

# Psychosocial Stress and Problems toward Infertility: A Pilot Study of Differences between Immigrant and Nonimmigrant Infertile Couples in Toronto, Canada

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## Abstract

The purpose of this study was to explore the psychosocial stress and problems regarding infertility and to compare the differences in these two variables on infertile couples in Canada. Fifty infertile, heterosexual individuals were selected as the study participants by convenient sampling. Participants filled out three questionnaires after their infertility appointment and were divided into two groups, depending on their immigration status. The data were analyzed using Statistical Package for the Social Sciences (SPSS.26). Significant differences in infertility stress and psychosocial problems existed between these two groups, with immigrants' scores significantly higher than nonimmigrants' scores. Years of marriage showed positive relationships with infertility stress and problems. In addition, a positive relationship existed between years of infertility and infertility problems. Furthermore, a significant negative relationship existed between the length of time living in Canada and infertility stress. The results of this study enhanced our knowledge of psychosocial stress and problems faced by infertile couples. Findings suggest that immigrants had more infertility stress and problems than nonimmigrants. Understanding infertile couples' stress and problems provides the basis for informing and changing nursing practices on how to work with infertile couples, adjusting health policy related to infertility treatment, and needing future research in this area.

**Keywords:** infertility stress, psychosocial problems, immigrants, couple

## 1. Introduction

Having a child is the expectation of most couples after they marry (Bos & Van Rooij, 2007). It is distressing if this expectation cannot be fulfilled. Infertility is a serious health issue that affects psychological and social functioning, and about 16% (or 1 in 6) of couples in Canada experience infertility (Government of Canada, 2020a). Previous studies have reported that dealing with infertility problems has a negative effect on many individuals' psychological well-being (Casu & Gremigni, 2016; Hocaoglu, 2018; Lakatos, Szigeti, Ujma, Sexty, & Balog, 2017). Infertility can also have profound effects on spousal relationships. Infertility related psychosocial issues such as anxiety, shame and stress can affect a couple's sexual function and sexual satisfaction (Masoumi et al., 2017; Tao, Coates, & Maycock, 2012; Wiweko, Anggraheni, Elvira, & Lubis, 2017).

Many couples view infertility and involuntary childlessness as an unspeakable and stressful life event. It is difficult to share personal feelings with others, which could create extra stressors for infertile couples (Bos & Van Rooij, 2007). New reproductive techniques have been developed. Couples have more options than ever before, such as in vitro fertilization (IVF), donor eggs, sex selection, and access to artificial insemination of donor semen. However, a successful pregnancy or live birth is not guaranteed.

In Canada, several treatment options for infertile couples are presently available. (Government of Canada, 2020b). The average expense for an IVF treatment cycle is about CAD \$10,000 to \$15,000. The cost for fertility medications is about \$5,000 per IVF cycle. Although the government provides various treatment options and medical help for couples experiencing infertility free of charge, it does not cover the cost of fertility drugs, genetic testing, and storing sperm, eggs or embryos (Government of Canada, 2020a). The average successful IVF clinical pregnancy rate for Canadians under the age of 35 is roughly about 60%, but the rate declines with

age.

Canada is a multi-ethnic country with a rich, diverse and complex cultural heritage. The 2016 Census report indicated that Canada contains over 250 different cultures, and 41.1% of the Canadian population stated that they have more than one origin (Statistics Canada, 2020). About 21.9% of the Canadian population are foreign-born (immigrants) and 76.6% are Canadian born (nonimmigrants). More than half of Canada's nonimmigrants are from European origins, and most of the immigrants come from Asian, African, or Latin, Central or South American origins (Statistics Canada, 2020).

It is reported that cultural beliefs and attitudes affect every aspect of human life, including the desire for children (Inhorn & Fakih, 2006; Vanderlinden, 2009; White, McQuillan, & Greil, 2006). Some cultures value childbearing as the main purpose of marriage, such as Asian and African cultures (Lu & Gilmour, 2006; Nguimfack, Newsom, & Nguekeu, 2016; Smeeton & Ward, 2017). Infertility in these cultures can cause great psychosocial distress and a huge sense of inadequacy if a couple wants to fulfill the social role of parenthood (De, Roy, & Sarkhel, 2017) and cannot. The idea of filial duty is rooted in many Asian families because of the Confucian value system, which specifies that having children maintains the continuity of a family line (Ethnic Variation/Ethnicity, 2020). The diagnosis of infertility could be a devastating blow to Asian couples, and similar beliefs exist in African cultures. A study by Adewole and colleagues reported that men in many developing African societies view having children as a great achievement in their life (Adewole, Omotoso, & Asa, 2020). In contrast, people from European origins adhere more to individualism. They emphasize separateness and independence and do not expect their children to support them when they are old. Consequently, while they expect to become parents someday in their lifetime, they don't necessarily believe that having a child is the ideal family standard (Daniluk & Koert, 2012).

Infertile couples moving into a new country and culture, such as Canada, may find great relief from a society that emphasizes the importance of having a child. However, it could cause new anxiety due to lack of resources, a family support system, or financial difficulties (Crossman, 2013, Hasson et al., 2017). Childbearing plans might be postponed in order to adjust to a new set of cultural and linguistic changes. The couple may also need to adjust to new employment requirements and learn to balance differences in cultural and gender role values (Cervantes, Gattamorta, & Berger-Cardoso, 2019; Woldemicael & Beaujot, 2010). Whitehead and colleagues investigated a group of Latino immigrant parents who participated in a cultural adaptation parenting study in the United States. They found that those parents encountered many immigration-related stressors. Some of the stressors were hard to deal with, which might impact their capacity to have another child (Whitehead, Parra-Cardona, Wampler, Bowles, & Klein, 2020).

