilized PGT-A. It can also be a criteria for some surrogates to work with IPs. In order to conduct PGT-A, a small 4-5 cell biopsy is taken from an embryo when it is at the day 5-6 blastocyst stage (approximately 80-100 cells), and the DNA from the biopsy is used to test for chromosome number in that particular embryo (El-Toukhy & Braude, 2013). Research has shown that PGT-A results in an overall cost savings per live birth, due to shorter duration of ART treatment, fewer failed embryo transfers, fewer miscarriages, but results in the same cumulative live birth rate, as one would expect (Robins & McQueen, 2018). More couples today are seeking the use of PGT-A in order to improve their chances of achieving a successful live birth and shorten the time spent on the ART journey. The decision of whether or not to use PGT-A prior to implanting embryos has psychological, medical, and financial implications for IPs, thus it is important to further explore the considerations involved in decision-making regarding the use of PGT-A for third-party reproduction through the type of research described here.

1.1.4 ART in Canada

In Canada, the Assisted Human Reproduction Act (AHRA) governs activities related to third-party reproduction at the federal level (Health Canada, 2017). The AHRA was enacted in 2004 and was initially overseen by the agency, Assisted Human Reproduction Canada. That agency was closed due to funding cuts in 2012 and its responsibilities have been transferred to Health Canada since then. The act focuses on several key principles that all parties involved in ART practices must adhere to (Health Canada, 2017). First and foremost, it is stated that health and wellbeing of all involved parties must be prioritized. With regard to protecting women’s health and the health of offspring from ART, all parties involved in assisted reproduction must have given informed consent for their participation. Furthermore, the AHRA notes that those pursuing ART cannot be discriminated against based on sexual orientation or marital status (Government of Canada, 2004). This is particularly noteworthy, as it protects the use of ART by members of the LGBTQ+ community as well as single people, in Canada (Government of Canada, 2004). The most current regulations within the AHRA do not provide guidance with respect to important aspects of third-party ART, such as psychological counselling, screening, and selection of donors or surrogates. Such parameters are not standardized across provinces, so it is the responsibility of health practitioners to be aware of and adhere to each of the provincial
regulations (Havelock et al., 2016). The AHRA was last amended in 2012, however in 2016, Health Canada developed a proposal to strengthen the AHRA by providing more clear regulatory framework with regards to safety of donor sperm and eggs, reimbursement, and administration and enforcement (Health Canada, 2017). At the time of writing of this thesis, new regulations have been drafted and sent out for stakeholder feedback and suggestions but have not yet been passed into law.

1.1.5 Cross Border Reproductive Care

There are a variety of reasons as to why an IP may seek cross border reproductive care (CBRC). The most commonly cited reasons for CBRC include a desire to access a broader or higher quality of care, logistical considerations such as a need to reduce the cost of care, personal preferences such as a desire for privacy in the destination country, and efforts to bypass legal restrictions or prohibitions on accessing ART in their country of origin (Crockin, 2013; Dar et al., 2014). IPs from developed countries travel to developing countries for services that are unavailable, inaccessible, or financially unfeasible for them in their home countries (Daar et al., 2016). Recently, several developing countries that were popular destinations for CBRC in the past (e.g. India, Thailand, Mexico, Cambodia, and Nepal) have prohibited commercial surrogacy, or have restricted surrogacy to their own residents exclusively (Yee, Goodman, et al., 2019). As there are no internationally established regulations regarding CBRC, the incidence of IPs travelling abroad to seek ART has brought on a certain degree of controversy. The necessity of understanding the outcomes of CBRC and the effects that this practice may have on both IPs and third parties involved has led to an increase in research conducted on this subject.

In a CBRC arrangement, all of the parties involved in conception and gestation reside in separate countries, and may vary how they approach the reproductive relationship, due to cultural differences (Carone et al., 2017). In CBRC arrangements, agencies are often involved in coordinating communication between IPs and surrogates. The agency often updates IPs regarding development of their intended child, through sharing important dates and screening results during pregnancy with them. A study by Ziv & Freund-Eschar (2015) found that as a consequence of the geographical distance and cultural gaps, IPs undergoing CBRC might feel frustration and anxiety over loss of control during the pregnancy, feel disconnected from their
intended child, and face issues regarding preparation for parenthood (Ziv & Freund-Eschar, 2014). Anxieties often stem from a concern over the health and prenatal behavior of the surrogate, as well as feelings of unease regarding the reliability of ART services in developing countries.

A study by Carone et al. (2017) noted that the cultural environment where reproductive care services are being provided has a large impact on how IPs relate to the experience of CBRC (Carone et al., 2017). Surrogates play an important role in facilitating IPs emotional involvement in the pregnancy. Contrary to the difficulties expected in establishing an emotional connection with the developing child due to the geographical distance, IPs often experience frustration with a CBRC arrangement when they perceive the pregnancy as separate from their everyday life (Ziv & Freund-Eschar, 2014). It is also important to note that in the aforementioned studies, the majority of participants pursued CBRC in developing countries. In countries where it is not the norm for surrogates and IPs to interact, there is a greater degree of detachment experienced by IPs. In arrangements where the surrogate makes greater efforts to involve the IPs, such as those in developed countries, there are greater positive feelings associated with the CBRC arrangement (Ziv & Freund-Eschar, 2014). In a way, the physical separation between IPs and surrogates during a CBRC arrangement may create a ‘safe zone’ where a relationship can be developed with the surrogate, while the fear of them imposing into the IP’s family life is limited (Vasanti Jadva, 2016). Often couples stay in touch with surrogates after the child’s birth, in order to ease the process of disclosing the use of third-party reproduction to their child, and allow the possibility for their child to meet their surrogate in the future (Smietana, Jennings, Herbrand, & Golombok, 2014).

In understanding what factors differentiate a positive CBRC experience from a negative one, the existing literature presents several key findings. The provision of service in a professional manner, having a child at the end of the process, and adequate information being provided from agencies to IPs about the entire process, have all been found to be important for a positive CBRC experience (Riggs & Dempsey, 2015). Involvement of the third-party agency in all aspects of the pregnancy is also important for CBRC. Agencies that support and encourage IPs to enter into a close relationship with surrogates from the beginning of the process lead to positive reproductive relationships, and as a result, fewer anxiety provoking experiences for IPs. Another element that
has been found to be prominent in ensuring positive outcomes for IPs within CBRC arrangements is a strong family support network (Tuazon-McCheyne, 2010). It is also helpful to offer psychological counseling in the IP’s home country, particularly in their own language, in order to promote informed decisions before pursuing parenthood abroad and to elaborate on potential issues related to surrogacy that may occur after the child’s birth (Carone et al., 2017).

Canadian laws currently prohibit commercial surrogacy, but do not restrict CBRC for Canadian residents travelling abroad or non-residents travelling to Canada for ART. Although Canada is a country that allows altruistic gamete donation and surrogacy, there is a lack of research on the experiences and decision making of SSMCs and SM who pursue third-party reproduction in Canada, irrespective of whether the IPs are Canadians or engaging in CBRC (Claman, 2007). Thus, a further understanding, from a Canadian context, could be very helpful to inform potential users, third parties, as well as policy makers.

1.2 Use of ART by the LGBTQ+ Community

1.2.1 An Increasing Demographic Trend

Internationally, the first known child of a SSMC through third-party reproduction was born in the 1990s (Tuazon-McCheyne, 2010). Prior to this, same-sex coupled men could only pursue biological parenthood through heterosexual relationships, or by co-parenting with a SSFC or single female (Tuazon-McCheyne, 2010). Over the years the numbers of SSMCs and SM accessing ART have increased significantly, and this trend has accordingly been labeled the “gay-by boom” (Bergman et al., 2010). In the US, there are approximately 200,000 children being raised by parents who are in same-sex coupled relationships (Blake et al., 2016). In the US, 17% of households headed by same-sex couples are raising children. Of this proportion, 22% are SSMCs (Bergman et al., 2010; May & Tenzek, 2016). To compare, 40% of households headed by heterosexual couples in the US are raising children (May & Tenzek, 2016). In Canada, same-sex partnered couples account for 0.9% of all couples in the country, of which approximately 1754 SSMCs are raising children (Statistics Canada, 2016). However, it is important to note that since this statistic is provided by Statistics Canada it may be an underestimate, as some people may choose not to disclose their family situation in the Canadian census. Furthermore, it seems
that an increasing proportion of young people within the LGBTQ+ community have aspirations of parenthood. A recent survey study (2019), commissioned by the United States Family Equality Council, found that 63% of LGBTQ+ millennials aged 18-35 considered becoming parents (Family Equality Council, 2019).

As the frequency of same-sex partnered couples and single individuals pursuing parenthood through ART has increased, several organizations overseeing fertility practices have highlighted the importance of providing the same quality of care to these demographics as is given to heterosexual couples. In 2013, the Ethics Committee of the American Society for Reproductive Medicine (ASRM) published clinical practice guidelines examining ethical considerations surrounding the provision of reproductive healthcare to same-sex partnered couples and unmarried persons. Various factors were taken into consideration in this report, including the reproductive interests of unmarried and same-sex partnered couples, the welfare of intended children, as well as the professional autonomy of reproductive healthcare practices. It was acknowledged that single individuals, unmarried heterosexual couples, and same-sex partnered couples often desire to raise children. Furthermore, after analyzing existing literature, ASRM concluded that the development, adjustment, and wellbeing of children raised by same-sex coupled parents is no different from those of children raised by heterosexual parents. Additionally, laws protecting the reproductive rights of sexual and gender minorities prevent fertility programs from denying ART services to patients based on marital status or sexual orientation (Amato et al., 2013). Thus, the Committee concluded that since having children is of great importance to many individuals, same-sex partnered couples and single people should have the same access to ART and reproductive rights that other individuals do (Amato et al., 2013). The American College of Obstetricians and Gynecologists (ACOG) has expressed a similar view, stating “allowing physicians to discriminate on the basis of sexual orientation would constitute a deeper insult, namely reinforcing the scientifically unfounded idea that fitness to parent is based on sexual orientation, and, thus, reinforcing the oppressed status of same-sex couples” (ACOG, 2007). Thus, the use of third-party reproduction by members of the LGBTQ+ community has acknowledged institutional support. This further highlights why the lack of research regarding ART use by SSMCs and SM is striking, and why it is important to carry out more research in this field.
1.2.2 Use of ART by SSMCs and SM

There are few studies within this scope of scholarly work that have examined the experiences of SSMCs and SM pursuing third-party reproduction. Of these studies, several focus on SSMCs parenthood desires, their experiences transitioning to parenthood, and the intricacies of their family relationships (Bergman et al., 2010; Berkowitz & Marsiglio, 2007; Golombok et al., 2018; D. A. Murphy, 2013; Smietana et al., 2014). The aforementioned studies all included small participant pools and were qualitative in nature, using interviews as the main method of data collection. Other studies have focused on the psychological, and social challenges involved for men pursuing parenthood through third-party reproduction (Mitchell & Green, 2007; Tuazon-McCheyne, 2010). For example, an American study published recently conducted a large-scale online survey of 732 participants to examine the barriers and stigmas related to the pursuit of surrogacy by gay men (Perrin, Hurley, Mattern, Flavin, & Pinderhughes, 2019). More literature specific to SSMCs pursuing CBRC has been published in recent years, with the objectives of understanding how such long distance arrangements can affect the experience of pursuing parenthood (Carone et al., 2017; Petersen, 2016; Riggs & Dempsey, 2015; Ziv & Freund-Eschar, 2014). These publications were also small-scale qualitative studies that used interviews to gather results. Our literature review discovered a handful of qualitative studies that used interviews to gather results. Our literature review discovered a handful of qualitative studies that used interviews to gather results. Our literature review discovered a handful of qualitative studies that used interviews to gather results. Our literature review discovered a handful of qualitative studies that used interviews to gather results.

It is important to note that the studies noted herewith are relevant to the context of third-party reproduction in Australia (Dempsey, 2013; D. A. Murphy, 2013; Riggs & Dempsey, 2015; Tuazon-McCheyne, 2010), the USA (Bergman et al., 2010; Berkowitz & Marsiglio, 2007; Greenfeld & Seli, 2011; Mitchell & Green, 2007; D. A. Murphy, 2013; Perrin et al., 2019), and the UK (Blake et al., 2016; Golombok et al., 2018; Petersen, 2016). When considering the experience of ART in a Canadian context, in 2013 a chart review study by our group, Grover et al., considered the treatment considerations and outcomes for men pursuing ART (Grover, Shmorgun, Moskovtsev, Baratz, & Librach, 2013). The paper by Carone et al. (2017), mentioned...
previously, had several participants who had sought CBRC in Canada (Carone et al., 2017). More recently, a qualitative study was performed by Fantus and Newman (2019) examining gay men’s motivations for pursuing surrogacy (Fantus & Newman, 2019). With the exception of these few scholarly papers that have been published in recent years, little work has been explicitly conducted examining SSMCs and SMs experiences using ART in Canada. The lack of research in this subject area from a Canadian perspective is troubling, as men without a female partner are increasingly accessing such Canadian reproductive healthcare services (Grover et al., 2013). As suggested by Greenfeld & Seli (2011), reproductive care programs providing ART to SSMCs and SM “need to be respectful of same-sex relationships and to demonstrate an appreciation of the challenges unique to men seeking parenthood through ART” (Greenfeld & Seli, 2011, p.228). The existing gap in this research must be addressed in order to inform practitioners and counsellors on how to provide a high standard of assisted reproductive care for SSMCs and SM.

Of the scholarly work that exists, demographic profiles of men without a female partner pursuing parenthood are outlined. IPs are predominantly white, often have a high socioeconomic status, are financially stable, and likely to have a bachelor’s degree or higher (Bergman et al., 2010; Blake et al., 2016). Participants in one study sample had a mean annual household income of $270,000. In these studies, the primary reason for many SSMCs to seek third-party reproduction via ART was a desire to have a genetic relatedness to their children (Bergman et al., 2010). A few sources have also studied the considerations SSMCs and SM view of importance when selecting the biogenetic heritage of their intended child, and a surrogate to carry their child. When selecting an egg donor, characteristics that are noted in the literature as being important to IPs include health status (Berkowitz & Marsiglio, 2007; Greenfeld, 2015; Smietana et al., 2014), personality (Greenfeld, 2015; Smietana et al., 2014), height (Greenfeld & Seli, 2011), attractiveness (Berkowitz & Marsiglio, 2007; Greenfeld & Seli, 2011; Smietana et al., 2014), intelligence (Berkowitz & Marsiglio, 2007; Greenfeld, 2015), and education (Greenfeld & Seli, 2011; Smietana et al., 2014), as well as a family resemblance to the non-inseminating partner (Greenfeld, 2015; Greenfeld & Seli, 2011). Donor disclosure is an important consideration for individuals using third-party reproduction. IPs may select a donor with whom they may have contact when their child is 18, an anonymous donor with whom they have no identifying information about or contact with, or a fully known donor with contact during and following the
donation (Blake et al., 2016). Studies have shown that interest in keeping donors permanently anonymous are declining (Mitchell & Green, 2007). This declining trend in the use of anonymous donors may be due to the decreasing ability to achieve true and complete donor anonymity as society today has a great deal of publicly available social and/or genetic information that can be found on databases (Harper, Kennett, & Reisel, 2016). In deciding which partner will provide sperm to fertilize donor eggs (if only one is providing) or whose embryo will be used for uterine transfer first, considerations may include: which partner is older, who feels more strongly about being biologically related to the intended child, who may have more favorable genetic or medical history, and if either partner has fathered any pre-existing children (Greenfeld & Seli, 2011). Criteria that were noted of value when selecting a surrogate included, the surrogate’s personal and interpersonal characteristics, emphasizing the character of the surrogate. This was thought to increase the likelihood of a harmonious relationship throughout the pregnancy and future contact (Dempsey, 2015; D. Murphy, 2015; Smietana et al., 2014; Yee, Hemalal, et al., 2019). Overall, the few studies that currently exist do not focus on SSMCs and SM pursuing ART in a Canadian context and are limited in scope, as they are not necessarily specific to the healthcare considerations of SSMCs and SMs use of ART. Thus, further research on this topic is important to inform practice and policy.

1.3 Kinship Configurations

Much of the existing literature regarding the use of ART by SSMCs and SM is aimed at understanding the complexities of family structures or kinship resulting from third-party reproduction. The use of ART to have children, particularly when donated gametes are used, may reveal otherwise readily accepted Western assumptions on how family and parental relationships operate, while at the same time adapting, undermining, and transforming these assumptions (Dempsey, 2013). Unlike heterosexual couples, male parenting partners often consist of one biological and one non-biological parent. Therefore, the idea of biological parenthood, which is usually a readily accepted ideal, must be replaced with more psychological and emotional understandings of parenthood. Such perspectives on parenting may be difficult to come to terms with for some IPs (Mitchell & Green, 2007). Men may spend a great deal of time selecting which partner will contribute to the biogenetic paternity of the child, but may be keen to keep this information to themselves for various reasons (Dempsey, 2013). With so many
considerations involved in creating the biogenetic profile of the intended child, biogenetic paternity is an important kinship resource that must be carefully managed – emotionally and socially – in creating and maintaining couple, parent-child, and extended family relationships (Norton et al., 2013).

In addition to this, since third parties are required for both conception and gestation when using ART, men may need to negotiate reproductive relationships with individuals who may otherwise be outsiders to their relationship. Furthermore, men must manage disclosure to friends, family, their child, and even strangers about the nature of their family formation (Mitchell & Green, 2007). The importance of a biological connection to the child when using ART is quite complex. Biological relatedness thus exerts an impact on the fathers’ family construction. Having a separate egg donor and surrogate when using ART avoids having a traditional mother figure in the gay father nuclear family (Smietana et al., 2014). Couples often choose an egg donor whose traits match the non-biological parent. This way the child would be more likely to resemble both parents, which leads to a social perception of a cohesive family (Norton et al., 2013). Some couples may even use the sister of one of the partners as an egg donor and the other partner as the sperm provider to achieve this goal (Grover et al., 2013). If using an anonymous donor, parents must decide what donor characteristics are most important to them. If they are using a known donor with whom they have a previous relationship, such as a sister, cousin, niece or a friend, it is important to explore the expectations of all parties with respect to the potential impact of the donation on both the parents, and the intended child’s eventual relationship with the donor (Greenfeld, 2015).

When disclosing the use of third-party reproduction to their future child, it is expected that same-sex male partnered families are more open about the use of surrogacy, due to the absence of a member of the opposite sex within the parenting partnership (Blake et al., 2016). Research has shown that most gay fathers explain the process of using ART to children, with a greater degree of detailed information as the child gets older. In addition to explaining the role of the surrogate and egg donor, SSMCs have the choice to tell their children which parenting partner is biologically related to the child (Blake et al., 2016). Although men may be open to telling their child about whom their biological parent is, they are often more confidential when disclosing this information to others (Dempsey, 2013). As this is a significant and personal decision, being
asked about the identity of the biological father in a coupled relationship can be viewed as a violation of the family’s privacy. Couples may choose to keep this information to themselves to avoid family and friends from being partial to one parent or the other, or to circumvent the identity of the biological parent being exposed to their child before the time is right (Dempsey, 2013).

The existing literature on how ART use affects kinship configurations is valuable when aiming to understand how ART use influences the psychological underpinnings of family structures. Understanding the implications that ART has on kinship, sheds light on the deeper considerations and intricacies of selecting a third-party to provide genetic material for one’s future child. Additionally, this research considers how information regarding genetic inheritance is managed in families who have used ART. Although understanding kinship configurations is valuable from a psychosocial perspective, there is other important research that is beneficial when seeking to understand the use of ART by SSMCs and SM. Research elucidating the factors influencing decisions made throughout the process of using ART, and factors influencing overall satisfaction with the experience of using ART would be greatly beneficial. Such research would add to the existing scholarly work and inform health care providers as to how to provide the best possible care for these men; who may otherwise be marginalized within the healthcare system and potentially experience a disparity in accessing assisted reproductive care.

1.4 Pathways to Pursuing Parenthood

It is noted in the literature that SSMCs and SM spend a significant amount of time examining their desire to become a father and how to actualize this desire (Bergman et al., 2010; Greenfeld & Seli, 2011; Grover et al., 2013; D. A. Murphy, 2013). After coming out, men may undergo changes or specific life events that intensify their fatherhood desires. However, research also indicates that men who are sexual minorities are acutely aware of the social, structural, and institutional barriers involved in pursuing parenthood (D. A. Murphy, 2013). In a study by Berkowitz & Marsiglio (2007), a notable number of participants stated that towards the beginning of the coming out process, they believed they had to accept that they might never become a father. In contrast to heterosexual men, gay men might not consider that becoming a father could be a reality (Norton et al., 2013). Public opinion on same-sex marriage as well as
same-sex parenting may sway individuals’ desires to pursue having a family. A 2014 examining public attitudes showed that 76% of Canadians were in total agreement that same-gender couples could successfully raise children (Montero, 2014). However, recent polling by Research Co. has shown that roughly one-third of Canadians are still not in agreement of same-sex marriage (Research Co, 2019). Upon seeing this data, what is certain is that Canada provides a very interesting and unique socio-political context for men pursuing parenthood. Thus, it is important to understand what pathways to parenthood are available for men without a female partner and how accessible such options are. Pathways to parenthood for SSMCs and SM outside of third-party reproduction via ART include adoption, or opting to co-parent.

Same-sex couples obtained the right to legally adopt a child in Canada in 2000. Though legislation provides institutional support for sexual minority individuals to pursue adoption, accessibility of adoption services can be inconsistent. The likelihood of successfully adopting a child involves various factors such as whether agencies are public or private, where agencies are located; and how applicants may identify (L. E. Ross, Epstein, Goldfinger, & Yager, 2009). When considering the cost of adoption, private agencies may charge IPs $10,000 to $20,000 and international agencies may charge $20,000 to $30,000 (L. E. Ross et al., 2009). It seems to be the case that for SSMCs and SM, the pathway to parenthood involves barriers, such as having to cope with homophobic attitudes, and a lack of support for adoption from their social network (L. Ross et al., 2014). For SM, adoption agencies may consider a single parent household as less advantageous than a two-parent household. Therefore, children who are older and more difficult to find homes for are likely to be placed with SM, which may serve as a challenge (Shireman, 1994).

Homophobia that can arise during the pursuit of adoption may be due to attitudes within institutions and organizations that consider heterosexuality to be the norm in society. Such beliefs are termed as “heterosexist”. Institutional heterosexism may be apparent in adoption policies that bar LGBTQ+ individuals from adopting, thus confining adoption opportunities to heterosexual individuals. Although such heteronormative beliefs are not explicit in Canada, since the law allows for sexual and gender minorities to adopt, homophobia may be encountered in more implicit ways. For example, some agencies may have higher expectations for, and be more judgmental towards, the parenting abilities of lesbian and gay couples, when compared to
heterosexual couples (Brodzinsky & Pertman, 2012; Brooks & Goldberg, 2001). Factors such as mental health, parenting capability, and quality of the relationships of LGBTQ+ prospective parents, may be severely examined. Furthermore, adoption agencies and child welfare workers may hold negative attitudes regarding the development of children raised by members of the LGBTQ+ community (Brooks & Goldberg, 2001; Ryan, Pearlmutter, & Groza, 2004). Thus, members of the LGBTQ+ seeking to adopt, must work against institutional ideologies that view traditional family formations as more favorable (Hicks, 2000, 2005; Naples, 2004). Therefore, it appears that prevailing homophobic attitudes, as well as heteronormative family structures and parenting ideologies, negatively impact the ability of members of the LGBTQ+ community to pursue adoption as a pathway to parenthood. The choice to pursue third-party reproduction via ART, as opposed to adoption, is typically driven by a desire to raise a child from birth (Ziv & Freund-Eschar, 2014). Moreover, the complexity and length of the adoption process, particularly for gay and lesbian prospective parents, can be a deterrent to pursuing adoption (Ziv & Freund-Eschar, 2014). A Canadian study published in 2013 found that of individuals who intended to have children, approximately 40% of the men in the sample and 25% of the women stated they would pursue ART if they experienced difficulties with fertility, even though adoption is a viable option (Daniluk & Koert, 2013).

Another option for biological parenthood that SSMCs and SM have is to co-parent with a same-sex female couple (SSFC) or a single female (V Jadva, Freeman, Tranfield, & Golombok, 2015). This type of family formation is referred to as a ‘rainbow family’ (Petersen, 2016). Within such an arrangement, all parenting partners agree to be actively involved in the upbringing of the intended child, with parenting partners often consisting of a SSMC and a SSFC who maintain separate households while co-parenting a child together (Dempsey, 2010). Finding ideal co-parenting partners involves considerations such as having comparable socio-economic statuses, living within an accessible distance of one another, and sharing similar personal and family values (Dempsey, 2010). Often, those already in their social circle share similarities with regards to such lifestyle factors. Thus, individuals would more commonly ask friends or acquaintances to co-parent with them as opposed to strangers (Dempsey, 2010). Co-parenting may be ideal in a situation when IPs already have a suitable co-parent in mind. For men who want to play a significant and active role in raising the intended child, it may be difficult to find an appropriate co-parenting relationship with a SSFC or single females (Dempsey, 2010).
There are several reasons why third-party reproduction via ART may be a preferable option to co-parenting. Firstly, through the use of ART, only the IPs are listed as the legal parents of the intended child, as opposed to all parenting parties within a co-parenting family. As well, ART provides SSMCs with more control over when they want to start their family. In co-parenting families, men who wish to play a large role in the parenting process may have to negotiate with intended mothers (Petersen, 2016). Research has shown that although women may feel permitted to make co-parenting requests that vary in the level of parenting involvement they desire from the other parties, it may be more difficult for men to ask women to co-parent with them (Dempsey, 2010).

Although multiple pathways to parenthood exist for individuals in the LGBTQ+ community, there are several facilitators of, and barriers to, accessing any of these options. As the pursuit of parenthood through ART is increasingly popular, research on the use of ART in Canada by SSMCs and SM is vital. Such literature would increase the awareness of ART as an available pathway to have children for SSMCs and SM.

1.5 Parenthood in a Non-Heterosexual Context

1.5.1 Understanding Parenthood Desires

In aiming to understand the transition to parenthood by members of the LGBTQ+ community, a limited number of studies have focused on gay and lesbian parents, with the majority focusing on SSFCs (Bergman et al., 2010). Of the literature that does exist on SSMCs and SM having children, the research focus lies on the specific societal and cultural challenges surrounding parenthood for SSMCs. Such challenges include the transition to fatherhood, establishing parental legitimacy, and being socially accepted as parents (Bergman et al., 2010; Golombok et al., 2018; Greenfeld & Seli, 2011; Grover et al., 2013; Mitchell & Green, 2007; D. A. Murphy, 2013). Several physiological, psychological, and social factors influence the divergence of parenting in a heterosexual context versus parenting in a non-heterosexual context. These may include: the biological aspects of conception, stigma towards non-traditional parenting behaviours, and discriminatory laws regarding parenting (May & Tenzek, 2016). SSMCs who pursue ART have often given the idea of starting a family a great deal of thought. Thus the
deliberate choice to become parents is heavily reflected in the scientific work examining the family experiences of same-sex partnered couples (Greenfeld & Seli, 2011; D. A. Murphy, 2013).

With regards to the decision to pursue parenthood, researchers Marsiglio and Hutchinson (2002) developed the term procreative consciousness to theorize how men specifically understand themselves as procreative beings (Marsiglio, 1991). The awareness of procreative consciousness emerges by a process of experiencing romantic and sexual relationships throughout life, as well as fertility related events. Thus, a procreative consciousness is often nurtured by one’s social environment, but men may also have an innate desire to be fathers (D. A. Murphy, 2013). Existing research notes that the desire for SSMCs and SM to become parents is quite similar to that of heterosexual men. SSMCs and SM who pursue biological parenthood report wanting the constancy of a child in their lives, a wish to nurture and raise a child, a desire to contribute to the next generation, a wanting to achieve the sense of family that is provided by having a child, as well as the social status awarded to parents (Bergman et al., 2010; Greenfeld, 2015). Although a search of the literature did not find any studies aiming to understand the parenting desires of SM, it is possible that SM may pursue third-party reproduction via ART for the same reasons as single females who have children via donor insemination. These reasons may include the desire for parenthood, the sense that the timing is right to become a parent, having a social circle consisting of parents, and experiencing structural or legal barriers to other methods of family building such as adoption (Goldberg & Scheib, 2015; V. Jadva, Badger, Morrissette, & Golombok, 2009).

1.5.2 Transition to Parenthood

During the transition to parenthood, SSMCs must establish their own personal meanings regarding starting a family and pursuing parenthood, as their family falls outside the traditional representation often understood within society. Unlike heterosexual parenting partners, SSMCs and SSFCs cannot define parenting roles on what is stereotypical based on gender, such as the mother being the nurturer while the father is the economic provider (Mitchell & Green, 2007). Furthermore, in a same-sex coupled parenting pair, only one partner may share a biological link to the child(ren). Thus, in an effort to equalize parenting status and legitimize this presentation of
family, there is more of a focus on psychological parenting (Mitchell & Green, 2007). This results in a more degendered parenting style (Bergman et al., 2010). This pattern occurs, as same-sex partnerships remove the gender norms and expectations surrounding parenting practices (Mitchell & Green, 2007). Parenting roles, household duties, and economic provisions are then established in a more egalitarian manner, with availability and preference being emphasized, as opposed to gender (Farr & Tornello, n.d.; Smietana et al., 2014). For SSMCs, both male partners are actively involved as primary caregivers, resulting in children often bonding equally with both parents (Farr & Tornello, n.d.). To illustrate this concept, research has shown that same-sex partnered fathers place greater importance on nurturing behaviours, and less emphasis on given roles such as being an economic provider, which is the traditional expectation of men (Bergman et al., 2010). Bigner and Jacobsen’s (1989) research found that when examining divorced gay fathers and their children, the fathers exhibited more warmth and responsiveness to their children’s needs, compared to heterosexual men (Bigner & Jacobsen, 1989). This style of parenting is considerably advantageous when compared with heterosexual parenting styles, and leads to higher satisfaction in parenting roles, more positive functioning, and less depression and stress associated with parenting (Bergman et al., 2010; Greenfeld, 2015; Smietana et al., 2014).

Bergman et al. (2010) sought to specifically understand the transition to parenthood as experienced by same-sex partnered men (Bergman et al., 2010). Participants within that study evaluated themselves positively in their parenting role and they were found to have higher self-esteem and “valued themselves more” than before they had children, in comparison to men who were not fathers. Over half of the participants divulged that their goals had shifted after becoming parents. Most fathers spent less one on one time with their partners, had transitioned to part-time work or worked fewer hours, experienced less business or leisure related travelling, and faced a significant decrease in their annual income, after having children. Having a child also worked to enhance men’s relationships with their parents, and most gay fathers’ families were accepting of the new child, resulting in closer family ties (Bergman et al., 2010). Furthermore, prior to having children, participants’ social networks were comprised more of gay and heterosexual individuals with no children. Conversely, after having children participants interacted slightly more with other gay parents (Bergman et al., 2010). Data from the Bergman et
al. study supports that gay fathers have distinctive, yet comparable experiences, compared to heterosexual parents when transitioning to parenthood (Bergman et al., 2010).

Same-sex partnered men who become fathers challenge societies conventional understandings of masculinity and paternity, as well as the gender and sexual norms of gay culture (Greenfeld, 2015). Gay fathers may experience discrimination from the heterosexual parenting community, as many negative stigmas exist regarding same-sex couples pursuing parenthood (Bergman et al., 2010). Men may even occasionally feel unaccepted within the LGBTQ+ community, which is stereotypically a more singles-oriented culture (Bergman et al., 2010; May & Tenzek, 2016). Gay fathers must cope with an intersectional minority status due to being openly gay in the heterosexual parenting community, and being fathers in the LGBTQ+ community (Bergman et al., 2010). It has been suggested that same-sex partnered fathers may experience what is termed by Schacher et al. (2005) as heterosexist gender role strain, meaning that men may understand their gay and father identities to be mutually exclusive (Schacher, Auerbach, & Silverstein, 2005). Heterosexist gender role strain leads to a constant feeling of being questioned by society, as women are often considered pivotal in child-rearing, and men are stereotyped as being less capable of or invested in child-rearing (May & Tenzek, 2016).

As our culture often invalidates male caregivers, gay fathers regularly report experiences of intrusive personal questions from strangers (Mitchell & Green, 2007). Consistently coming out, even in situations that might not otherwise necessitate it, is an approach used by gay fathers to effectively tackle stigmas that are heterosexist and homophobic in nature, that continue to prevail in society. Thus, being openly gay, especially in situations where it would contribute to a positive difference in the way families are perceived in society, works to serve an ambassadorial role in order to incite social and legal change (Mitchell & Green, 2007; Tuazon-McCheyne, 2010). As a result of such conscious efforts to maintain pride in being open as gay fathers, men can appreciate visibly being parents in both public and private settings; creating a more positive parenting situation for both themselves and other men without female partners who seek to become fathers in the future (Tuazon-McCheyne, 2010). Accordingly, the gay rights movement has increasingly encouraged gay men and women to be open about their sexuality, their relationships, and choosing to have children within such relationships (Johnson, O’Connor, & Elizabeth, 2002; Tasker, 2005)
2 Research Aims

2.1 Proposed Study

As highlighted in the literature review, there are few studies that currently exist on the experiences of SSMCs and SM pursuing ART in Canada. This limited scholarly work has implications for both healthcare practice and policy in Canada. Thus, it is important that research is done in order to provide more information on these unique demographics, who are increasingly accessing reproductive healthcare in Canada. This study is focused on men in same-sex partnerships and single men who are pursuing third-party reproduction via ART in Canada. Due to the increased accessibility of ART, the number of SSMCs and SM pursuing such a family building pathway is growing every year in Canada, and in several other countries around the world (Amato et al., 2013). This study is exploratory and descriptive in nature. The aim was to acquire novel information on the experiences of SSMCs and SM pursuing ART in Canada. To gain such information, a study-specific survey was developed to gather non-identifying demographic and descriptive information. It is my hope that this study will fill important knowledge gaps in this subject area.

2.2 Theoretical Frameworks

Two theoretical frameworks informed the development of this study. A brief explanation of the models used, and their relevance to the proposed study are outlined below.

2.2.1 The Minority Stress Model

When aiming to understand why the experiences of men within the LGBTQ+ community pursuing ART are unique and important, it may be helpful to consider the framework of Meyer’s (1995) minority stress model. The concept of minority stress is based on the premise that sexual minorities exist in a society that is heteronormative in nature and are subjected to chronic stress related to their stigmatization. This may lead to negative health outcomes (Meyer, 1995). Minority stressors can be understood as internalized homophobia, resulting in negative societal attitudes being directed towards the self; stigma, leading to a pervasive expectation of
discrimination; and actual experiences of discrimination during interactions within society (Meyer, 2003). The underlying assumption within the minority stress model is that stress resulting from being discriminated against, the expectation of facing discriminatory acts, and internalization of oppressive beliefs and social structures, are significant determinants of health for members of the LGBTQ+ community (Meyer, 2003).

The principles of the minority stress model provide a foundation for understanding the unique experiences that demographics such as SSMCs and SM have. Although it is difficult to access how minority stress specifically impacts healthcare decision-making, research has shown that minority stress does impact utilization of healthcare services by minorities. To understand why healthcare utilization may be lower for minority groups such as SSMC and SM, it is valuable to keep in mind that in general, individuals who identify as part of the LGBTQ+ community are more likely than heterosexual individuals to experience difficulty accessing healthcare services (Buchmueller & Carpenter, 2010). There may be several reasons for this. Firstly, they may not have basic access to healthcare services. For example, LGBTQ+ individuals are less likely to have health insurance, and more likely to lack social support, or be unemployed when compared to their heterosexual counterparts. Secondly, members of the LGBTQ+ community may feel nervous accessing care due to past negative experiences of discrimination within the healthcare system. Thirdly, healthcare providers may not have knowledge or experience in caring for these demographics, contributing to an unpleasant healthcare experience (National LGBT Health Education Center, n.d.). Minority stressors such as chronic experiences of discrimination and stigmatization can result in overall negative health outcomes and more specifically, poor mental health (Mongelli et al., 2019). Therefore, research on sexual and gender minorities’ experiences of using ART may be valuable in determining if men encounter discrimination and stigma when using such reproductive healthcare services.

In designing the following study, the minority stress model was employed when considering what questions were important to ask of participants, and in survey design. Several questions were developed that pertained to the experiences of stigma, and social support for their decision to pursue ART. This information aimed to inform healthcare providers on how to provide inclusive care to further reduce negative health outcomes that minorities may experience. The consequences of minority stress, such as negative impacts on physical and mental health
outcomes for LGBTQ+ individuals, are a concern that healthcare providers should be mindful of. If the experience of minority stress can be reduced during encounters with the healthcare system, it can have a positive impact on the lives of LGBTQ+ individuals and how they interact with the healthcare system. Therefore, this highlights the importance of understanding whether SSMCs and SM have a positive experience when pursuing ART.

2.2.2 The Biopsychosocial Model

Within the biopsychosocial model, Engel (1977) suggested that understanding health is not merely about physiology, but about understanding the relationship between biological, psychological, and social factors, in order to interpret physiological processes in a comprehensive manner (Engel, 1977). The premise of the biopsychosocial model refutes the traditionally held assumption that only the biological factors of health are worthy of study in the context of medical science. Psychological factors of interest may include stress, support, or any individual level processes that can influence one’s state of mind (Stansfeld & Rasul, 2007). Sociological factors of interest may include: socioeconomic status, gender, ethnicity, disability, and religion. Often within medical science research, the influences of psychological factors on health are more commonly understood than sociological factors. Various social groupings or positions may lead to power hierarchies that are then manifested in institutional and organizational culture and practices – including within the healthcare system (Crawshaw, 2013). Therefore, it becomes important to carefully examine psychosocial factors that may lead to differences in healthcare experience. A better understanding of the psychosocial processes that influence behaviour can enhance the healthcare interventions we employ.

The biopsychosocial model can be applied to the delivery of care, as successful healthcare services are a combination of competent clinical practice, patient centered care, and adaptation to the social environment in which care is provided. The integrated nature of healthcare and medical science allows unique approaches to evaluating access to care. Thus, in striving to achieve a high standard of healthcare, it is imperative to understand the state of third-party reproduction via ART in Canada as experienced by SSMCs and SM. As these demographics may have different motivations for pursuing ART than heterosexual couples, SSFCs, or single females, it is necessary to question what specific psychosocial factors may contribute to having a
positive experience of ART, and what factors are considered in decisions made along the ART pathway. In designing the following study, the biopsychosocial model was employed when considering what questions were important to ask of participants, and in survey design. The survey gathered a great deal of information regarding participant demographics, asked about participants’ social networks, and about psychological and sociological considerations in decisions made throughout the ART process. In applying the lens of the biopsychosocial model to this area of study, and by examining demographic, psychological, and social factors influencing the experience of using ART in reproductive healthcare, the results of such work have the potential to inform medical practice guidelines, as well as public health policies.

2.3 Objectives and Hypotheses

2.3.1 Objectives

In accordance with the goals previously described, the objectives of this study were to answer the following research questions:

1) How do men perceive the experience of using ART to have children? Specifically, what proportion of men have a positive experience using ART in Canada?

2) What demographic, psychological, and social factors influence men’s overall experience of using ART? Specifically, what are the facilitators and barriers to having positive experiences when using ART?

3) What decisions are commonly made by men within the ART pathway? Specifically, what factors influence men’s decisions when using ART to have children?

2.3.2 Hypotheses

This study was descriptive and exploratory in nature, and thus did not include any specific hypotheses. At present, little is known about the experiences of SSMCs and SM using ART, therefore, there is insufficient evidence on which to base any informed hypotheses.
2.4 Rationale

Reproductive healthcare services are primarily accessed by heterosexual couples that are struggling to conceive naturally. Yet, there are other individuals that access reproductive services who fall outside of this demographic to whom it is equally important to provide a high standard of care. SSMCs and SM hoping to have biological children need obvious help to pursue biological parenthood, as they lack eggs and a uterus to gestate a child during pregnancy. Accordingly, men who do not desire to have children with a female partner, can overcome this potential barrier to child-bearing through the use of third-party reproduction via ART. Men in these unique groups require an egg donor to supply oocytes for the creation of embryos, and a surrogate to gestate the pregnancy and give birth. The most reliable estimate on the number of SSMCs and SM accessing ART in Canada is gathered annually by the by CARTR-BORN database. In 2017, 2.4% of all ART cycles were accessed for “other reasons” including gonadotoxic therapy, no female partner, and peritoneal factor or severe adhesions (Better Outcomes Registry & Network Ontario, 2018). Although SSMCs and SM account for a small percentage of those accessing reproductive care, research data from the CReATe Fertility Centre (Toronto) published in 2013, shows an exponential increase in the number of SSMCs accessing reproductive care between the years 2003 and 2011 (Grover et al., 2013). Overall, it seems there is an increasing trend in numbers of men in these demographics accessing reproductive healthcare services. Despite the increasing trend, the experiences of SSMCs and SM accessing ART are not well understood, due to the limited research published on this subject to date. As the number of SSMCs and SM accessing ART in Canada continues to rise, it is important to understand more specifically how often they seek ART, and what their experience accessing care is; in order to make informed recommendations to improve their quality of care.

There are some important considerations for SSMCs and SM who undergo ART. For example, SSMCs and SM must find both a compatible egg donor and a surrogate; SSMCs must choose whether one or both partners will contribute to the biogenetic paternity of the child. Furthermore, both groups must choose when to begin their journey, which clinic to attend, who will be the health care provider(s), and who they will select as a legal advisor. As with any new parents, men must also reconcile how their personal lives and social networks might change upon having a child. These considerations are in addition to the substantial amount of time, effort, and
financial resources required when using ART. Despite the importance of the many choices that men consider when using ART to have a child, there is currently limited published work examining how men approach decision-making along the ART pathway.

SSMCs and SM may also be unaware of their options for family building. Men in particular, face extraneous barriers to pursuing parenthood. For example, socio-cultural stigma may exist regarding men’s capabilities of fatherhood. The cultural lack of awareness that men desire parenthood may be carried into healthcare when considering their reproductive and fertility care. Men who undergo ART often have a high sense of responsibility with regards to fatherhood, and are willing to devote the time towards building their families (Greenfeld & Seli, 2011). Therefore, there is a need to address this disparity in research in order to tailor fertility services to the needs of men pursuing parenthood. The findings of this study have the opportunity to educate and create awareness for reproductive strategies available to SSMCs and SM, while decreasing stigmas potentially associated with family building options for these men.

Furthermore, Canada is internationally regarded as a leader in LGBTQ+ and reproductive rights. In 1995, it was ruled that same-sex couples could pursue adoption. In 2005, Canada became the fourth country worldwide to legalize same-sex marriage (Rau, 2018). In 2015, the Ontario government created the Ontario Fertility Program for any patients who are Canadian citizens under 43 to have one IVF cycle funded by the government, spending $50 million annually on this program (Weeks, 2019). Canada allows for altruistic gamete donation and surrogacy, and provides assisted reproductive care to SSMCs and SM without discrimination. It is important to note that of the research that does exist on SSMCs and SM accessing assisted reproductive care; the majority arises from Australia, England, and the United States. Therefore, it is important to address the existing gap in this research within a Canadian context.
3 Methods

3.1 Study design

To meet objectives, this study utilized a cross-sectional design to administer a large-scale online survey, in order to collect quantitative data. The study followed the framework of the PICO Model. The population of interest was SSMCs and SM who have past or current experience accessing ART in Canada. The intervention/comparators considered various independent variables related to demographics, as well as psychosocial factors, in order to determine if these variables impacted the experience of using ART. The outcome of interest was an overall positive experience using ART.

Research was conducted at the CReATe Fertility Centre, under the supervision of Dr. Clifford Librach. CReATe has a well-established third-party reproduction program with services provided to both Canadian residents and non-residents and is connected with several other clinics and third-party reproduction agencies; thus it provided a rich source for participant recruitment. Additionally, the CReATe Fertility Centre is centrally located in downtown Toronto, allowing access to participant recruitment from organizations providing services to the LGBTQ+ community in the area.

3.2 Study population

Based on data from the 2016 Canadian census, it is apparent that there were approximately 72,880 same-sex couples living in Canada, of which 8770 (12%) were living with children who may be biological or adopted. Female couples account for 80% of these 8770 same-sex couples living with children. Therefore, it is estimated that approximately 1754 SSMCs with children are living in Canada (Statistics Canada, 2016). However, it is possible that many of these children were adopted or from previous relationships. Same-sex couples accounted for 0.9% of all couples in Canada in 2016 (Statistics Canada, 2016). When compared internationally, only the United States has a greater proportion of same-sex couples, accounting for 1.4% of all couples in 2015 (Statistics Canada, 2016). With respect to SM, no meaningful population parameters were found for men who are single fathers by choice.
Based on available literature, an increasing trend of both domestic and international SSMCs and SM accessing reproductive healthcare in Canada has been noted (Grover et al., 2013). Participants for this study may be Canadian residents or non-residents. Although not all study participants were at the same point within the ART pathway, this study aimed to capture participants’ experiences depending on whichever stage of using ART individuals were at.

3.2.1 Inclusion and Exclusion Criteria

**Inclusion Criteria**

1) Men who are single or within a same-sex coupled partnership
2) Have past or current experience using third-party reproduction via ART (egg donation, IVF, and surrogacy) in Canada to have children

**Exclusion criteria**

1) Men who have pursued or are pursuing ART in a heterosexual relationship.

3.3 Recruitment

This study used convenience sampling though creating online platforms and working with community organizations, in order to recruit participants. Social media platforms for the study were created on Instagram and Twitter using the username @ART4MenSurvey, as well as Facebook using the username @MenUsingARTStudy. These were used to promote study participation, share current events related to men pursuing parenthood and the LGBTQ+ community, and functioned as a method of knowledge translation to increase awareness about reproductive options available to men. Please refer to Appendix A for further details on these social media platforms.

Prospective participants were also recruited through online advertisement on social media platforms and websites for various organizations. Organizations that shared recruitment flyers online included: Canadian Fertility Consulting, Anu Fertility, Hope Springs Fertility Law, and the CReATe Fertility Centre, Researching for LGBTQ Health, PFLAG Canada, Rainbow Health Ontario, Sherry Levitan Fertility Law, Informed Fertility, Alternative Families International, and Babies Come True. Additional posts encouraging recruitment through the ART4Men Facebook page were made on individual Facebook groups and pages such as Gay Parent Magazine.
Facebook Page (28,478 likes); Gays with Kids Facebook Page (83,472 likes); Intended Parents Forum Page (6,687 likes); LGBTOUT Facebook Group (696 likes); Surrogacy in Canada, Independent Support Page (158 likes); and Surrogacy Canada – Non-Agency Affiliated Facebook Group (158 likes). Participation in study promotion by these organizations was completely voluntary. None were incentivized to participate in recruitment. Please refer to Appendix B for further details regarding online posts.

Recruitment flyers were displayed on bulletin boards and patient-waiting areas across Toronto, including noteworthy locations within Toronto’s Gay Village, University of Toronto St. George Campus (UoT), and in various Canadian fertility related practices. Establishments where recruitment flyers were posted included: Woody’s, Out on the Street, Buddies in Bad Times Theatre, Café California, Church Bistro, Freshii Church Street, Starbucks Church Street, Second Cup Church Street, Church and Wellesley Health Centre, The Village Pharmacy, Glad Day Bookshop, Sambucas on Church, UoT Graduate Student’s Union, UoT Koeffler Student Services, UoT Sexual and Gender Diversity Office, UoT Sexual Education Centre, UoT LGBTOUT, UoT Robart’s Library, CReATe Fertility Centre, LGBTQ Parenting Network, Sherbourne Health Centre, the 519 Toronto, the Hassle Free Clinic, the AIDS Committee of Toronto, Alliance for South Asian AIDS Prevention, Informed Fertility and Sherry Levitan Fertility Law. Please refer to Appendix C for further details on recruitment flyers.

SSMCs and SM are considered to be a difficult to reach population (Meyer & Wilson, 2009), but it is highly likely that SSMCs and SM know other men who are using, or have used ART. Upon completion of the survey, participants were encouraged to share the recruitment flyer and survey link through word of mouth and social media platforms. Furthermore, individuals within the research team’s social networks who had access and rapport within the LGBTQ+ community were asked to share recruitment information through word of mouth promotion. Thus, snowball sampling was endorsed in addition to the various convenience and community sampling techniques.

It was not feasible to provide compensation to every survey participant due to logistic constraints (i.e. anonymous participation, no direct contact with the survey participants). Incentive to participate in the study was provided through a draw to win one of two iPads. A designated
project email account, “studycoordinator@createivf.com” was used for all project related email communications with potential participants. Participants entered the draw by submitting an email to the designated project email account with their contact information. Participation within the draw was entirely up to the decision of study participants. Participants were encouraged to create a new email account if they did not want to use their personal email address for the draw. Participants who did not want to provide any additional information about themselves did not have to enter the draw. All the email addresses provided by the survey respondents were discarded following the draw.

3.4 Sample size

Using the estimated population size of 1754 and software tools provided by SurveyMonkey, a target sample size of 316 was calculated in order to obtain results with a 95% confidence interval. However, due to the novel and exploratory nature of this study as well as limitations in the recruitment strategy, it was not feasible to recruit such a high number of participants. It was estimated that the actual sample size would be a small proportion of the target sample size. For a sample size of around 100, the confidence interval for the results can be interpreted with a margin of error of 10%. A power analysis of the required sample size was not conducted, due to the limitations in available data, the lack of a comparison group, and the exploratory nature of this study.

3.5 Study procedures

The University of Toronto Research Ethics Board (REB) approved the study (#32847). Please refer to Appendix D for further details on REB approval.

3.5.1 Survey Instrument

Since this was a novel area of research, and no previously validated survey instruments were available, a survey was constructed specifically for the purposes of this study. The online software tool SurveyMonkey (http://SurveyMonkey.com) was used to develop and administer the survey instrument. The survey instrument consisted of 58 items (55 multiple choice with 3 open-ended questions), grouped under seven sections making up the course of the ART pathway: A)
background information about the participant [9 questions], B) the participants’ overall experience of using ART [4 questions], C) information about the participants’ parenthood desire [11 questions], D) egg donation [7 questions], E) creating embryos and performing screenings [7 questions], F) surrogacy [8 questions], and G) adjustment after having a child through surrogacy [12 questions]. The survey also included text boxes for participants to enter their comments in addition to multiple-choice answers.

The instrument was intended to ask participants questions about their experience of the entire process of using ART, starting with the decision to use ART to have a child, and ending with participants’ experiences after becoming a parent through third-party reproduction via ART. As the study was cross-sectional in nature, participants were expected to answer based on the experiences they had at the time of study participation. It was estimated that the full survey would take 25 – 35 minutes to complete.

In order to contribute to high content validity, existing literature on men pursuing parenthood, previous surveys created by members of the research team, as well as previously validated measures such as Connectedness to the LGBT Community Scale were used as references to guide the creation of the current survey instrument. Five experts in the field with extensive knowledge on the ART process, including research scientists, counsellors, and clinical health care workers at CReATe reviewed the survey for content and face validity. Furthermore, feedback was obtained from two independent representatives of third-party agencies working in ART to determine survey validity. Criterion validity was not assessed, due to the descriptive and exploratory nature of the study. The two theoretical frameworks used to develop this study helped contribute to the construct validity of this study, as constructs such as minority stress, and the interplay between biological, psychological, and sociological factors, were topics of interest throughout the survey. The reliability of the survey was evaluated by performing a Cronbach’s Alpha to measure the internal consistency between three outcome variables of interest (positive overall experience of ART [Q10], positive experience of egg donation [Q31], and positive experience of surrogacy [Q46]). A Cronbach’s Alpha score of 0.775 was calculated, providing an acceptable level of consistency among these variables. Furthermore, mean scores for outcome values with a measure of standard error were also used to evaluate internal consistency. Mean scores produced relatively similar values between how the sample scored each outcome (Q10
Test-retest reliability was not assessed for this survey, since participants’ experience of ART may change over time, and thus is not expected to remain consistent for measurement purposes. After developing the survey, it was pilot tested by seven volunteer same-sex coupled/single male population representatives. These individuals provided advice and comments on the survey with regards to its readability, clarity, flow, and structure. Any questions that were noted as difficult to interpret or unsuitable were revised. Please refer to Appendix E for further details on the survey instrument.

3.5.2 Variables of Interest

The survey instrument posed questions pertaining to four specific domains of interest in order to meet the study objectives. These domains of interest are described below. For a complete breakdown of all variables to be analyzed within the study, please refer to Appendix F. How each variable was measured in order to obtain results will be explained within the Data Analysis section.

**Outcome variable**

As the main outcome of interest for this study was an overall positive experience of using ART, there is one primary outcome and two secondary outcomes of interest. The primary outcome directly asked participants to rate their overall experience of ART on a 5-Point Likert Scale from ‘Very Negative’ to ‘Very Positive’ (Q10). Secondary outcomes included questions about the experience of egg donation and using a surrogate. The first question asked participants to rate their overall experience of egg donation on a 5-Point Likert Scale from ‘Very Negative’ to ‘Very Positive’ (Q31). The second question directly asked participants to rate their overall experience of using surrogacy on a 5-Point Likert Scale from ‘Very Negative’ to ‘Very Positive’ (Q46).

**Explanatory variables**

**Demographics**

The following to-date demographic information was collected: age, assigned sex at birth, racial/ethnic background, primary residence, a description of area of residence (urban, suburban,
rural, etc.), highest level of education, and information about children conceived either through use of, or without use of ART (number of children, age of child(ren), health status at birth, etc.) In addition to this information, the following demographic information related to the specific time of using ART was collected: year ART was pursued, age, gender identity, relationship status, sexual orientation, changes to relationship status or sexual orientation, occupation, individual income, combined household income, and HIV status. Demographic information specific to the time of using ART were variables that were considered susceptible to change over time, which is why they were considered at one specific time point.

**Social support**

The social support or potential lack thereof that SSMCs and SM receive when pursuing parenthood through the use of ART was analyzed through collecting the following information: extent of stigma experienced for use of ART, extent of family support for use of ART, extent of friend support for use of ART, extent of involvement in the LGBTQ+ community, extent of political activity within the LGBTQ+ community, amount of SSMCs and SM with children had through ART in participants’ social support network, extent of involvement in social media groups, attendance at conferences, seminars, or workshops targeting men using ART, and changes in social support networks after the arrival of the child.

**Experience**

Experience using ART and men’s level of satisfaction with the overall process of third-party reproduction was assessed through collecting the following information: the most positive aspect of using ART, the most negative aspect of using ART, the potential for recommending use of ART, experiences had regarding egg donation, length of time needed to find a surrogate, emotional connection with the surrogate during pregnancy, rating the level of agreement had with the surrogate regarding relationship expectations, relationship expectations with the intended child, prenatal care, the birthing process, and pregnancy termination, rating the overall experience of using a surrogate, the amount of contact with the surrogate post child-birth, emotional connection with the surrogate post child-birth, experiences had regarding CBRC surrogacy, changes in the partnered relationship since the birth of the child, and the amount of time and money spent using ART.
Decision-making

The decisions made by men during the use of ART and the factors influencing these decisions were assessed using questions regarding: the desire to have children, ways of finding out about ART, reason for pursuing parenthood, number of egg donors worked with, reason for working with multiple egg donors, the country of origin of the chosen egg donor, disclosure preference of the chosen egg donor, important characteristics of the egg donor, level of agreement with partner in choosing the egg donor, which partner’s sperm was used, which partner’s embryos were used, important criteria for choosing which partner would be the biogenetic paternity of the intended child, plans to have more children in the future, use of PGT-A, reasons for use of PGT-A, level of agreement with partner in using PGT-A, level of agreement with partner in using PGT-A, type of surrogate chosen, use of paternity testing, use of surrogate breast milk, consultation of surrogate for parenting advice, plans to introduce the child to the surrogate, and revealing to others about the child’s genetic links to the parents.

3.6 Data analysis

Quantitative analyses

Quantitative analyses were conducted from data collected on the variables of interest within the survey. The survey consisted of categorical (nominal, dichotomous, and ordinal) variables. A codebook with definitions of the numerical coding for each variable was developed. Variables were organized and analyzed in several ways based on their level of measurement, as well as the objectives being assessed. Answers to open ended questions and additional survey comments were used to further elaborate on and exemplify findings. The following paragraphs will elaborate on how each variable was handled within data analysis, and the reasoning behind the various methods of data analysis used.

Data entry was not required since the data were collected electronically. The data file was exported from the Survey Monkey database to the software Statistical Package for Social Sciences (SPSS) and Microsoft EXCEL. SPSS was used for quantitative statistical analysis, and EXCEL was used to organize qualitative comments collected from the open-ended questions and text boxes. All the data files were password protected and saved in a secure server. As the survey
did not collect the participants’ personal information, the data file did not contain any personal identifying data. If participants included any identifying information in the open-ended questions and text boxes, it was anonymized upon importation. Data cleaning was conducted to examine the survey responses for missing and inconsistent data prior to statistical analysis following input into SPSS. Examination of missing data focused on the amount of missing information in each survey, and whether there was an overall random or non-random pattern of missing data. Overall, no clear pattern was noted in the questions that were left unanswered by participants, with participant drop out occurring most frequently towards the end of Section A of the survey.

In order to summarize demographic data on participants, descriptive statistics of variables such as age, gender identity, relationship status, sexual orientation, residency status, place of residence, description of residence, ethnic background, level of education, occupation, income, and HIV status were summarized using frequencies and proportions for categorical variables, including dichotomous, nominal, and ordinal variables, and medians and interquartile ranges or means and standard deviations for continuous variables and were compared using bivariate analyses.

The first objective was to determine how men perceive the experience of using ART to have children. Initially, participant experience was measured based on a 5-point Likert scale ranging from ‘Very Negative’ (1) to ‘Very Positive’ (5) using the question “So far, what is your overall experience of using ART in Canada as a couple or a single man?” (Q10). Following preliminary analysis, participant experience was then dichotomized into positive experience or negative experience. If participants rated their experience of ART as (4) ‘Positive’ or (5) ‘Very Positive,’ they were stratified into the ‘Positive’ group. If participants rated their experience as (1) ‘Very Negative,’ (2) ‘Negative,’ or (3) ‘Neutral,’ they were assigned to the ‘Not Positive’ group. The frequency and proportion of men who had a positive overall experience of ART was then determined and reported. Similarly, this method of analysis was used to determine if participants had a positive overall experience of egg donation specifically by examining responses to question 31, and a positive overall experience of surrogacy specifically by examining responses to question 46.
The second objective was to determine what factors influenced the overall experience of using ART overall. Using frequency and proportion data obtained from descriptive statistical analyses, variables such as age, relationship status, sexual orientation, ethnicity, level of education, income, Canadian residency status, Ontario residency status, description of area of residence, HIV status, experience of stigma, level of involvement in the LGBTQ+ community, the presence of other men in one’s social network who had used ART, and attendance of conferences, seminars, and workshops, method of securing an egg donor, number of donors worked with, method of securing a surrogate, length of time to secure a surrogate, emotional connection with the surrogate, the level of agreement with one’s partner when selecting an egg donor and a surrogate, were considered independent variables that may affect ART experience. The aforementioned variables were chosen due to their psychological and sociological value. Participants were separated into two groups based on their responses to questions pertaining to each variable. How each individual variable was dichotomized will be displayed in further detail within results. 2x2 tables were then created displaying the dichotomized independent variables of interest against the dichotomized dependent variable of experience (being either positive or not). Chi-squared analysis was conducted on each 2x2 table to determine if any independent variables were significantly associated with the overall experience of using ART. Continuity corrections were conducted if any cells within the 2x2 tables were under 5. Further examination was done, by comparing quantitative results with relevant themes within qualitative data in order to determine what variables potentially acted as facilitators of or barriers to having a positive experience of using ART.

The third objective was to identify decisions made within the ART pathway and what factors influenced men’s decisions throughout their journey towards having children. Variables within the decision-making domain of interest included nominal variables on which descriptive statistics were conducted to obtain proportion and frequency data. Such variables included recognizing the desire to have children, how men found out about ART, how men connected with egg donors and surrogates, which partners’ sperm was used to fertilize eggs, which partners’ embryos were transferred to the surrogate, and the level of agreement with their surrogate. This served to identify the choices that were most commonly made by men in the sample throughout the ART pathway. Several ordinal variables were measured using a 5-Point Likert Scale and were analyzed in order to determine criteria that were important to consider.
when making decisions along the ART pathway. Various criteria were asked to be scored based on level of importance, (1) being ‘Not Important at All’ to (5) being ‘Very Important,’ with regards to the considerations involved when choosing an egg donor (Q29), which partner would contribute to the biogenetic paternity of the child (Q34), and the choice to screen embryos with PGT-A (Q37). Calculations of means of Likert Scale scores with standard deviations were then conducted for each individual criterion. Criteria with a higher mean score were determined to be of greater importance to consider in decision making, while criteria with a lower mean score were considered less. With regards to the use of PGT-A specifically, a T-test was conducted to determine if there was a significant difference in how specific considerations were scored between those participants who chose to use PGT-A versus those who did not. Relevant qualitative comments were also taken into account when presenting data related to decision making factors.

**Qualitative analyses**

Qualitative thematic analysis was conducted using Braun & Clarke's (2006) six step framework. This flexible approach is not based on any particular epistemological or theoretical perspective, but provided a framework for conducting a qualitative analysis based on semantic themes present in comments and open-ended question answers. The first step in Braun & Clarke’s framework is to familiarize oneself with the data (Braun & Clarke, 2006). Qualitative text was imported to an EXCEL spreadsheet and repeated readings were conducted in order to meet step one. The second step is to generate initial codes (Braun & Clarke, 2006). To meet this step, comments were organized into categories based on words used or concepts discussed by participants. Step three in this framework was to search for themes (Braun & Clarke, 2006). Dr. Samantha Yee, the Director of Psychosocial Research at CReAte Fertility Centre, and I read through qualitative comments separately and compared analyses to pinpoint common themes that stood out. In order for a theme to stand out, it was often a topic that was noted repeatedly by several participants or noted as an influential factor of their ART experience. Such themes provided interesting illustrations of the ART experience. Differences in opinion regarding the thematic categorization of comments were resolved through revision and discussion between members of the research team. Themes were recoded until consensus was reached by the research team. This met step four of Braun & Clarke’s six step framework, which is to review the themes (Braun & Clarke,
2006). Comments were then organized based on theme and separated by various subthemes, meeting the fifth step of defining themes (Braun & Clarke, 2006). The themes are presented with the intent of providing context for the quantitative data presented. Themes that were not relevant to the overarching objectives of the study are not presented. The final step of writing up themes, was conducted when incorporating qualitative data into the quantitative results presented (Braun & Clarke, 2006).

3.7 Ethical considerations

This study was conducted in accordance with all local regulatory requirements. All investigators adhered to the principles of Good Clinical Practice, Responsible Conduct of Research and Basic Biomedical Research Ethics. Central REB approval was obtained from the University of Toronto.

The risks and benefits of participating in the research study were described in the consent form, which was the cover page of the online survey. Before participating, all subjects were required to check three separate check boxes indicating that they: 1) had read the information and understood the risks and benefits; 2) had met the eligibility criteria for the study; and 3) had given written consent to participate in the survey voluntarily. Participants could not proceed to begin the survey unless they checked ‘I agree’ in all three boxes. A response to all three questions was mandatory. A message to exit the survey appeared if any of their responses to these three questions was “I do not agree.” Please refer to Appendix G for further details on the consent form.

Participation in the study only carried minimal psychological/emotional risk. The psychological/emotional risks were further minimized as participation was voluntary in response to the recruitment advertisement. The consent form on the cover page of the survey clearly outlined the psychological risks (i.e. that some of the questions may trigger negative experiences or unsettle feelings concerning their past or current involvement in using ART). Participants could choose not to respond to any questions that they did not feel comfortable answering. Participants also had the option to withdraw anytime during the survey by exiting the internet browser. The consent form stated that participants were encouraged to reach out to the research
team by email (studycoordinator@createivf.com), should they experience any psychological difficulties. No participants reached out with regards to psychological or emotional difficulties related to participating in the study.

Participation in the online survey was voluntary and anonymous. Participants could choose to complete the survey on their own initiative at anytime and anywhere, through the online survey tool Survey Monkey. No question in the survey asked for personal identifying information. Therefore, the investigators did not know the identity of those who had, or had not, completed the survey. If personal identifying information was given within responses to open-ended questions, participant responses were anonymized once data had been collected. After completing the survey, a participant number was generated that participants could record. Participants can contact the study coordinator anonymously at any time up until the study data is submitted for thesis completion or published in a scholarly journal to have their data withdrawn from the study using their participant number. Thus far, no participants have asked to withdraw their data. All study materials are kept in a secure computer drive and will be retained for seven years following the period of data collection.

There was no immediate or direct benefit for participants to take part in the survey study. Information learned from this study may help researchers to better understand the motivations, views, expectations, and perspectives of SSMCs and SM pursuing ART in Canada to have children. Hence, participation may benefit other men who are interested in pursuing ART in the future.
4 Results

A total of 102 individuals accessed the anonymous online survey. Twenty-nine surveys were incomplete with little or no information provided, and one survey response was excluded as it was completed by a female. Thus, 72 cases were included in the final quantitative analysis. Of the 72 participants, 68 provided qualitative comments for at least one or more questions. A total of approximately 3,243 words were collected from qualitative comments. The quantitative results are presented herewith alongside illustrative qualitative comments where appropriate. Participant numbers are included to denote which participants made comments.

4.1 Demographics

Table 1 summarizes the demographics of the survey participants. Seventy-one participants (98.6%) identified as male, and 1 participant identified as genderqueer (1.4%). Although the current study was not limited to cisgender males, no participants in this dataset identified as transgender. The sample was predominantly white (n=50, 69.4%). The majority of participants had obtained an undergraduate degree or higher (n=58, 80.6%) and reported an individual income that was above $50,000 before tax (n=61, 84.8%). The median individual income before tax was $79,500. Approximately 38.8% of the sample had an income of $100,000 or above.

Figure 1 illustrates the years participants in the sample accessed ART, stratified by Canadian residency status, and relationship status. At the time of pursuing ART, the majority of participants were in their 30s (n=48, 66.7%) and were in same-sex coupled partnerships (n=63, 87.5%), residing in cities as opposed to suburban or rural areas (n=57, 79.1%). Thirty-two participants (44.4%) were residents of Canada, while 39 participants (54.2%) were international IPs accessing ART in Canada. Three participants (4.2%) reported being HIV positive at the time of pursuing ART. Six participants were still searching for an egg donor at the time of answering the survey, and 66 participants had secured an egg donor, created embryos, or completed the egg donation process; working with over 107 egg donors in total. Sixty-one participants had found a surrogate at the time of answering the survey. Twenty-one participants (29.2%) had completed the ART process, stating that they had a child who was conceived and born through the use of ART, and 51 participants (70.8%) were actively pursuing ART at the time of answering the
survey. Figure 2 represents what stages of the ART pathway participants had experienced at the time of answering the survey.

Table 1: Demographics of participants at the time of pursuing ART

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>14 (19.4%)</td>
</tr>
<tr>
<td>30-39</td>
<td>48 (66.7%)</td>
</tr>
<tr>
<td>40-49</td>
<td>8 (11.1%)</td>
</tr>
<tr>
<td>&gt;50</td>
<td>2 (2.8)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72 (100%)</td>
</tr>
<tr>
<td><strong>Gender Identity</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>71 (98.6%)</td>
</tr>
<tr>
<td>Genderqueer</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72 (100%)</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>9 (12.5%)</td>
</tr>
<tr>
<td>Married</td>
<td>34 (47.2%)</td>
</tr>
<tr>
<td>Common Law/Civil Union</td>
<td>27 (37.5%)</td>
</tr>
<tr>
<td>In a cohabiting relationship</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td>In a non-cohabiting relationship</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72 (100%)</td>
</tr>
<tr>
<td><strong>Sexual Orientation</strong></td>
<td></td>
</tr>
<tr>
<td>Gay</td>
<td>69 (95.8%)</td>
</tr>
<tr>
<td>Bisexual</td>
<td>2 (2.8%)</td>
</tr>
<tr>
<td>Pansexual</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72 (100%)</td>
</tr>
<tr>
<td><strong>Canadian vs International</strong></td>
<td></td>
</tr>
<tr>
<td>Canadian</td>
<td>32 (44.4%)</td>
</tr>
<tr>
<td>International</td>
<td>39 (54.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>71a (98.6%)</td>
</tr>
<tr>
<td><strong>Canadian Participants Province of Residence</strong></td>
<td></td>
</tr>
<tr>
<td>Alberta</td>
<td>4 (12.5%)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>2 (6.3%)</td>
</tr>
<tr>
<td>Ontario</td>
<td>21 (65.6%)</td>
</tr>
<tr>
<td>Quebec</td>
<td>4 (12.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>31a (96.9%)</td>
</tr>
<tr>
<td><strong>International Participants Country of Residence</strong></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>7 (17.9%)</td>
</tr>
<tr>
<td>Belgium</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>France</td>
<td>10 (25.6%)</td>
</tr>
<tr>
<td>Germany</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>Israel</td>
<td>4 (10.3%)</td>
</tr>
<tr>
<td>Italy</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>Country</td>
<td>Count</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
</tr>
<tr>
<td>Thailand</td>
<td>1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2</td>
</tr>
<tr>
<td>United States</td>
<td>10</td>
</tr>
<tr>
<td>Czechia</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>39</td>
</tr>
</tbody>
</table>

**Description of Residence**

<table>
<thead>
<tr>
<th>Residence Type</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large metropolitan or urban city</td>
<td>57</td>
<td>(79.1%)</td>
</tr>
<tr>
<td>Suburban area</td>
<td>9</td>
<td>(12.5%)</td>
</tr>
<tr>
<td>Small town or rural area</td>
<td>5</td>
<td>(7.0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>71</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

**Ethnic Background**

<table>
<thead>
<tr>
<th>Ethnic Background</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White (European, Canadian, and/or American)</td>
<td>50</td>
<td>(69.4%)</td>
</tr>
<tr>
<td>Black African</td>
<td>1</td>
<td>(1.4%)</td>
</tr>
<tr>
<td>Indo-Caribbean</td>
<td>1</td>
<td>(1.4%)</td>
</tr>
<tr>
<td>Latin or Hispanic</td>
<td>2</td>
<td>(2.8%)</td>
</tr>
<tr>
<td>Middle Eastern (Israeli, Iranian, Syrian, etc.)</td>
<td>9</td>
<td>(12.5%)</td>
</tr>
<tr>
<td>South Asian (East Indian, Pakistani, Sri Lankan, etc.)</td>
<td>2</td>
<td>(2.8%)</td>
</tr>
<tr>
<td>Southeast Asian (Vietnamese, Chinese, Malaysian, etc.)</td>
<td>4</td>
<td>(5.6%)</td>
</tr>
<tr>
<td>Mixed race/Multicultural</td>
<td>3</td>
<td>(4.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

**Highest Level of Education**

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>1</td>
<td>(1.4%)</td>
</tr>
<tr>
<td>High school</td>
<td>8</td>
<td>(11.2%)</td>
</tr>
<tr>
<td>College or technical school</td>
<td>4</td>
<td>(5.6%)</td>
</tr>
<tr>
<td>Undergraduate university degree</td>
<td>15</td>
<td>(20.8%)</td>
</tr>
<tr>
<td>Postgraduate university degree</td>
<td>30</td>
<td>(41.7%)</td>
</tr>
<tr>
<td>Doctorate degree or equivalent</td>
<td>13</td>
<td>(18.1%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>71</td>
<td>(98.6%)</td>
</tr>
</tbody>
</table>

**Occupation**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering related occupation</td>
<td>5</td>
<td>(6.9%)</td>
</tr>
<tr>
<td>Arts and culture related occupation</td>
<td>3</td>
<td>(4.2%)</td>
</tr>
<tr>
<td>Business related occupation</td>
<td>18</td>
<td>(25.0%)</td>
</tr>
<tr>
<td>Community and government related occupation</td>
<td>5</td>
<td>(6.9%)</td>
</tr>
<tr>
<td>Computer science related occupation</td>
<td>8</td>
<td>(11.1%)</td>
</tr>
<tr>
<td>Education related occupation</td>
<td>10</td>
<td>(13.9%)</td>
</tr>
<tr>
<td>Health related occupation</td>
<td>7</td>
<td>(9.7%)</td>
</tr>
<tr>
<td>Law and society related occupation</td>
<td>6</td>
<td>(8.3%)</td>
</tr>
<tr>
<td>Manufacturing related occupation</td>
<td>3</td>
<td>(4.2%)</td>
</tr>
<tr>
<td>Natural and applied sciences related occupation</td>
<td>2</td>
<td>(2.8%)</td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td>(1.4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>68</td>
<td>(94.4%)</td>
</tr>
</tbody>
</table>

**Individual Income before Tax**

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$29,999</td>
<td>1</td>
<td>(1.4%)</td>
</tr>
<tr>
<td>$30,000-$49,999</td>
<td>8</td>
<td>(11.1%)</td>
</tr>
<tr>
<td>$50,000-$69,999</td>
<td>7</td>
<td>(9.7%)</td>
</tr>
<tr>
<td>Income Range</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>$70,000-$89,999</td>
<td>19</td>
<td>26.4%</td>
</tr>
<tr>
<td>$90,000-$109,000</td>
<td>11</td>
<td>15.3%</td>
</tr>
<tr>
<td>$110,000-$129,000</td>
<td>4</td>
<td>5.6%</td>
</tr>
<tr>
<td>$130,000-$149,999</td>
<td>10</td>
<td>13.9%</td>
</tr>
<tr>
<td>&gt;$150,000</td>
<td>10</td>
<td>13.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70</td>
<td><strong>97.2%</strong></td>
</tr>
</tbody>
</table>

**HIV Status**

<table>
<thead>
<tr>
<th>HIV Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Negative</td>
<td>69</td>
<td>95.8%</td>
</tr>
<tr>
<td>HIV Positive</td>
<td>3</td>
<td>4.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

a One participant did not answer this question; b Four participants did not answer this question; c Two participants did not answer this question

---

Figure 1.1: Count of Canadian and international men accessing ART services
Figure 1.2: Count of SSMCs and SM accessing ART services
Figure 2: Completion of ART pathway by participants at the time of answering survey

Total
n=51 were still actively pursuing ART at the time of transferring the survey
n=21 had completed ART with a child at the end

N=72

Egg Donation
n=66 had secured an egg donor

n=6
Still searching for an egg donor

n=18
Had found an egg donor

n=48
Had created embryos

Surrogacy
n=61 had secured a surrogate

n=6
Still searching for a surrogate

n=3
Still searching for a surrogate

n=15
Had yet to do an embryo transfer

n=2
Still searching for a surrogate

n=5
Had yet to do an embryo transfer

n=7
Surrogate had at least one embryo transfer

n=13
Surrogate is pregnant

n=21
Surrogate has given birth
4.2 The Experience of Using ART

4.2.1 Overall Experience

The primary objective of this study was to understand how men perceive the experience of using ART to have children, and specifically to determine what proportion of men have a positive experience. Four in five participants (n=58, 80.5%; 95% CI, 69.5% to 88.9%) stated that they had a positive overall experience of using ART at the time of answering the survey. Five participants (6.9%) felt neutral towards their overall experience of using ART, and 9 participants (12.5%) felt negatively about their overall experience. Sixty participants (83.3%) stated that they would recommend or had already recommended pursuing ART in Canada to those in their social network.

In the qualitative comments, coupled participants elaborated on their experience of pursuing ART as a SSMC. When analyzing the specific theme of ‘pursuing ART as a SSMC’, qualitative comments categorized under subthemes such as ‘the determination to achieve fatherhood’ and ‘ART being more complicated for SSMCs’ compared to heterosexual couples were noted:

“I suggest people start the process as early as possible and not listen to detractors. If you want to have a family, don’t let anyone stop you” [10247088574].

“Experience varies significantly based on organization. Some organizations offer a negative experience for gay men, with extra steps that other organizations don’t ask” [10360806886].

Of those participants who stated that they would recommend ART in Canada, one said, “It has integrity. We are creating a narrative for a child – everything must be filled with truth and done with love” [10247088574]. However, certain participants did not share this sentiment of using ART as a method to have a child. One participant who specified he would not recommend ART in Canada stated, “I wouldn’t recommend it because it’s a costly and sucky process to go through. But for gay males there is no alternative to have biological children” [10261161205].
When asked about the ‘most positive aspect of ART’, one participant wrote, “the embodiment of our dreams to be parents” [10211842006]. Several participants remarked on the service they received from healthcare professionals, agencies, and third parties within the qualitative comments. Specifically, one participant wrote that the most positive aspect of ART was, “family support and finding a clinic considerate of LGBT couples” [10167246525].

When asked about the ‘most negative aspect of ART’, many participants remarked on the costs and time associated with pursuing ART. One participant stated that the ART process is one with “tons of delays, barriers, and costs” [10261161205]. Another participant noted that ART involved a great deal of uncertainty, feeling that he was “never quite sure what to do or how to do it” [10349363787]. Several international IPs commented on the “tyranny of distance,” due to being geographically separated from healthcare professionals, agencies, and third parties [10247088574].

Specific to the theme of ‘Canadian law’, subthemes such as ‘the AHRA’ and the process of ‘obtaining legal documents’ were discussed and illustrated through the following qualitative comments:

“The uncertainty around the Assisted Human Reproduction Act and the potential for criminal prosecution adds increased stress and anxiety when deciding whether to pursue a surrogacy journey and also limits the number of potential surrogates available” [10471352931].

“We were in a small-town hospital and everyone was very accommodating. Our clinic was amazing. The only negative experience was the hoops to get both names on the birth certificate. It felt like we had to prove something that nobody else did” [1027603402].

As noted previously, at the time of answering the survey 21 participants had completed the ART pathway with a child born at the end of the process. Twelve of the participants with children born through ART were international IPs. Based on the information that was provided, a total of 27 children were born to the 21 participants via ART. See Table 2 for an age distribution of the children born. Eighteen participants had singletons and 2 participants had twins on their first
ART journey. Three participants completed a second sibling ART journey, one of which had a singleton child and two of which had twins. Among those participants who had completed ART, individuals spent an average of 2.3 years and a range of $60,000 to over $100,000 on egg donation, embryo creation, and surrogacy. A total of 66.7% (n=14) of those who had completed ART had spent at least $100,000 or more throughout their journey. Furthermore, 95.2% (n=20) of participants who completed ART reported a positive experience. A participant who had completed the ART process noted that the most positive aspect of ART was “ultimately having a healthy child” [10222419499].

Table 2: Information regarding children born through ART

<table>
<thead>
<tr>
<th>Variable of Interest</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child(ren) born through ART</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>51 (70.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>21 (29.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>72 (100%)</td>
</tr>
<tr>
<td>Age Distribution of Children</td>
<td></td>
</tr>
<tr>
<td>Under age 1</td>
<td>13 (48.2%)</td>
</tr>
<tr>
<td>1 year old</td>
<td>6 (22.2%)</td>
</tr>
<tr>
<td>3 years old</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>7 years old</td>
<td>4 (14.8%)</td>
</tr>
<tr>
<td>9 years old</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>Total</td>
<td><strong>27</strong> (100%)</td>
</tr>
</tbody>
</table>

*aOne participant did not provide any information on his children, and two participants indicated they had more children via ART whom they did not provide information on; bOne participant did not answer this question*

4.2.2 Experience of Egg Donation

To further elucidate the primary objective of the study, participants were asked about their experience of egg donation. When considering this part of ART, 72.2% (n=52) stated that they had a positive experience of egg donation specifically. Of participants, 91% (n=61) connected with egg donors through the use of an agency, as opposed to through social networks. See Figure 3 for information regarding how participants secured egg donors and disclosure preferences of egg donors.
*Categories are not mutually exclusive

**Figure 3: Types of egg donors chosen by participants**

Of the 66 participants who had found an egg donor, 24 participants (36.4%) stated that they experienced working with more than one egg donor. The most commonly stated reason for working with more than one egg donor was donor withdrawal due to medical reasons (See Figure 4).

Under the theme of ‘egg donation’, in the qualitative comments a participant who had worked with a single egg donor said, “the egg donor process was transactional. Quick and simple. We never met” [10210913359]. Conversely, a participant who had worked with multiple donors stated, “our second egg donor took six months for testing and legal to complete. Then she learned that she became pregnant just before she was supposed to donate. These delays nearly caused us to lose our surrogate” [10351339728].
*Categories are not mutually exclusive

**Figure 4: Reasons for working with multiple egg donors**

4.2.3 Experience of Surrogacy

To further elucidate the primary objective of the study, participants were asked about their experience of surrogacy. With regards to this part of ART, 75.0% (n=54) stated that they had a positive experience of surrogacy specifically. Agencies were the most common way to connect with a surrogate for both Canadian residents and international IPs (see Figure 5). On average, participants spent 3-6 months in order to find a suitable surrogate who fit their needs.

Participants noted the difficulties they had finding a surrogate within the qualitative comments, specifically highlighting an important theme – ‘the role of agencies’:

“Limited market and options for surrogates and egg donors since compensation is illegal” [10357029599].

“Challenging to find a surrogate without an agency” [10349836620].

“Dealing with an agency to find a surrogate and feel alone, powerless…time goes by, nothing happens…we have no idea how to move forward” [10491339703].
Of the 61 participants who had found a surrogate, the majority (n=50, 82.0%) stated that they felt ‘connected’ or ‘very connected’ with their surrogate before and/or during pregnancy. Just over half of the participants who had completed ART (n=12, 57.1%) had contact with their surrogate on a monthly or weekly basis. The following qualitative comment illustrates the close relationship that one IP developed with their surrogate, “She is so wonderful and we want our child to be like her. We love her very much” [10247088574].

Several participants commented that surrogacy was the ‘most positive aspect of ART’, highlighting:

“Learning about the process by being an active participant and making relationships with the surrogate” [10210913359].

“The willingness of a surrogate to help me become a parent as a single man” [10349994744].

Within the sample, 9 participants indicated that their surrogate had experienced at least one unsuccessful embryo transfer. Of these surrogates, two were pregnant at the time of the IP answering the survey and one had given birth to a child. Furthermore, 3 participants indicated
that their surrogate had experienced at least one pregnancy loss. Of these surrogates, two had given birth to children at the time of the IP answering the survey. Based on the information provided within the survey, all other participants who had found surrogates did not indicate that their surrogates experienced any difficulties during the ART process.

Comments revealed an important theme that was unfortunately common, ‘the experience of difficulties’ throughout the ART process, illustrated by the following qualitative comments:

“Lost all embryos after funded cycle” [10349774220].

“The overall experience is very positive, however we have been through two failed transfers so far, which makes it more stressful” [10472399258].

“We had a wonderful surrogate, but despite a number of transfers failed to get pregnant. The process of identifying the surrogate is very frustrating” [10210683492].

4.2.4 Stigma and Social Support

With regards to the experience of social stigma, about a third of participants (n=25, 34.7%) stated that they ‘never’ experienced any form of stigma regarding their desire to have a child, and an equal number of participants stated that they ‘sometimes’ experienced social stigma. Few participants (n=3, 4.2%) said they experienced social stigma ‘often.’ Of those who experienced stigma ‘often,’ two participants were international IPs. Almost all participants (n=70, 97.2%) stated that they had some form of social support for their decision to pursue having a child through ART, either from immediate family, friends, or both. Forty-one participants (56.9%) stated they had other men within their social network who also had children through ART.

4.3 Factors Effecting ART Experience

The secondary objective of this study was to determine what factors influence the overall experience of using ART. Various demographic variables such as age, relationship status, sexual orientation, ethnicity, level of education, income, Canadian residency status, Ontario residency status, description of area of residence, and HIV status were evaluated to determine if there was a
significant association between such factors and the experience of ART. Furthermore, other explanatory variables of interest that were considered potential psychological or sociological determinants of experience were analyzed such as experience of stigma, involvement in the LGBTQ+ community, the presence of other men in one’s social network who had used ART, and attendance of conferences, seminars, and workshops, method of securing an egg donor, number of donors worked with, method of securing a surrogate, length of time to secure a surrogate, emotional connection with the surrogate, the level of agreement with one’s partner when selecting an egg donor and a surrogate, to determine if they were significantly associated with the experience of ART. Please refer to Appendix H, which exhibits all aforementioned variables in relation to ART experience and displays how each variable was dichotomized in order to conduct Chi-squared analyses.

Statistical analyses using a Chi-squared test showed no significant association between overall ART experience and demographic variables such as age, relationship status, sexual orientation, ethnicity, residency status, province of residence, description of residence, education level, and income level. When analyzing other explanatory variables of interest using a Chi-squared test, no significant association was found between overall ART experience and level of involvement in the LGBTQ+ community, knowing other men with children via ART in one’s social network, attendance of conferences, seminars, and workshops dedicated to men pursuing parenthood, the method of securing an egg donor, the method of securing a surrogate, the amount of time needed to find a surrogate, and the level of emotional connection to ones surrogate. For partnered participants, the level of agreement with one’s partner on the egg donor chosen, was not significantly associated with overall ART experience. Finally, Chi-squared analysis did not reveal a significant association between completion of the ART pathway and ART experience (See Appendix H).

Although not many participants in the sample reported experiencing stigma regarding their parenthood desire, Chi-squared analysis revealed that the experience of social stigma was significantly associated with overall ART experience. Thus, those participants who reported that they experienced stigma ‘Sometimes,’ ‘Often,’ or ‘Very Often’ were found to be less likely to have a positive ART experience. Furthermore, Chi-squared analysis showed a significant association between ART and working with multiple egg donors. Participants who had worked
with more than one donor throughout the course of using ART were less likely to report a positive overall experience of ART.

4.4 ART Service Providers

ART is a lengthy process requiring IPs to work multiple sectors of the healthcare system, as well as with private third-party agencies. Although no survey questions directly inquired about the experience of working with third-party agencies, the nuances of interacting with ART service providers was frequently mentioned within qualitative comments. For many participants in the sample, ART service providers were seen as a factor influencing their overall experience of using ART. Within the qualitative theme of ART service providers, subthemes including encountering social stigma, miscommunications, and pros and cons of working with third-party agencies were noted. Following the second objective of this study, analyses regarding these themes, and their impact on the ART experience are illustrated by the following comments.

4.4.1 Multiple Service Providers

Many participants provided detail on the difficulties they experienced when working with multiple service providers. One participant noted, “I wish there was one stop shopping instead of multiple agencies” [10265194995]. Qualitative themes related to ‘the role of agencies’ revealed subthemes of patient experiences of ‘social stigma’ and ‘miscommunications’ throughout healthcare delivery.

With regards to social stigma experienced, participants specifically noted issues at the stages of obtaining a referral to reproductive healthcare practices and when undergoing delivery at hospitals:

“Initially [ART] was very negative due to experience with a local clinic which was not considerate to gay couples and their unique needs regarding ART” [10167246525].

“ART experience was very positive…got more issues with hospital during delivery with a surrogate…some of the hospital staff clearly say they don’t understand that two men can have children” [10161571664].
Several participants commented on the communication issues between service providers, as well as between service providers and IPs:

“Miscommunication issue with our egg donor agency which ended up with us missing out on our first choice egg donor” [10349334382].

“Delays in the process. Communication with various agencies, lawyers, nurses” [10351339728].

“Confusing or lacking communication with some individuals at some of the agencies involved” [10212039582].

4.4.2 Third-party Agencies

As shown in the quantitative data, third-party agencies were the most common way for participants in the sample to connect with egg donors and surrogates throughout their ART journey. When considering ‘the role of agencies’, qualitative comments revealed both positive and negative experiences with agencies.

Participants remarked on negative aspects of third-party agencies, noting subthemes such as a ‘profit based system’, ‘accountability’, and ‘transparency’:

“A frustrating process. I feel very handicapped in this, a little like trying to buy a house in Toronto these days. The “vendor agents” know their “goods” are in high demand and treat you, the buyer, accordingly. They rush you in and rush you out and if you don’t meet their terms, there are always a lot of other options for them, so why should they give a fig about you” [10293569936].

“I approached a clinic about seeking a surrogate. The clinic referred me to an agency that acted poorly in recommending a surrogate who had a number of health issues. I had to take legal action to get some of the money I paid back. Neither the agency nor the clinic ever apologized for such unprofessional behaviour” [10293569936].
“The doctors and nurses are great. The agencies for egg donation and surrogacy lack transparency and accountability. The cost is high and we are only able to afford it by relying on lines of credit to fund the procedures and costs” [10263309456].

Participants commented on positive aspects of third-party agencies, noting subthemes of ‘knowledge, structure, and support’:

“Support and knowledge from surrogacy agencies” [10360806886].

“Everything was really well organized, prepared, and clear, so it made us feel a lot less stressed” [10349334382].

“Experiences largely seem determined by certain clinics and organizations. Surrogacy agencies have offered incredible advice and support” [10360806886].

4.5 Decisions made throughout the ART Pathway

The third objective of this study was to understand what decisions are commonly made by men within the ART pathway. Specifically, to determine what factors influence men’s decisions when using ART to have children. The following section elaborates on men’s decision to pursue ART, criteria considered when choosing an egg donor, decisions made during embryo creation and criteria considered when selecting the biogenetic paternity of the intended child, criteria considered when deciding to screen embryos, and considerations involved in surrogate selection.

4.5.1 Desire for Parenthood and Access to Art Resources

When asked about the motivation behind the decision to pursue parenthood, the majority of participants agreed (n=63, 87.5%) with the statement that they had a deep desire to have a child. Furthermore, the majority agreed (n=50, 69.4%) with the statement that having a child felt like a natural next step in their life. Just over half of the sample stated that they had always known that they wanted to have children (n=40, 55.6%). The most common resources through which participants learned about using ART to have a child were through internet search (58.3%), social media platforms such as Instagram, Facebook, and Twitter (41.7%), friends (38.9%), and
through attending seminars, workshops, conferences, and clubs (33.4%) dedicated to conveying information about men pursuing parenthood (See Figure 6). Within qualitative comments, many participants noted that they had attended the Men Having Babies Conference specifically, for the purposes of accessing more resources regarding ART use.

*Categories are not mutually exclusive

**Figure 6: Resources through which participants learned about ART, expressed as a percentage of the sample total**

4.5.2 Selecting an Egg Donor

In understanding considerations that are important to men when selecting an egg donor, mean values of score from ‘Not Important at All’ (1) to ‘Very Important’ (5) were evaluated. In choosing an egg donor, characteristics that participants stated were of highest importance to consider included medical history, physical attributes, personality and temperament, ethnicity/racial background, and education (see Table 3). Of the 4 participants who used family members as their egg donors, two indicated the importance of genetic relatedness of children to both intended parents within the qualitative comments.
Also in the qualitative comments, participants remarked on the unique experience of selecting their intended child’s biogenetic material:

“I want to say it was really strange to “shop” for an egg donor. Looking through profiles felt really strange, judging women online on their characteristics made me uncomfortable” [10349836620].

“We worked with an agency. It felt weirdly like picking from a catalogue. Didn’t have much guidance on whether to go with known or anonymous, so we were as open-minded as possible, wanting the donor to be comfortable. Turns out she was doing the same thing” [10349363787].

“Very ambiguous and uncertain. Extremely limited information for such a monumental decision. We sought to also look for a profile to be proud of which one day we would show our child. We didn’t want them to be ashamed of the mother or feel we picked poorly, even though we had extremely limited info” [10357029599].

Table 3: Criteria considered when choosing an egg donor ranked in order of importance based on mean values from a 5-Point Likert Scale from ‘Not Important at All’ (1) to ‘Very Important’ (5) (n=71)*

<table>
<thead>
<tr>
<th>Criteria for choosing an Egg Donor</th>
<th>Mean Values based on a Five Point Likert Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical and health history</td>
<td>Mean = 4.76±0.67</td>
</tr>
<tr>
<td>Physical attributes</td>
<td>Mean = 4.04±0.89</td>
</tr>
<tr>
<td>Personality and temperament</td>
<td>Mean = 3.99±0.99</td>
</tr>
<tr>
<td>Ethnicity/racial background</td>
<td>Mean = 3.82±1.17</td>
</tr>
<tr>
<td>Education</td>
<td>Mean = 3.66±0.96</td>
</tr>
<tr>
<td>Level of disclosure</td>
<td>Mean = 3.41±1.42</td>
</tr>
<tr>
<td>Hobbies and interests</td>
<td>Mean = 3.14±1.00</td>
</tr>
<tr>
<td>Life accomplishments</td>
<td>Mean = 3.04±1.05</td>
</tr>
<tr>
<td>Previous donation experience</td>
<td>Mean = 3.00±1.43</td>
</tr>
<tr>
<td>Occupation</td>
<td>Mean = 2.82±0.99</td>
</tr>
</tbody>
</table>

*One participant who answered “Not applicable” (0), was excluded from analysis

4.5.3 Embryo Creation

Of the 63 participants who were in a relationship at the time of pursuing ART, 45 (71.4%) intended to use or had used both theirs and their partners’ sperm to fertilize eggs, as opposed to
18 participants (28.6%) who chose sperm from one partner or the other. Of the 45 cases where both partners’ sperm was used to fertilize eggs, it is notable that 6 participants (13.3%) intended to transfer embryos from each partner to the surrogate, 25 participants (55.6%) chose to transfer embryos created from one partner’s sperm or the other, and 1 participant (2.2%) allowed the clinic to decide which embryo was of the highest quality to transfer. Of the 25 participants who stated that they were intending to transfer or had initially transferred embryos from themselves (regardless of whether embryos were created using sperm from both partners or not), 15 stated that if they were to undergo another ART journey, they would transfer embryos created from their partner’s sperm.

In understanding considerations that are important when choosing which partner will contribute to the biogenetic paternity of the child, mean values of 5-Point Likert Scale from ‘Not Important at All’ (1) to ‘Very Important’ (5) were evaluated. Considerations that were of the highest importance included which partner had the greater desire to be the biological father, practical or logistical planning considerations, and equal opportunity for fatherhood (see Table 4). It is important to note that the highest mean score for these considerations was 3.04. All four couples who chose a family member as an egg donor chose the non-related partner to contribute sperm when creating embryos. Within the qualitative comments, two participants who had chosen a family member as a donor remarked on the significance of the intended child somehow being related to both parenting partners.

Table 4: Criteria considered when choosing contributions to biogenetic paternity ranked in order of importance based on mean values from a 5-Point Likert Scale from ‘Not Important at All’ (1) to ‘Very Important’ (5) (n=25)²

<table>
<thead>
<tr>
<th>Criteria for choosing which partner will contribute to child’s biogenetic paternity</th>
<th>Mean Values based on a Five Point Likert Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which partner has/had greater desire to be the biological father</td>
<td>Mean = 3.04±1.72</td>
</tr>
<tr>
<td>Practical/logistic planning purposes</td>
<td>Mean = 2.52±1.85</td>
</tr>
<tr>
<td>*Three participants answered ‘Not Applicable’</td>
<td></td>
</tr>
<tr>
<td>Equal opportunity for fatherhood</td>
<td>Mean = 2.28±1.90</td>
</tr>
<tr>
<td>*Four participants answered ‘Not Applicable’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean = 2.17±1.86&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td><em>Four participants answered ‘Not Applicable’</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Medical history</strong></th>
<th>Mean = 1.80±1.38</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family expectation</strong></td>
<td>Mean = 1.72±1.28</td>
</tr>
<tr>
<td><strong>Family receptivity to the relationship</strong></td>
<td>Mean = 1.64±1.35</td>
</tr>
<tr>
<td><strong>Personality and temperament</strong></td>
<td>Mean = 1.56±1.23</td>
</tr>
<tr>
<td><strong>Physical attributes</strong></td>
<td>Mean = 1.48±1.12</td>
</tr>
<tr>
<td><strong>Ethnicity/racial background</strong></td>
<td>Mean = 1.04±0.84</td>
</tr>
<tr>
<td><strong>Preexisting children</strong></td>
<td>Mean = 0.96±1.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean = 2.17±1.86&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td><em>Four participants answered ‘Not Applicable’</em></td>
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</tr>
<tr>
<td><strong>Ethnicity/racial background</strong></td>
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</tr>
<tr>
<td><strong>Preexisting children</strong></td>
<td>Mean = 0.96±1.02</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dataset was stratified based on participants who chose to fertilize eggs with sperm from both partners, and then went on to choose embryos created from one partner or the other; <sup>b</sup> One participant did not answer this question

### 4.5.4 Embryo Screening

Three quarters of participants (n=54) intended to use or had used PGT-A on embryos, 5 participants (7.0%) were undecided, and 2 participants (2.8%) stated that PGT-A was not available or not discussed with them at the time of pursuing ART. In understanding considerations regarding the decision to use or not use PGT-A, mean values scored from a 5-Point Likert Scale from ‘Not Important at All’ (1) to ‘Very Important’ (5) were evaluated. The decreased risk of genetic abnormalities (mean = 4.6), decreased risk of miscarriage (mean = 4.52), and increased chance of reproductive success (mean = 4.51) were all valued as important considerations in the decision to use or not use PGT-A. After collapsing this scale from a 5-Point Likert Scale to a 3-Point Likert Scale from ‘Unimportant’ (1) to ‘Important’ (3), only 20.6% (n=12) of participants felt that cost was an important consideration in the decision to use PGT-A. An unpaired samples T-test comparing how important cost was rated as a criteria between those who chose to use PGT-A (N=47; M = 2.37±1.29) against those who chose not to use PGT-A.
(N=7; M = 3.29±1.89) showed no significant difference in how important cost was considered (t (6.87) = 1.24; P = 0.25). Participants across various income distributions made the decision to use PGT-A on embryos (See Figure 7).

![Figure 7: Proportion of participants who made the decision to use or not to use PGT-A, stratified by income distribution](image)

*Participants who did not have the option to use PGT-A or were undecided were excluded

4.5.5 Selecting a Surrogate

A large proportion of participants who had found a surrogate ‘strongly agreed’ with their surrogates on topics such as: the type of relationship to be had with the surrogate; the type of relationship to be had between the surrogate and the intended child; the caregiver(s) of prenatal care (obstetrician, midwife, nurse practitioner); the birthing process; and termination of pregnancy in the event of fetal anomalies (see Table 5). The following qualitative comment may highlight the importance of securing a suitable surrogate:

“[I feel] a sense of lack of control over the pregnancy, as the need to “let go” and allow another person to carry the child and make decisions in both theirs and the child’s best interest on a daily basis” [10349994744].
Table 5: Level of agreement surrogates and intended parents on various topics of interest ranked on a 5-Point Likert Scale from ‘Strongly Disagree’ (1) to ‘Strongly Agree’ (5)\(^a\)

<table>
<thead>
<tr>
<th>Topic of Interest</th>
<th>Level of Agreement with Surrogate</th>
<th>Not Applicable</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expectation for relationship between surrogate and IPs</td>
<td>1 (1.6%)</td>
<td>0 (0.0%)</td>
<td>1 (1.6%)</td>
<td>2 (3.3%)</td>
<td>19 (31.1%)</td>
<td>38 (62.3%)</td>
<td>61 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>Expectation for relationship between surrogate and intended child</td>
<td>3 (4.9%)</td>
<td>0 (0.0%)</td>
<td>1 (1.6%)</td>
<td>2 (3.3%)</td>
<td>17 (27.9%)</td>
<td>38 (62.3%)</td>
<td>61 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>Caregiver(s) for prenatal care (obstetrician, midwife, nurse practitioner)</td>
<td>9 (14.8%)</td>
<td>1 (1.6%)</td>
<td>2 (3.3%)</td>
<td>5 (8.2%)</td>
<td>19 (31.1%)</td>
<td>24 (39.3%)</td>
<td>61 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>The birthing process</td>
<td>4 (6.6%)</td>
<td>2 (3.3%)</td>
<td>1 (1.6%)</td>
<td>7 (11.5%)</td>
<td>19 (31.1%)</td>
<td>30 (49.2%)</td>
<td>61 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>Termination in the event of fetal anomalies</td>
<td>1 (1.6%)</td>
<td>0 (0.0%)</td>
<td>2 (3.3%)</td>
<td>7 (11.5%)</td>
<td>15 (24.6%)</td>
<td>36 (59.0%)</td>
<td>61 (100.0%)</td>
</tr>
</tbody>
</table>

\(^a\)Not applicable (0), was also included on this scale.
5 Discussion

This study is one of the first to focus on the experiences and decision-making factors for SSMCs and SM pursuing ART in Canada. When discussing the results, it is important to remain mindful of the two theoretical frameworks that were used when developing this study – Meyer’s Minority Stress Model and Engel’s Biopsychosocial Model. The study was successful in answering the research questions posed, and in meeting objectives the importance of examining the minority experience and the various psychosocial contributors to the experience of reproductive healthcare services were brought to the forefront of this analysis. The significance of results will be discussed in relation to the aforementioned theoretical frameworks and their implications within the scope of medical science and previous existing literature.

5.1.1 Demographic Trends

Based on the demographic data collected within this sample population, a unique representation of men who access ART without a female partner is apparent. These men are likely to be in their thirties and in a committed same-sex partnership, well-educated, with a high income, and a supportive social network. The median individual income within this sample population was $79,500. This is significantly higher than the average individual income reported by men in the 2016 Canadian census, which was $52,600 (Statistics Canada, 2016). Furthermore, most men reported that they had support for their decision to pursue parenthood by family, friends, or both groups. The findings of this study are consistent with past literature showing that male IPs pursuing ART are likely to be in a partnered relationship, are financially stable, well educated, and have supportive families (Bergman et al., 2010; Blake et al., 2016; Greenfeld & Seli, 2011). Such sociological factors of interest are important to keep in mind when providing healthcare services.

It is noteworthy that the majority of men in this sample were white. There may be several reasons for this demographic trend within the sample data. As this study was administered using a North American based English survey, it may have been more readily accessed by white individuals. Based on our study sample, it may be the case that more white men openly identify as being gay. In accordance with this, a study of characteristics of the LGBTQ+ conducted at
UCLA found that 58% of the LGBTQ+ population in the United States was white (The Williams Institute, UCLA School of Law, 2019). Another reason for this finding may be that more white men access ART, as opposed to minority groups. With this, racialized income disparities that exist in society may result in white men being more likely to afford the use of ART. Based on data from the 2016 Canadian census, men who were visual minorities earned only 76 cents for every dollar earned by a white man (Statistics Canada, 2016). Furthermore, in examining various cultural sensitivities within the ART pathway, research has shown that minority groups report greater difficulties finding egg donors that match their ethnic backgrounds due to the shortage of donors from minority groups, thus hindering them from accessing third-party reproductive service through ART to have children (Dixon et al., 2019). It is notable that past literature has also revealed that male IPs accessing ART are predominantly white (Bergman et al., 2010; Blake et al., 2016).

Overall, it appears that SSMCs and SM accessing ART in Canada have a high socioeconomic status, as well as high social capital. Given these characteristics, it is important to consider whether this relatively homogenous sample is truly representative of the men accessing ART in Canada, or if SSMCs and SM who have different demographic profiles are missing in this sample. It may be the case that SSMCs and SM who have a lower socioeconomic status, or lack social support for pursuing parenthood, may also be accessing ART and have a different experience of the reproductive healthcare system. If the results of this study are in fact representative of the demographic profiles of SSMCs and SM accessing ART in Canada, it may be valuable to consider if there are men with fewer financial and social resources who desire using ART to pursue parenthood but are unable to access such services at all. Such sociological factors provide valuable information about who is currently accessing reproductive healthcare in Canada. Consistent with the sample from a recent study by Fantus and Newman (2019), gay men who sought parenthood were from large cities where community support groups and clinics were easily accessible, were highly educated, and had access to many resources including a high socioeconomic status and a strong support system. The aforementioned study indicated that such demographic backgrounds might influence these men’s decision to pursue parenthood. Similarly, May & Tenzek, (2016) found that as SSMCs, advertising, relationship and financial stability, as well as social support, assisted in the process of seeking third parties when using ART. With regards to the current study, it can be interpreted that for SSMCs and SM, resources such as
having a post-secondary education, a high income, and social support may be facilitators associated with accessing ART to have children. Going forward it may be valuable to consider how reproductive healthcare can be more accessible to all societal groups.

The data from the study sample have shown more SSMCs and SM are accessing ART in Canada in recent years. The data on sample participants’ access of ART is consistent with literature demonstrating an increase in men without female partners pursuing parenthood through ART (Grover et al., 2013). In noting this trend, it is important to consider various factors related to the social and political context in Canada that may be contributing to the increased use of reproductive healthcare services. Greater awareness for alternative family structures and targeting of negative stigmas toward the LGBTQ+ community may have resulted in a more inclusive society that fosters greater acceptance of the pursuit of parenthood by men. Notably, more countries are legally recognizing same-sex marriage and have passed less restrictive parenting laws. Increased visibility of SSMCs and SM as parents may further influence other men without a female partner to pursue parenthood (Carroll, 2018). Additionally, there may be changes to public funding or insurance policies that have allowed greater accessibility of ART. For example, through the Fertility Program in Ontario, IPs can receive one OHIP funded cycle provided that their egg donor and surrogate are both from Ontario, have a valid OHIP card, and are under age 43 (Ontario Fertility, n.d.). A Canadian single site study found that overall, there was a gradual increase in the number of ART cycles being accessed over the years by IPs across all demographic groups. The trend of increased use of ART across all demographics has also been reported by 2018 CARTR-BORN data (Better Outcomes Registry & Network Ontario, 2018; Dar et al., 2014). Thus, this increasing trend is not specific to SSMCs and SM. Generally, it is promising to see that ART may be becoming increasingly accessible over time.

Moreover, men are accessing information regarding pursuit of third-party reproduction via ART through a variety of resources and platforms. Based on the data collected, it is apparent that men are in fact aware of the reproductive options available to them and can become informed about such options through many readily accessible methods such as Internet searches or social media platforms. Our research also shows that approximately a third of sample participants attended conferences, seminars, or workshops dedicated to men accessing ART to gain information on third-party reproduction. Specifically, the Men Having Babies Conference was noted by many
participants. Men Having Babies is a non-profit organization that hosts around ten conferences a year in various large cities such as Barcelona, Paris, Tel Aviv, Los Angeles, San Francisco, Chicago, Miami, Brussels, and Toronto (Men Having Babies, n.d.). Such international scale events allow men around the world to access critical information that can assist in planning their ART journey. In Toronto specifically, the Sherbourne Health Centre has a program called the LGBTQ Parenting Network and works to hold seminars and workshops for members of the LGBTQ+ community who are pursuing parenthood or are already parents (Sherbourne Health Centre, n.d.). Organizations such as the aforementioned do great work to promote awareness for SSMCs and SM pursuing parenthood, as well as help to build a supportive community for those who are parents. This demonstrates that such events do benefit SSMC and single male IPs. These events may serve to give men more information about the ART process, and actively connect IPs with healthcare providers and third-party agencies involved in ART. Such data is representative of sociological factors that can impact access to reproductive healthcare services. Therefore, conferences, seminars, and workshops specific to the experience of SSMCs and SM pursuing parenthood may serve to create public awareness of men’s reproductive options, promote the visibility of alternative family structures, and increase accessibility of ART services; working to positively influence SSMCs and SMs family building pursuits.

5.1.2 Overall ART Experience

In considering the first objective of this study, which was to evaluate how men perceive the overall experience of using ART in Canada to have children and what proportion of men have a positive experience, it was determined that around 80% of men had a positive experience. Positive experiences of egg donation and surrogacy specifically were also reported by the majority. The second objective of the study was to understand what demographic, psychological, and social factors influence men’s overall experience of using ART. Our analysis showed that demographic factors such as age, relationship status, sexual orientation, ethnicity, residency status, province of residence, description of residence, education level, and income level were not significantly associated with having a positive overall experience of the ART process. While it is promising to see that demographic differences did not lead to dissimilar outcomes related to satisfaction with this healthcare service, it is important to be mindful of the small sample size of
this analysis. It may be the case that results from a larger participant pool could yield different outcomes.

When analyzing other explanatory variables of interest, no significant association was found between overall ART experience and level of involvement in the LGBTQ+ community, knowing other men with children via ART in one’s social network, attendance of conferences, seminars, and workshops dedicated to men pursuing parenthood, the method of securing an egg donor, the method of securing a surrogate, the amount of time needed to find a surrogate, and the level of emotional connection to one’s surrogate. For partnered participants, the level of agreement with one’s partner on the egg donor chosen was not significantly associated with overall ART experience. It is important to note the lack of variability in answers pertaining to such psychological and sociological factors of interest. This lack of variability may limit the validity of these results, and therefore further analysis must be conducted. Finally, statistical analysis did not reveal a significant association between completion of the ART pathway and ART experience. This was an interesting finding, as those who were still in the process of using ART to have children did not have a significantly different ART experience than those participants who had completed the process with a child at the end of the process. Notably, the p value for this Chi-squared test was approaching significance. Thus, it may be the case that if this analysis was reconducted with a larger sample size, that a significant association between the completion of the ART pathway and overall ART experience may be revealed.

Our study did find that stigma was significantly associated with overall ART experience. Although they represented a small proportion of the sample, those participants who had experienced stigma were less likely to have a positive experience of ART. Thus, stigma may be a barrier to having a positive family building experience when using ART. The minority stress model explains that certain stressors faced by minority groups are unique and are not experienced by individuals who are members of the majority. Such stressors are a result of the sociocultural context in which a person exists, and are apparent in social processes, institutional practices, and organizational structure (Meyer, 2003). It is important to be mindful of how men may be treated within the reproductive healthcare system and potential stigmas that may exist. Small changes in practice such as ensuring gender-neutral language on forms, and throughout treatment may lend to a more inclusive healthcare experience for all. Heterosexual couples
pursuing third-party reproduction may also have their own experiences of stigma related to infertility. However, it may not be reasonable to compare the actualized or anticipated experiences of stigma that SSMCs and SM face with that of heterosexual couples, as minority groups face stressors throughout interactions with healthcare services and society that are unique in their own way. It may be interesting to consider whether those men who experience a great deal of minority stress choose not to pursue ART to have a child, potentially explaining why they are missing from the study sample. As seen in the results, the experience of stigma is associated with the overall ART experience and thus, experiencing a great deal of stigma due to one’s parenthood desire may deter individuals from accessing ART completely. Through acknowledging the unique manifestations of such discrimination, recommendations can be made to address these stressors and minimize stigma faced by SSMCs and SM either throughout the ART pathway, or after having a child.

The existing literature on stigma experienced by SSMC and single male parents is primarily focused on discriminatory behaviour targeted towards men actively parenting, as opposed to those preparing for parenthood. For example, a study by Mitchell & Green (2007) provided in depth explanation of unintended or intended discriminatory comments that same-sex coupled parents received from outsiders (Mitchell & Green, 2007). Such comments may refer to the biogenetic background of the child or assume an invisible maternal figure, causing men to feel invalidated as fathers and caregivers. Thus, same-sex coupled men often feel the need to justify their parenting abilities (Carneiro, Tasker, Salinas-Quiroz, Leal, & Costa, 2017). It is interesting to note that many of the participants in this sample had yet to have a child through the ART pathway. Participants may have only shared their plans to pursue parenthood with those in their social networks. As previous research has shown, in general male IPs pursuing ART are likely to have many resources and a supportive social network (Bergman et al., 2010; Blake et al., 2016; Greenfeld & Seli, 2011). As the majority of men in this sample had support from family and friends in pursuing ART, it may be unlikely they would experience stigma from their immediate social circles. This potentially explains the low number of participants who reported experiencing stigma. This illustrates the need for more longitudinal work in this area of study. Further studies are needed to examine if and why there is a gap in such experiences of stigma, and if the experience of stigma changes before and after having a child.
With those who completed ART spending approximately 2.3 years and the majority expending $100,000 or more on the process, participants dedicated a remarkable amount of time and resources to pursuing ART. Based on the study findings, this is an indication that barriers to accessing ART include cost, time commitment, and difficulties securing third parties when accessing ART. Previous studies have also noted that men pursuing ART may discuss parenthood at great lengths prior to seeking out ART, and plan for parenthood up to two years in advance of the process (Greenfeld & Seli, 2011; Tuazon-McCheyne, 2010). Generally, gay couples experience greater challenges when planning to have children when compared to lesbian couples simply due to the biological realities of needing an egg donor and surrogate in order to reproduce (Carneiro et al., 2017). Based on the data collected, this study was the first to determine that any events that resulted in IPs experiencing loss or an unexpected extension of the ART process were held in negative regard. Specifically, this was seen in instances of difficulties experienced with egg donors and surrogates. For SSMCs and SM in particular, these IPs may not expect delays as they may be less familiar with the process of trying to conceive, thus not anticipate third parties having a difficult time donating or achieving a pregnancy. With the significant commitment of time and resources that accompany the preparation for and process of ART, it may be difficult for IPs when the ART process does not go as smoothly as envisioned.

Within qualitative comments, participants noted the significance of selecting a third-party that would contribute to the biogenetic maternity of their intended child. Such comments also illustrated how participants viewed the experience of selecting an egg donor. Consistent with previous literature, it seems that selecting a third-party to provide genetic material for one’s intended child can be viewed as a distant and depersonalized experience (Mamo, 2018). Many factors were considered in this step of the process. Accordingly, results indicated a statistically significant association between the overall experience of ART and working with multiple egg donors. Thus, it is understandable to see how unexpected obstacles such as needing to select multiple egg donors prior to being able to create embryos would lead to a lower likelihood of a positive ART experience. Working with multiple donors may significantly increase the length of the ART process, create additional financial costs, as well as lead to IPs potentially losing their surrogate due to logistical complications. The most common reason for working with multiple egg donors was donor withdrawal due to medical reasons.
With regards to surrogacy, participants indicated that they spent a significant portion of a year searching for a surrogate, and that the majority felt connected to the surrogate they had chosen. Consistent with our results, a study by Blake et al., (2016) found that overall, gay men pursuing ART had positive relationships with their surrogates and were content with the level of contact that was maintained with them. A few of the participants within the sample indicated that their surrogate experienced difficulties achieving pregnancy, or pregnancy loss. Within qualitative comments, these participants elaborated on the struggles that were associated with such loss. Speaking from a logistical point of view, some participants noted that losing embryos that were created was troubling for them, especially if they had received funding for their cycles such as those participants who were IPs from Ontario. Moreover, pregnancy loss may be associated with a number of complex psychological issues including grief and trauma, both for IPs and surrogates. For men who have experienced pregnancy loss, research has shown that they may feel a sense of loss regarding their anticipated father role. Men may also be less likely to externalize their feelings of grief (Due, Chiarolli, & Riggs, 2017). If surrogates choose to withdraw after experiencing such medical concerns, this may be difficult for IPs, especially if they have already developed a significant bond with this individual. Not only do such matters lead to unexpected expenses and delays within the ART process, but they may trigger intense emotional responses from all parties involved that must be acknowledged by healthcare providers.

Overall, unexpected setbacks experienced throughout the ART pathway provide an important topic for psychological counsellors. For SSMC and single male IPs, ART provides a pathway to parenthood that may have been previously thought of as unattainable (Dar et al., 2014). Thus, unexpected setbacks may lead to negative emotions that IPs do not expect and are unprepared for. It is difficult to determine how likely such setbacks are to occur, and ultimately no one person is at fault for such obstacles. This loss of control and lack of predictability within the ART process may be difficult for IPs and third parties alike. Consistent with the findings of a study by Yee, Hemalal, et al., (2019), our study suggests that counsellors may be able to act as a mediator between third parties and IPs through facilitating communication, managing expectations, and assisting to resolve potential conflicts. Furthermore, counsellors can give IPs an in-depth understanding of treatment demands that they may have previously been unfamiliar with (Greenfeld & Seli, 2011). It could also be helpful for counsellors to potentially...
communicate to IPs as to why third parties may no longer be available to participate in their ART journey. Counsellors may also be able to provide those using ART with ways to cope when the process does not go according to plan, assess whether they have an adequate support system, and provide recommendations for how to approach ART with a renewed mindset when needing to find new egg donors or surrogates. As ART creates new understandings of family, counselling is important in order to address issues that may arise throughout the process.

The large majority of both Canadian and international IPs used an agency to connect with third parties. Agencies provided IPs with options for egg donors and surrogates, who would otherwise have to be found through social networking (family, friends, acquaintances, Internet search). Agencies may have been particularly helpful for international IPs seeking third parties in Canada. A study by May & Tenzek, (2016) found that for gay male IPs, noting that they were being professionally represented if choosing to seek a surrogate online, reduced potential risks related to seeking a third-party and worked to quell uncertainties regarding the formation of online relationships. Qualitative comments illustrated that third-party agencies were a source of advice, knowledge, and support when seeking third parties. A study by Yee et al. (2019) that examined the experiences of surrogates during the ART pathway found that agencies were a source of support for women and provided them with access to other past and current surrogates; connecting them with a supportive community (Yee, Hemalal, et al., 2019). Similarly, for SSMC and single male IPs, agencies may be a platform to create a community with other men who are participating in ART. Additionally, agencies provided IPs with a professional service allowing them to search for egg donors and surrogates through already existent organizational structures, that would be absent if they sought third parties independently.

Within the qualitative comments, participants elaborated greatly on the experiences of working with private agencies. Participants stated that it was difficult to access third parties without the use of a private agency. This was consistent with previous literature noting that for SSMCs and SM who are interested in raising children, it may be difficult to find a reproductive relationship without the use of professional services (Dempsey, 2010). Studies assessing the experiences of third parties working with agencies in other countries, note that agencies may provide professional services pertaining to psychological support, mediating between IPs and third parties, making travel arrangements, and managing and tracking expenses throughout the ART
process (Hohman & Hagan, 2001; C. B. Kleinpeter, Boyer, & Kinney, 2006; C. H. Kleinpeter & Hohman, 2000; van den Akker, 1998). Prior studies have found that for surrogates, working with an agency may increase the likelihood of having a positive ART experience. A recent study by Yee, Goodman, et al., (2019), found no differences in satisfaction between surrogates in Canada who worked with agencies and those who did not. In our study, within qualitative comments IPs reported mixed experiences working with third-party agencies. With regards to the discrepancy between those who had a positive experience working with third-party agencies compared to those who had a negative experience, there may be several possible explanations for this. It may be the case that different participants had varied expectations from the third-party agencies, leading to their expectations either being met or being unmet. Additionally, different agencies may have distinguishing ways of conducting business. With this, they may communicate with IPs and third parties in many different ways, have policies regarding what information they convey to service users, and assorted ways of accessing services. Specific concerns with regards to agencies that were noted in qualitative comments included communication issues between ART service providers, costs associated with the use of agencies, and feeling a lack of control as certain agencies were viewed as inadequate in being transparent and accountable to IPs. Existing literature on the use of third-party agencies for ART in Canada are greatly lacking. Consistent with recommendations made in the Yee, Goodman, et al., (2019) study, we also note the need for more focused research evaluating the services provided by third-party agencies in Canada, in order to determine what role such organizations play in the ART pathway, and how their role can be enhanced.

This area of the ART process has room for improvement. In Canada the AHRA does not provide guidelines regarding donor or surrogate selection. Consequently, health practitioners must be aware of the provincial regulations involved with regards to screening of third parties (Havelock et al., 2016). There may be discrepancies between how third-party agencies generate pools of potential third parties, and how clinics are required to screen donors and surrogates. This may lead to unrealistic expectations and confusion for IPs, which was reflected in study findings. Thus, it may be extrapolated from study data that going forward, government officials, healthcare policy makers, and private agencies should work together to bridge such gaps. Improved coordination of policy and procedure would ensure better communication between service providers, and with service users. Such efforts would increase the congruence of
expectations between various groups, and possibly lend to a more satisfactory experience for those pursuing ART to become parents. In October 2018, Health Canada stated the intention to make amendments to AHRA regulations, as well as the administration and enforcement of them (Canada Gazette, 2018b, 2018a). It is the hope that such amendments will be informed by the experiences of IPs, professionals in the field, as well as scholarly literature such as this work. Amending the AHRA may add legal clarity to third-party reproduction, make connecting with third parties more accessible, and reduce complications involved when working with third-party agencies; potentially eliminating a barrier associated with ART use in Canada that was observed from study results.

5.1.3 Decision Making throughout the ART Pathway

The final objective of the study was to determine what decisions are commonly made by men within the ART pathway. When first analyzing the decision to pursue parenthood, the majority of men within this sample reported that having a child felt like a natural next step in their life and that they had always known they wanted to have a child. These results provide some insights on men’s views on parenthood. A recent paper by Perrin, Hurley, Mattern, Flavin, & Pinderhughes, (2019) notes that the increased visibility of gay fathers has worked to challenge conventional beliefs that being a member of the LGBTQ+ community is mutually exclusive with being a parent. From our data, it may be extrapolated that greater numbers of SSMCs and SM consider fatherhood to be a realistic aspiration. A significant proportion of men in the sample stated that they had not faced any form of social stigma regarding their desire to have children via ART. This finding may reflect better awareness for alternative family structures, promotion of an LGBTQ+ inclusive culture, and improvements in public acceptance for men parenting without a female partner. Contrarily, this may reflect that men of a privileged status or class who have been more protected from experiences of stigma have greater access to ART. This was an interesting finding, as minority groups often face stressors related to stigma, heteronormative cultural ideologies, and internalized homophobia, that can result in negative health outcomes, and ultimately impact access to healthcare services (Meyer, 2003). A systematic review by Carneiro, Tasker, Salinas-Quiroz, Leal, & Costa, (2017), found that societal stigmas and experiences of discrimination might impact men’s parenting aspirations and lead to lower likelihoods of parenting desire. Therefore, men who experience greater levels of discrimination may be less
likely to decide to pursue parenthood. Research has shown that for gay fathers, a multiminority status such as being a single gay father, or a gay father of colour, may lead to increased marginalization from the community and thus greater experiences of stigma (Carroll, 2018). As participants in our sample were likely to be in relationships and predominantly white, this may impact the findings on the experience of stigma. More research is necessary in order to determine how psychological factors such as stigma impact access to ART.

Once SSMCs and SM make the decision to pursue parenthood via ART, several other decisions must follow. The selection of third parties and the creation of embryos were areas of ART that required numerous complex decisions to be made by IPs. An objective of the current study was to understand what factors influence men’s decisions within the process of using ART to have children. The results obtained from this study provided insight on what SSMCs and SM pursuing ART in Canada consider important during the decision making process. Such research may inform counsellors and healthcare practitioners, in order to guide IPs on how to approach the many decisions that are involved in ART.

With respect to egg donor selection, roughly 50% of sample participants chose egg donors whose identities were already known to them, or would become known to them after their child turned 18. This is consistent with literature that shows a decreasing trend of selecting anonymous egg donors (Blake et al., 2016; Mitchell & Green, 2007). Reasons as to why interests in choosing an anonymous egg donor are declining may be that the increased awareness for LGBTQ+ parenting and a decrease in discriminatory attitudes towards these individuals has reduced risks associated with being known by the egg donor. Additionally, in the Internet age, it may be difficult to truly have an anonymous donor. In comparing these results to those of other demographic groups, a study by Greenfeld & Klock (2004), found that in a sample of women who had used egg donation in order to achieve pregnancy, a greater proportion of women selected anonymous donors, as opposed to known donors. When selecting an egg donor, participants in this study prioritized donor medical history, physical attributes, personality, ethnicity, and education. For those participants who choose a family member to donate eggs, the genetic relatedness of the intended child to both parenting partners may be a significant consideration in this choice. Overall, results are relatively consistent with previous literature noting that donor characteristics important to male IPs include health, personality, height, attractiveness, intelligence, and
education (Berkowitz & Marsiglio, 2007; Greenfeld, 2015; Greenfeld & Seli, 2011; Smietana et al., 2014). Intuitively, this suggests that criteria involving traits that are more heritable are considered to be of greater importance when choosing a donor (i.e. health, appearance, character traits), whereas traits that can be developed over the life course (i.e. hobbies and life accomplishments) are considered less important.

It is interesting that egg donor disclosure preference, as well as previous egg donor experience, were scored as closer to neutral on the Likert Scale of “Importance.” A study by Blake et al., (2016) found that labeling of egg donors as anonymous or open-identity may be problematic or confusing as IPs may actually be able to have contact with “anonymous” donors. In choosing an anonymous donor, this may simplify the ART process in that there is less risk involved for both IPs and donors. However, in the future IPs and their children may seek to know more information about the donor either due to curiosity or for medical or other reasons, and be unable to. In choosing an open-identity donor, IPs can obtain as much information as they would like regarding their donor and have the opportunity to have an ongoing relationship with them, which may or may not be desired. Relationships with egg donors may be difficult to navigate, especially if they are donors with whom one has a previous relationship. As SSMCs and SM must tell their child the nature of their conception, having access to information about their egg donor may be of value. As the choice of donor disclosure is one that can impact both IPs and their future child in the long-term, it is striking that such a criterion that was not considered of greater importance.

In selecting a surrogate, participants were likely to be in agreement with their surrogate on a variety of value and lifestyle related topics. Yee, Hemalal, et al., (2019) found that surrogates who connected with IPs with similar mindsets were likely to have harmonious relationships and positive ART journeys. The aforementioned study also elucidated that those surrogates who reported having conflicts with IPs often noted inconsistent expectations and values. Although the current study is based on the perspective of IPs as opposed to surrogates, this may exemplify the importance in choosing a surrogate with a similar communication style, expectation for pregnancy management, and hopes for a relationship with the IPs. Agencies may play a role in connecting IPs with surrogates who are like-minded, and may act as a mediator in the development of this relationship. Past literature has elaborated on the importance of
compatibility between IPs and surrogates in a successful and satisfying ART journey, and the significance of prioritizing surrogates interpersonal characteristics in the process of selection (Dempsey, 2015; D. Murphy, 2015; Smietana et al., 2014; Yee, Hemalal, et al., 2019). Accordingly, many participants in this study noted that the most positive aspect of ART was surrogacy specifically. As allowing a third-party to gestate one’s child requires an extreme relinquishment of control, this may highlight the importance of choosing a surrogate who shares similar values to oneself.

With regards to embryo creation, the study examined how those in coupled relationships selected the biogenetic paternity of their intended child. Although various considerations were scored, the highest scored consideration was participants’ desire to be the biological father (mean = 3.0±1.7), and this score was considered to be neutral on the 5-point Likert Scale. Thus, our data suggest that men were relatively neutral in how important they deemed various considerations when selecting which partner would contribute genetic material to creating embryos. This result was striking, as previous work has found that the choice to pursue third-party reproduction as a path to parenthood is often due to a desire for biological parenthood (Petersen, 2016). A study by Dempsey (2015) noted that SSMCs pursuing parenthood had a desire to know which partner contributed to their child’s genetic heritage, thus implying that biogenetic paternity is an important consideration.

A previous study by Greenfeld & Seli (2011), found that when choosing which partner would provide sperm to create embryos, important considerations included partners’ age, desire to be a biological father, medical history, and if either partner had pre-existing children (Greenfeld & Seli, 2011). A limiting factor in the present analysis may be that only one participant in the sample had a pre-existing child. Furthermore, the majority of participants in this study were of a similar age range, consequently, age may not have been an important factor for this sample. It is important to note that roughly three quarters of coupled participants in our sample created embryos using genetic material from both partners. This finding was consistent with a single site Canadian study by Grover et al., (2013), that found that the majority of SSMCs chose to use both partners’ genetic material to fertilize eggs. Of the 25 participants in our study who were intending to transfer or had initially transferred embryos from themselves, 15 stated that if they were to undergo another ART journey, they would transfer embryos created from their partner’s
sperm. This suggests that these participants might intend to complete multiple ART journeys that may result in children who are genetically related to both IPs. This may also serve as an explanation as to why various criteria with regards to selecting biogenetic paternity were scored as closer to neutral in terms of importance.

Participants in this sample showed favourable attitudes towards the use of PGT-A to screen embryos, with three quarters of the sample choosing to use or intending to use this screening technique. Participants across a range of income distributions were inclined towards using PGT-A, and cost was not considered to be an important criterion when deciding whether or not to use PGT-A. As the participants in this sample were of a relatively high socioeconomic status, this may suggest that the cost of PGT-A specifically is not a significant consideration amongst other costs associated with ART. Furthermore, research considerations have been posed with regards to whether PGT-A results in an overall cost savings per live birth (Robins & McQueen, 2018). As PGT-A can detect chromosomal aneuploidies that can influence a poor pregnancy prognosis, the use of PGT-A in order to select embryos of higher quality may lead to an increased occurrence of live birth (El-Toukhy & Braude, 2013). Thus, the cost of PGT-A may be viewed as a worthwhile expenditure compared to what might be spent if having to repeat the use of ART, after an unsuccessful cycle. As participants are using the genetic material of a third-party with whom they may not have a prior relationship to create embryos, it might also be important to them to use PGT-A in order to ensure the genetic quality of embryos. Based on CARTR-BORN data presented in 2018 it appears that in general, there has been an increased use of PGT-A in ART cycles used by all demographic groups (Better Outcomes Registry & Network Ontario, 2018). Overall, PGT-A may serve as an effective way for IPs to feel more in control during the ART process.

Of those individuals who had created embryos, 13% of coupled participants transferred embryos created from both partners to the surrogate’s uterus, thus undertaking a double embryo transfer. With the reproductive healthcare field moving towards single embryo transfers and the growing literature discussing the medical risks associated with multiple pregnancies, IPs who are hoping to conduct a double embryo transfer will have to make a decision on which partners’ embryo to transfer. One strategy that has been discussed in the literature with regards to choosing which partners’ embryos to transfer includes turn taking, where one partner contributed genetic material
for the first pregnancy attempt, and the other partner for the next pregnancy attempt (D. A. Murphy, 2013). As participants in this sample were of high socioeconomic status, the costs associated with more than one ART journey may not hinder SSMCs from pursuing a sibling ART journey for another child. Some individuals may not desire to know which partner’s embryos were used to induce a pregnancy until a later time (Blake et al., 2016). Of the partnered participants in this sample, one indicated that they allowed the clinic to decide which partner’s embryos were of higher quality to transfer to the surrogate’s uterus. Although it was not common in the current study, it is possible that this strategy will be more frequently employed in coming years. It will be interesting to see if a more detailed picture of the considerations regarding the choice of biogenetic paternity will emerge in the future.

5.1.4 Limitations

The current study has several limitations that are important to acknowledge. The survey is cross-sectional, and therefore introduces possible recall bias and makes it unfeasible to track changes in thinking over time. It is possible that participants’ experiences of ART could change over the course of the ART process. Furthermore, as the population of interest in this study is a hard-to-reach demographic, it was difficult to assess realistic and accurate population parameters when planning this study. When interpreting the results, it is important to be wary of selection bias. Although recruitment strategies aimed to cast a wide net, the convenience sampling methodology introduces possible sampling bias, as participants would be individuals who are already involved in the organizations and groups advertising the study. These individuals may be inherently different from those members of the population of interest who are less involved in community organized or less inclined to participate in research. This can have implications on the representativeness of the study sample. The voluntary nature of the study also creates a sampling bias, as individuals who have a positive experience of ART could potentially be more likely to participate in a survey study about ART. Additionally, as surveys were answered individually, it is not possible to determine if both perspectives of the partnered IPs were reflected in the results, or if there are discrepancies between partner experiences. If both partners within a coupled relationship participated in the study, our data may be reporting on a smaller number of ART journeys than considered in results. Furthermore, within quantitative analyses, data points were considered independent from one another. In the case of data from couples, there may be
significant similarities in partners’ data. Since we were not aware of which participants may have been in coupled relationships with each other, we were not able to account for account for this throughout analyses. Data were collected through a web-based English survey, introducing a potential selection bias for participants who are fluent in English and have high computer literacy. As this study was exploratory, it asked many questions with the hopes of collecting as much information as possible. It is possible that the long length of the survey may also have deterred individuals from participating. The small sample size and lack of variability in the sample contributes to a higher likelihood of error within the sample data. This small sample size may not accurately represent the population of interest. Additionally, the large use of chi-squared tests performed in order to assess the relationship between “Overall Experience” and other variables of interest may inflate Type 1 error within the results. These limitations within the sample limit the statistical power of various analyses conducted in order to obtain results. It is especially important to be mindful of the implications of the sample limitations when interpreting what factors influence ART experience and associations between several explanatory variables of interest and the overall experience of ART. Despite these limitations, the current exploratory study has provided several novel findings on the experiences of SSMCs and SM accessing ART in Canada and provides a valuable foundation for future research conducted in this subject area.

5.1.5 Future Directions

The findings of the current study have provided a great deal of information that may influence further research in this area of work and identify more specific research questions going forward. A variety of important questions emerged from study data. In particular, future areas of research should focus on access to care, the experience of social stigma, the practice of working with third parties, and considerations surrounding biogenetic paternity. The current study remarked on all of these areas of interest, however findings were limited due to various factors such as a small sample size, the lack of a control group, and the inability to detect changes in experience over time. As research on SSMCs and SM pursuing third-party reproduction via ART is a new and developing field of study, it is our hope that healthcare providers and future users of ART will benefit from scientific work that will continue to be conducted in this field.
Firstly, further research should be conducted to understand if SSMCs and SM do in fact feel that aspirations for fatherhood are feasible to achieve. Our results indicated that men without a female partner were able to access information regarding their reproductive options. However, our results are bias in the sense that all participants in our study were actively pursuing, or had pursued ART. Thus, they were already aware that fatherhood was a feasible goal to achieve. Therefore, this is an important question to address with regards to access to ART. Moreover, a significant proportion of participants in our sample had not encountered stigma with regards to their parenting desire or decision to pursue ART. This finding may be influenced by the demographic characteristics of this study sample. Therefore, it would be interesting to examine if the experience of stigma when pursuing ART changes over time, and if participants have a greater experience of or anticipation of stigma before and after having a child. Furthermore, stigma was found to affect the overall experience of using ART; thus experiences of stigma might impact men’s parenting aspirations and lead to a decrease in parenting desire. Thus, it is also important to examine the experiences of SSMCs and SM who want to have children but chose not to, and if this decision is related to minority stress and stigma.

In selecting third parties, it would be interesting to compare SSMCs and SMs donor preferences with those of heterosexual couples, SSFCs, and single females to see how they differ. This study found that connecting with the appropriate third parties in a successful way was associated with a positive experience of ART. Future research should investigate what specific medical reasons contribute to egg donor withdrawal and how donor withdrawal can be reduced. It may be worthwhile to examine if SSMCs and SM experience of delays throughout the ART process due to donor or surrogate withdrawal is significantly different from how other demographic groups might experience such issues. Additionally, it is important to investigate whether SSMCs and SM experience a greater number of delays in the ART process than other demographic groups. It may also be worthwhile to conduct more research on whether counselling regarding issues related to delays in the ART process is beneficial for IPs.

With regards to criteria that are important for couples when considering which partner will contribute to the biogenetic paternity of their intended child, our study found that men were fairly neutral in how they scored various criteria. The relatively homogenous sample within this study limits these findings. Future studies may seek to recruit SSMCs with varied demographic
profiles including individuals who have pre-existing children, or of diverse age groups, who are pursuing ART, in order to determine if a clearer picture of considerations emerges or if important considerations are more clearly defined. It appears that the majority of coupled participants in this sample created embryos with both partner’s genetic material, with the intentions of completing multiple ART journeys. For SSMCs with financial constraints, for whom multiple ART journeys in order to have a sibling child may be unfeasible, it may be important to understand how decisions regarding biogenetic paternity are approached. For couples that allow the clinic to decide which partner’s embryos are of higher quality to transfer, future studies should consider what the implications of this paternity selection strategy are.

Finally, future research should be conducted to follow up with the three objectives posed within this study. Research done with a larger sample size would provide more powerful evidence on men’s experiences of ART, factors effecting this experience, and factors effecting decision making. It may also be beneficial to conduct longitudinal work with regards to the aforementioned objectives, in order to detect changes in experience over time. Such research may work to address expectations that SSMCs and SM may have when pursuing ART, and how reproductive healthcare services may best meet these expectations. Studies of partnered participants aiming to understand their experiences as separate individuals and as a couple may also provide an interesting perspective on SSMCs experiences pursuing ART. Additionally, studies conducted with a control group may be able to better pinpoint factors influencing experience and decision making. Such research would greatly strengthen the novel and exploratory work that was conducted in the present study.

5.1.6 Conclusions

The current study sought out to determine what proportion of men have a positive experience accessing ART in Canada; what demographic, psychological, and social factors influence SSMCs and SMs overall experience of using ART in Canada; and what factors contribute to decision-making considerations in the ART process. The study effectively met objectives, and the resulting data helps to fill previously existent gaps in the literature. Overall, it seems that men who are accessing ART in order to have children are likely to have a positive experience of this reproductive care service. Factors such as working with multiple egg donors and experiencing
stigma had a significant association with the overall experience of ART. However, the
demographic profiles of SSMCs and SM who have accessed ART include men who have a
privileged socioeconomic status and supportive social networks. The findings suggest that such
demographic factors and resources are facilitators of accessing ART in Canada. Barriers to
accessing care included cost, time commitment, experience of stigma, and difficulties securing
third parties when using ART. Thus, it may be worthwhile to consider how to make third-party
reproduction increasingly accessible. When examining considerations involved in decision-
making along the ART pathway, several findings were discovered. With regards to third parties,
it seems that SSMCs and SM are likely to utilize an agency to connect with third parties,
prioritize donor medical history, physical traits, personality, ethnicity, and education, and select
surrogates who share similar values to themselves. When creating and screening embryos, our
study did not reveal any overtly specific way for how couples select their child’s biogenetic
paternity, and found men in the sample to have favorable attitudes towards PGT-A. The findings
of this study can provide practitioners, counsellors, and policy makers with information on how
SSMCs and SM experience using reproductive healthcare services such as ART in order to
provide more informed, inclusive, and specialized care specific to these men’s unique healthcare
needs, as they are increasingly accessing third-party reproduction in Canada. In conclusion, as
SSMCs and single male parents continue to increase in visibility, it is our hope that increased
awareness of and acknowledgement for new strategies for achieving fatherhood will work to
diminish stigmas that continue to exist regarding men’s abilities and desires to become parents.
References or Bibliography (if any)


Centers for Disease Control and Prevention, American Society for Reproductive Medicine, & Society for Assisted Reproductive Technology. (2017). *2015 Assisted Reproductive Technology


Farr, R. H., & Tornello, S. L. (n.d.). *The transition to parenthood and early child development in families with same-sex parents*.


Appendices

Appendix A – Social media platforms

Appendix A1 – Instagram (@ART4MenSurvey)

For more information on Instagram posts, please access: www.instagram.com/art4mensurvey
Appendix A2 – Twitter (@ART4MenSurvey)

For more information on Twitter posts, please access: www.twitter.com/art4mensurvey
Appendix A3 – Facebook (@MenUsingARTStudy)

For more information on Facebook posts, please access:
www.facebook.com/menusingARTstudy
You can access our survey through this link: www.surveymonkey.com/r/art4mensurvey

We're nearly at 100 survey responses! Participate today: www.surveymonkey.com/r/art4mensurvey

SURVEYMONKEY.COM
Same-Sex Male Couples and Single Males Survey on Using Assisted Reproductive Technologies
Create your own online survey now with...
Appendix B – Online posts

Appendix B1 – Sample online post

Hello intended parents! I am a masters student at the University of Toronto conducting a survey study that explores the experiences of same-sex male couples and single men who have accessed assisted reproduction technologies (ART) in Canada to start their families. This research may contribute to the optimization of the delivery of reproductive healthcare for men, in order to promote inclusivity in practice. I would love to invite you to participate if you are eligible, and would appreciate if anyone willing would share this link, or pass the invitation along if you personally know anyone eligible! Eligible participants are males who have past or current experience using third party reproduction via ART in Canada. This means using services such as egg donation, in-vitro fertilization and/or surrogacy. You must have pursued ART as a single man or as an individual in a same-sex partnership. The anonymous survey takes approximately 15 minutes to fill out, and upon completion you can enter a draw to win one of two iPads. Thanks!! Link herewith: www.surveymonkey.com/r/art4mensurvey

If you want to access more information about this study you can check out our social media pages and also explore the official study website: https://art4mensurvey.wixsite.com/survey/about-us

If you have further questions about this study you can also email: studycoordinator@createivf.com
### Appendix B2 – Facebook pages and groups displaying online posts

<table>
<thead>
<tr>
<th>Name</th>
<th>Likes (as of May 18, 2019)</th>
<th>URL</th>
<th>Date Posted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gay Parent Magazine Facebook Page</td>
<td>28,478 likes</td>
<td><a href="http://www.facebook.com/gay.parent.magazine/">www.facebook.com/gay.parent.magazine/</a></td>
<td>October 10, 2018&lt;br&gt;February 15, 2019&lt;br&gt;April 12, 2019</td>
</tr>
<tr>
<td>Gays with Kids Facebook Page</td>
<td>83,472 likes</td>
<td><a href="http://www.facebook.com/GaysWithKids/">www.facebook.com/GaysWithKids/</a></td>
<td>November 14, 2018&lt;br&gt;February 15, 2019&lt;br&gt;April 12, 2019</td>
</tr>
<tr>
<td>Intended Parents Forum</td>
<td>6,687 likes</td>
<td><a href="http://www.facebook.com/IntendedParentsForumDotCom/">www.facebook.com/IntendedParentsForumDotCom/</a></td>
<td>February 15, 2019&lt;br&gt;April 12, 2019</td>
</tr>
<tr>
<td>LGBTOUT Facebook Group</td>
<td>696 likes</td>
<td><a href="http://www.facebook.com/groups/lgbtout.uoft/">www.facebook.com/groups/lgbtout.uoft/</a></td>
<td>November 15, 2018</td>
</tr>
<tr>
<td>Surrogacy Canada – Non-Agency Affiliated Facebook Group</td>
<td>158 likes</td>
<td><a href="http://www.facebook.com/groups/233516807027907/">www.facebook.com/groups/233516807027907/</a></td>
<td>August 17, 2018&lt;br&gt;February 15, 2019&lt;br&gt;April 12, 2019</td>
</tr>
<tr>
<td>Surrogacy in Canada, Independent Support</td>
<td>158 likes</td>
<td><a href="http://www.facebook.com/indepedentsurrogacycanada/">www.facebook.com/indepedentsurrogacycanada/</a></td>
<td>November 14, 2018&lt;br&gt;February 15, 2019&lt;br&gt;April 12, 2019</td>
</tr>
</tbody>
</table>
Appendix C – Recruitment flyer

Appendix C1 – Recruitment flyer

Seeking Same-Sex Male Couples and Single Males using Assisted Reproduction to Build their Families for a Survey Study

We are conducting an anonymous online survey that explores the experiences of same-sex male couples and single men using assisted reproduction technologies (ART).

Eligibility to Participate in the Survey:

1) You must have direct experience (past or current) using third party reproduction in Canada (egg donation, in-vitro fertilization, and surrogacy)
2) You must have pursued ART as a single man or an individual within a same-sex male partnership.

How to Participate:

Survey URL: www.surveymonkey.com/r/art4mensurvey

The survey will take approximately 15 minutes to complete. Participants have a chance to win one of two iPads or a gift card with equivalent cash value.

Questions/Email inquiry: studycoordinator@createivf.com

Facebook: www.facebook.com/menuingARTstudy
Twitter: @art4mensurvey
Instagram: @art4mensurvey

Approved by the University of Toronto's Office of Research Ethics (Protocol#9259)
Appendix C2 – Recruitment flyer (tear-away format)

Seeking Same-Sex Male Couples and Single Males using Assisted Reproduction to Build their Families for a Survey Study

We are conducting an anonymous online survey that explores the experiences of same-sex male couples and single men using assisted reproduction technologies (ART)

Eligibility to Participate in the Survey:

1) You must have direct experience (past or current) using third party reproduction in Canada (egg donation, in-vitro fertilization, and surrogacy)
2) You must have pursued ART as a single man or an individual within a same-sex male partnership.

The survey will take approximately 15 minutes to complete. Participants have a chance to win one of two iPads or a gift card with equivalent cash value.

Approved by the University of Toronto’s Office of Research Ethics (Protocol#92539)

How to Participate:
Appendix C3 – Recruitment flyer (postcard format)

Seeking Same Sex Male Couples and Single Males Using Assisted Reproduction to Build their Families for a Survey Study
We are conducting an anonymous online survey that explores same sex male couple and single male intended parents’ experiences with the assisted reproduction technologies (ART) process

Survey URL: www.surveymonkey.com/r/art4mensurvey

The survey will take approximately 15 minutes to complete. Participants have a chance to win an iPad (16 GB) or a gift card with equivalent cash value.

Questions/Email Inquiry: studycoordinator@createivf.com

Facebook: www.facebook.com/menusingARTstudy
Twitter: @art4mensurvey
Instagram: @art4mensurvey

Approved by the University of Toronto's Office of Research Ethics

Appendix D – Research Ethics Board approval

UNIVERSITY OF TORONTO

OFFICE OF THE VICE-PRESIDENT, RESEARCH AND INNOVATION

RIS Protocol Number: 32847

Approval Date: 12-Jul-18

PI Name: Dr Clifford Librach

Division Name:

Dear Dr Clifford Librach:

Re: Your research protocol application entitled, “A survey study to explore gestational carriers’ experience with the surrogacy process”

The “Health Sciences” REB has conducted a "Delegated" review of your application and has granted approval to the attached protocol for the period 2018-07-12 to 2019-03-20.
Appendix E – Survey

A) This section asks about your background (ART stands for ‘assisted reproductive technology’ which is an umbrella term for services such as egg donation, in-vitro fertilization, and surrogacy)

1) What is your current age?
   a. 20-24
   b. 25-39
   c. 30-34
   d. 35-39
   e. 40-44
   f. 45-49
   g. 50 or over

2) What was your assigned sex at birth?
   a. Male
   b. Female

3) When you first sought ART services to have a child:
   a. What year was it?
   b. What was your age?
      i. 20-24
      ii. 25-39
      iii. 30-34
      iv. 35-39
      v. 40-44
      vi. 45-49
      vii. 50 or over
   c. What was your gender identity?
      i. Male
      ii. Female
      iii. Transgender FTM
      iv. Transgender MTF
      v. Genderqueer
      vi. Bi-gender
      vii. Two-spirit
      viii. Intersex
      ix. Not listed, please specify:
   d. What was your relationship status?
      i. Single, never married
      ii. Single, separated or divorced
      iii. Married
      iv. Common law/Civil union
      v. In a relationship but not living together
      vi. Not listed, please specify:
   e. Has there been a change in your relationship status since you first sought ART?
      i. No change
      ii. Yes
      If yes, please specify what type of change there has been in your relationship status:
      i. I am now single
ii. I am now married
iii. I am now in a common law/civil union relationship
iv. I am now separated or divorced
v. I am now in a relationship but not living together
vi. Not listed, please specify:

f. What was your sexual orientation?
   i. Heterosexual
   ii. Gay
   iii. Bisexual
   iv. Asexual
   v. Pansexual
   vi. Two-spirit
   vii. Queer
   viii. Questioning
   ix. Not listed, please specify:

g. Has there been a change in your sexual orientation since you first sought ART?
   i. No change
   ii. Yes
      If yes, please specify your sexual orientation:
         i. I am now heterosexual
         ii. I am now gay
         iii. I am now bisexual
         iv. I am now asexual
         v. I am now pansexual
         vi. I am now two-spirit
         vii. I am now queer
         viii. I am now questioning
         ix. Not listed, please specify:

h. Which of the following best described your occupation?
   i. Unemployed, and looking for employment
   ii. Unemployed, and not looking for employment
   iii. Student
   iv. Business, finance, and/or administration related occupation
   v. Computer science related occupation
   vi. Natural and/or applied sciences related occupation
   vii. Health related occupation
   viii. Education related occupation
   ix. Law and/or social related occupation
   x. Architectural and/or engineering related occupation
   xi. Community and/or government related occupation
   xii. Arts, culture and/or recreation related occupation
   xiii. Sales and/or services related occupation
   xiv. Trades, transport and/or equipment operator related occupation
   xv. Manufacturing and/or utilities related occupation
   xvi. Military related occupation
   xvii. Not listed, please specify:

i. What was your individual annual income before tax?
   i. Less than $29 999 CAD
   ii. $30 000 - $49 999 CAD
   iii. $50 000 - $69 999 CAD
   iv. $70 000 - $89 999 CAD
v. $90 000 - $109 999 CAD
vi. $110 000 - $129 999 CAD
vii. $130 000 - $149 999 CAD
viii. $150 000 CAD or over
ix. Prefer not to say

j. What was your combined household family income between your and your partner before tax?
   (Do not answer if Q3d was i or ii)
i. Less than $69 999 CAD
   ii. $70 000 - $89 999 CAD
   iii. $90 000 - $109 999 CAD
   iv. $110 000 - $129 999 CAD
   v. $130 000 - $149 999 CAD
   vi. $150 000 - $169 999 CAD
   vii. $170 000 - $189 999 CAD
   viii. $190 000 CAD or over
   ix. Prefer not to say

k. What was your HIV status?
i. HIV positive
   ii. HIV negative
   iii. Do not know
   iv. Prefer not to say

4) Which of the following best represents your racial or ethnic background? (check all that apply)
a. White Canadian or White American
b. White European
c. Black Canadian or African American
d. Black African
e. Afro-Caribbean
f. Indo-Caribbean
g. South American
h. Latin or Hispanic
i. Aboriginal (First Nations, Metis, Inuit, etc.)
j. Pacific Islander
k. South Asian (Eg. East Indian, Pakistani, Sri Lankan, etc.)
l. Southeast Asian (Eg. Vietnamese, Cambodian, Malaysian, Loatian, Chinese etc.)
m. Middle Eastern (Israeli, Iranian, Syrian, Saudi Arabian, Lebanese)
n. Mixed race/Multicultural
o. Not listed, please specify:

5) Where is your primary residence?
   Province/State: Country:

6) Which of the following best describes your area of residence?
a. Large metropolitan city
b. Urban city
c. Suburban area
d. Small town
e. Rural area
f. Not listed, please specify:

7) What is the highest degree or level of education you have completed?
a. Less than high school
b. High school graduate (includes equivalency)
c. Some college or technical school
d. College graduate (Diploma program)  
e. Some university (Degree program)  
f. Undergraduate degree  
g. Postgraduate degree  
h. Doctorate degree or equivalent  
i. Not listed, please specify  

8) Do you currently have children who were conceived through ART?  
a. No  
b. Yes  
   If yes,  
   i. How many?  
      a. How old is this child?  
      b. What was the health status of this child at birth?  
         i. Healthy  
         ii. Had some health issues, please specify:  
      c. Are you the biological father of this child?  
         i. Yes  
         ii. No  
         iii. Do not know  
      d. Please specify if this child was conceived through a current relationship, past relationship, or as a single person: (check all that apply)  
         i. Current heterosexual relationship  
         ii. Current same-sex relationship  
         iii. Past heterosexual relationship  
         iv. Past same-sex relationship  
         v. Single person  
         vi. Not listed, please specify:  

9) Do you currently have children who were NOT conceived using ART?  
a. No  
b. Yes  
   If yes,  
   i. How many?  
      a. How old is this child?  
      b. Please specify if this child is from a heterosexual relationship, adoption, co-parenting or other: (check all that apply)  
         i. Heterosexual relationship  
         ii. Adoption  
         iii. Co-parenting  
         iv. Not listed, please specify:  

B) This section asks about your overall experience of using ART to have a child, so far  

10) So far, what is your overall experience of using ART in Canada as a couple or a single man?  
a. Very negative  
b. Negative  
c. Neutral  
d. Positive  
e. Very positive  
   Comments?  

11) So far, what was the most positive part of your journey towards having a child?  

12) So far, what was the most negative part of your journey towards having a child?
13) Would you recommend using ART in Canada to your friends?
   a. Yes
   b. Maybe
   c. No
   Comments?

C) This section asks about your parenthood desire

14) When did you first recognize your desire to have children? (check all that apply)
   a. Always known
   b. In adulthood
   c. After being in a relationship
   d. After seeing my peers have children
   e. After going through a significant life changing event

15) Have you ever experienced social stigma regarding your desire to have children?
   a. Never
   b. Rarely
   c. Sometimes
   d. Often
   e. Very often

16) How did you find out that ART provided a feasible way for you to have children? (check all that apply)
   a. Friends
   b. Family
   c. Doctor
   d. Books
   e. Social media
   f. Seminars, workshops
   g. Conferences
   h. Internet search
   i. Not listed, please specify:

17) Overall, how supportive was your immediate family when you told them about your decision to have a child specifically through ART?
   a. Very unsupportive
   b. Unsupportive
   c. Neutral
   d. Supportive
   e. Very supportive

18) Overall, how supportive were your close friends when you told them about your decision to have a child through specifically through ART?
   a. Very unsupportive
   b. Unsupportive
   c. Neutral
   d. Supportive
   e. Very supportive

19) To what degree do you feel that you are a part of the LGBTQ+ community?
   a. Not at all
   b. A small degree
   c. A moderate degree
   d. A high degree
e. A very high degree

20) How important is it for you to be politically active in the LGBTQ+ community?
   a. Very unimportant
   b. Unimportant
   c. Somewhat important
   d. Important
   e. Very important

21) How many same-sex male couples or single men who have children through ART, do you regularly socialize with?
   a. None
   b. A few
   c. Quite a lot
   d. Many

22) Have you joined any social media groups targeted towards men pursuing parenthood?
   a. No
   b. Yes
   If yes, please specify which ones:

23) Have you attended any seminars, workshops, and/or conferences targeted towards men having babies?
   a. No
   b. Yes
   If yes, please specify which ones:

24) For each of the following statements, please rate your level of agreement regarding why you decided to pursue fatherhood, on a scale of 1 (strongly disagree) to 5 (strongly agree) or N/A (not applicable in my situation).
   a. I had an deep desire to have a child
   b. My partner had a deep desire to have a child
   c. To complete my relationship with my partner
   d. My partner and I wanted to experience parenthood together
   e. A lot of my friends were having children
   f. My parents wanted to have grandchildren
   g. I felt that something was missing in my life
   h. I felt that having children was a natural next step in my life stage

D) This section asks about egg donation (The term ‘ART journey’ is used to characterize a single experience of using egg donation, in-vitro fertilization and surrogacy to have a child/children at one time. I.E if you have two children who have through using ART at two separate times, then you have had two ‘ART journeys’)

25) Please select what experiences you have had with regards to egg donation: (check all that apply)
   a. I am looking for an egg donor (Go ahead to Q29 if a only)
   b. I have found an egg donor
   c. I have embryos created using egg donation
   d. I have a child/children born through egg donation

26) How many egg donors have you worked with in total?
   a. None
   b. 1
   c. 2
   d. 3
   e. 4 or more
   If b,c, or d, what are the reasons for working with multiple egg donors: (check all that apply)
i. Multiple ART journeys
ii. Poor egg retrieval outcome
iii. Donor withdrew for medical reasons
iv. Donor withdrew for nonmedical reasons
v. Not listed, please specify:

27) What is your most recent egg donor’s country of origin?

28) Please choose the disclosure preference of the egg donor you used most recently to create embryos?
   a. Anonymous egg donor from an agency
   b. Egg donor who is open to contact after 18
   c. Known egg donor from an agency (Can meet me or the child before the age of 18)
   d. Known egg donor, not through an agency and without a prior relationship (E.g a friend of a
      friend, met through the Internet)
   e. Known egg donor who is a friend or acquaintance
   f. Known egg donor who is a family member
   If b, c, d, e, or f, do you plan to tell your child about the identity of your egg donor?
      i. No
      ii. Undecided but more inclined to not to tell
      iii. Undecided but more inclined to tell
      iv. Yes
      v. N/A

29) Of each of the following donor characteristics, please rate what criteria are/were important to you when
    choosing an egg donor, on a scale of 1 (not important at all) to 5 (very important).
    a. Ethnicity / racial background
    b. Physical attributes
    c. Personality and temperament
    d. Hobbies and interests
    e. Education
    f. Occupation
    g. Life accomplishments
    h. Medical and health history
    i. Previous donation experience
    j. Level of disclosure (Anonymity or openness)
    a. Other, please specify:
    Comments?

30) Of each of the following statements, please indicate the level of agreement between you and your partner
    with regards to choosing an egg donor, on a scale of 1 (strongly disagree) to 5 (strongly agree) or N/A (not
    applicable in my situation). (Do not answer if Q3d was i or ii)
    a. We share(d) similar views regarding the characteristics of egg donor we want(ed) to choose
    b. We share(d) similar views regarding the type of disclosure preference of the egg donor
    c. We share(d) similar views regarding the level of contact we want(ed) with the egg donor

31) Please rate your overall experience of egg donation.
    a. Very negative
    b. Negative
    c. Neutral
    d. Positive
    e. Very positive
    Comments?

E) This section asks about embryo creation and screening
32) Whose sperm do you intend to/did you use to create embryos during your most recent ART journey? (check all that apply) (Do not answer if Q3d was i or ii)
   a. We intend to use/used my sperm only
   b. We intend to use/used my partner’s sperm only
   c. We intend to use/used both my sperm and my partner’s sperm
   d. Donor sperm will be used
   e. Undecided
   f. Not listed, please specify:

33) Which partner’s embryo(s) did you transfer/plan to transfer into your surrogate during your most recent ART journey? (Do not answer if Q3d was i or ii)
   a. Embryo(s) from myself first
   b. Embryo(s) from my partner first
   c. One embryo from each partner
   d. Undecided
   e. Not listed, please specify:

34) Please rate what criteria were important to you when deciding whether you or your partner would be the biological father of this child, on a scale of 1 (not important at all) to 5 (very important). (Do not answer if Q3d was i or ii)
   a. Age
   b. Ethnicities/racial backgrounds
   c. Who has/had a greater desire to be the biological father
   d. Medical history
   e. Physical attributes
   f. Personality and temperament
   g. Whose family has/had higher expectation of having genetic linked children
   h. Whose family is more receptive to our spousal relationship
   i. Who has pre-existing children
   j. Practical/logistical planning reasons
   k. Equal opportunity for fatherhood
   l. N/A
   m. Not listed, please specify:

35) Do you plan to have any more children through ART?
   a. No
   b. Undecided but more inclined to no
   c. Undecided but more inclined to yes
   d. Undecided depending on the outcome of my first surrogacy journey
   e. Yes

   If c, d or e, do you plan on using your partner as the biological father?
   i. No
   ii. Undecided but more inclined to no
   iii. Undecided but more inclined to yes
   iv. Undecided depending on the outcome of my first surrogacy journey
   v. Yes

36) Do you intend to/did you use pre-implantation genetic screening (PGS) to screen your embryos during your most recent ART journey?
   a. No
   b. Undecided but more inclined to no
   c. Undecided but more inclined to yes
   d. Yes
   e. PGS was not discussed with us at the time of using assisted reproductive services
f. PGS was not an available screening option at the time of using assisted reproductive services

g. Not listed, please specify: Comments?

37) Please rate what considerations are/were important to you when deciding to use or not to use PGS, on a scale of 1 (strongly disagree) to 5 (strongly agree) or N/A (not applicable in my situation)? (check all that apply)
   a. Increased chance of reproductive success
   b. Decreased chance of miscarriage
   c. Decreased risk of an genetic abnormalities
   d. Awareness of genetic abnormalities within family history
   e. Cost
   f. Not listed, please specify: Comments?

38) What is/was the level of congruence between you and your partner agree on the decision of using PGS? (Do not answer if Q3d was i or ii)
   a. Highly incongruent
   b. Incongruent
   c. Neutral
   d. Congruent
   e. Strongly congruent

F) This section asks about surrogacy (A ‘surrogate’ is a women who will carry and give birth to your child on your behalf. This term may be used interchangeably with the term ‘gestational carrier.’)

39) Please select what experiences you have had with regards to surrogacy: (Check all that apply)
   a. I am looking for a surrogate (Go ahead to Q41 if a only)
   b. I have found a surrogate who is going through screening
   c. My surrogate is going through embryo transfer
   d. My surrogate has gone through one or more embryo transfers and did not get pregnant
   e. My surrogate is pregnant with an expected due date
   f. My surrogate has experienced pregnancy loss during our journey
   g. My surrogate has gone through selective embryo reduction during our journey
   h. My surrogate has gone through amniocentesis during our journey
   i. My surrogate has gone through termination due to fetal anomalies during our journey
   j. My surrogate has successfully given birth to my child(ren) on my behalf
   Comments?

40) What type of surrogate did you choose during your most recent ART journey? (Check all that apply)
   a. A surrogate from an agency
   b. A surrogate without a prior relationship (e.g. friend of a friend or met through the Internet)
   c. A surrogate with a prior relationship (e.g. a friend or acquaintance)
   d. A surrogate who is a family member

41) What is your most recent surrogate’s country of origin?

42) How long did it take you to find a suitable surrogate who fit your needs? (Check all that apply)
   a. Less than a month
   b. 1 - 2 months
   c. 3 - 4 months
   d. 5 - 6 months
   e. 7 - 9 months
   f. 10 months to 1 year
   g. 13 - 18 months
   h. 19 months – 2 years
   i. Over 2 years
43) How would you rate your emotional connection with your most recent surrogate during the pregnancy?
   a. Not connected at all
   b. A little connected
   c. Neutral
   d. Connected
   e. Very connected

44) On each of the following statements, please indicate the level of agreement between you and your most recent surrogate, on a scale of 1 (strongly disagree) to 5 (strongly agree).
   a. We share(d) similar expectations regarding the type of relationship we want(ed) between us
   b. We share(d) similar expectations regarding the type of relationship we want(ed) between my child and the surrogate
   c. We share(d) similar views regarding who would be the caregiver(s) for prenatal care (E.g. obstetrician, midwife, nurse practitioner)
   d. We share(d) similar views regarding the birthing process
   e. We share(d) similar views regarding pregnancy termination in the event of anomalies

45) On each of the following statements, please indicate the level of agreement between you and your partner, on a scale of 1 (strongly disagree) to 5 (strongly agree) or N/A (not applicable in my situation). (Do not answer if Q3d was i or ii)
   a. We share(d) similar views on what type of surrogate we want(ed) to choose
   b. We share(d) similar views regarding the type of relationship we want(ed) with our surrogate
   c. We share(d) similar views regarding the type of relationship we want(ed) between the surrogate and our child
   d. We share(d) similar views regarding pregnancy termination in the event of anomalies

46) Please rate your overall experience of surrogacy.
   a. Very negative
   b. Negative
   c. Neutral
   d. Positive
   e. Very positive
   Comments?

G) This section asks about your experiences after having a child through surrogacy (This section is only for participants who answered j for Q35)

47) Do you intend to/did you perform paternity testing for your youngest child post birth?
   a. No
   b. Yes
   Do you have another child through surrogacy?
   a. No
   b. Yes
   If yes, did you perform paternity testing for this child post birth?
   [question loop if yes]

48) Did your most recent surrogate provide pumped breast milk for the baby after birth?
   a. No
   b. Yes
49) Did you consult your most recent surrogate for parenting advice in the first three months after the baby was born?
   a. Never
   b. Rarely
   c. Sometimes
   d. Often
   e. Very Often

50) What is the amount of contact you have with your most recent surrogate now?
   a. No contact at all
   b. Only during special occasions but no contacts otherwise (e.g. Christmas, New Year, birthday)
   c. At least a few times per year
   d. At least a few times per 6 months
   e. At least a few times per 3 months
   f. At least a few times per month
   g. At least a few times per week

51) How has your emotional connection with your most recent surrogate changed since the baby was born?
   a. Very different and in a negative way
   b. Quite different and in a negative way
   c. A little bit different in a negative way
   d. No difference
   e. A little bit different in a positive way
   f. Quite different and in a positive way
   g. Very different and in a positive way

52) Do you plan to introduce the surrogate to your child(ren) in the future?
   a. No
   b. Undecided but more inclined to no
   c. Undecided but more inclined to yes
   d. Yes, we plan to
   e. Yes, we have already introduced them

53) If you are not residents in Canada, please describe your experience(s) when bringing your child/children back to your home country.

54) Do you reveal to others which partner has a genetic link to your child/children? (Do not answer if Q3d was i or ii)
   a. Never
   b. Rarely
   c. Sometimes
   d. Often
   e. Always
   f. Depends on who
   Comments?

55) On each of the following statements, please indicate your level of agreement regarding how your support network has changed since you became a father, on a scale of 1 (strongly disagree) to 5 (strongly agree) or N/A (not applicable in my situation).
   a. My parents are more involved in my family’s life
   b. My immediate family (other than my parents) is more involved in my family’s life
   c. My close friends are more involved in my family’s life
   d. My social support network has become larger
   e. My social support network includes more heterosexual couples than before
   f. My social support network includes more heterosexual parents than before
   g. My social support network includes more LGBTQ+ parents than before
h. My connection with the LGBTQ+ community has become stronger

56) On each of the following statements, please indicate your level of agreement regarding how your relationship with your partner has changed since you became a father, on a scale of 1 (strongly disagree) to 5 (strongly agree). (Do not answer if Q3d was i or ii)
   a. Having a child/children has strengthened my spousal relationship
   b. Having a child/children has created more conflicts in my spousal relationship
   c. My partner and I make similar contributions to child care work
   d. My partner and I make equal contributions to household responsibilities
   e. My partner and I have similar views on parenting decisions
   f. My partner and I have a similar quality of relationship with our child(ren)

57) How much time did you spend throughout in the entire process of having a child through ART?
   a. About 2 years
   b. About 3 years
   c. About 4 years
   d. About 5 years
   e. About 6 years
   f. More than 7 years

58) Overall, how much money did you spend from the time you decided to use ART until the time your child was born through ART?
   a. About $20,000 CAD
   b. About $30,000 CAD
   c. About $40,000 CAD
   d. About $50,000 CAD
   e. About $60,000 CAD
   f. About $70,000 CAD
   g. About $80,000 CAD
   h. About $90,000 CAD
   i. About $100,000 CAD
   j. More than $100,000 CAD
   k. Prefer not to say

This message will be displayed at the end of the survey

(Please note that you will no longer be able to withdraw your survey responses once you click the “submit” button.)

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