There is insufficient literature on the psychosocial-cultural aspects of infertility. Therefore, this study was designed to explore the psychosocial stress and problems of infertility in a multicultural infertility setting and to compare the differences in psychosocial stress and problems on immigrant and nonimmigrant infertile couples in Toronto, Canada.

## **2. Method**

### *2.1 Design and Participants*

A cross-sectional quantitative research design was used. After receiving ethical approval, the study was conducted in a private infertility clinic located in Toronto, Canada. The inclusion criteria were heterosexual couples with a history of infertility, currently seeking infertility treatment. Fifty infertile individuals voluntarily joined this study as the study participants.

### *2.2 Recruitment*

A convenience sample was used. Participants were approached by the author after their infertility treatment. They were informed of the nature of the research and their rights as participants. All aspects of the research were described in full, and all participants were informed of their right to disengage from the study at any time without risk. Participants were assured that all records of the study would be kept private. After signing the consent form, the participants were asked to fill out three questionnaires. To protect the privacy of the participants, all personal information such as the participants' names, addresses, and phone numbers were removed from the records. The records are accessible to only the author. A list linking the code number with the participants' names was kept in a secure place, separate from other research files. Data were collected from September to December 2019.

### 2.3 Instruments

Three instruments were used: The Fertility Problem Inventory (FPI), the Psychosocial Problems Scale (PPS) and a demographic data questionnaire. The FPI was to measure distress, beliefs and attitudes related to infertility and was originally developed by Newton and colleagues and had 46 items and five subscales (Newton, Sherrard, & Glavac, 1999). The five subscales structure has not been clearly supported by previous research and had inconsistent findings. In a more recent version (Donarelli et al., 2015), a post hoc exploratory factor analysis revealed two interrelated domains specific to infertility stress: Infertility Life Domain (ILD) and Importance of Parenthood (IP). It seems the two-factor FPI can better discover the core infertility-related stress of infertile couples and, therefore, was used in this study. A 6-point Likert scale was formatted, ranging from 1 (strongly disagree) to 6 (strongly agree). The higher the score, the greater the distress. The reliability ranged from 0.71–0.93 (Donarelli et al., 2015). The reliability in this study was .72 for the total scale.

The PPS was used to measure the psychosocial problems experienced by couples during their infertility treatment and contains 38 items answered as “yes”, “sometimes”, or “no”. Among the answers given, “yes” scores 3 points, “sometimes” scores 2 points and “no” scores 1 point. The higher the score, the more intense the problems. This scale was applicable and reliable with Cronbach’s alpha 0.92 (Kirca, Gençdoğan, & Çelik, 2014). The PPS was used originally to examine women’s problems. In this study, it assessed the problems experienced by both genders. The reliability of the total scale in this study was 0.80.

A Demographic Data Sheet was also administered to the participants to collect data on age, immigration status, education levels, socioeconomic status, ethnic background, place of residence and length of time living in Canada.

### 2.4 Data Analysis

Descriptive statistics (mean, SD, and frequency) were used to describe the characteristics of infertile individuals. T-tests, Chi-square tests, Pearson Correlation coefficients, and non-parametric tests were used to analyze the data. For the purpose of analysis, individuals were divided into two groups dependent on their immigration status after data collection. All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 26.0. The level of significance was set at  $\alpha = 0.05$ .

## 3. Results

### 3.1 Participant Characteristics

Fifty infertile individuals (20 couples and 10 females) signed the consent form and answered the questionnaires after their infertility treatment. Twenty-seven were immigrants and 23 were nonimmigrants. Among the immigrants, most were from south Asia (70.4%). Of the remainder immigrants, 22.2% were from Asia and 7.4% were from south America. The average number of years living in Canada for immigrants was 9.35. The mean age of these individuals was  $33.42 \pm 4.10$ , ranging from age 24–42, with 30 females and 20 males. Most were married and 11 participants were in common-law relationships. The average length of marriage was  $7.37 \pm 4.25$  years, and the average length of infertility treatments was  $3.15 \pm 2.70$  years (ranging from 1 year to 13 years). The majority held a bachelor’s degree. Most of them were employed full-time with a total family income below \$100,000 (79.1%). No differences were found in age, length of marriage, length of infertility treatment, and education between immigrants and nonimmigrants. However, the Mann-Whitney U test revealed that income levels were different between these two groups. Nonimmigrants’ total family income was higher than that of immigrants ( $p < 0.05$ ).

### 3.2 Differences between Groups

T-tests indicated significant differences in FPI and PPS scores between immigrants and nonimmigrants (Table 1), with the former’s scores higher than the latter’s scores (Table 1). Significant differences in the two FPI factors also existed between immigrants and nonimmigrants ( $p < .000$ ).

The Pearson Correlation test further showed that a significant negative relationship existed between the length of time living in Canada and FPI scores ( $p < 0.01$ ). A positive relationship existed between the number of years of marriage (or living together) and FPI scores ( $p < .05$ ). Years of marriage also had a positive relationship with PPS scores ( $p < .01$ ). In addition, Pearson correlation tests indicated that a positive relationship existed between years of infertility and PPS scores ( $p < .05$ ). Table 2 presented the correlations results.

Table 1. Differences in FPI and PPS between immigrants (I, n=27) and nonimmigrants (Non-I, n=23)

<i>Scales</i>	<i>M(SD)</i>	<i>P value</i>
FPI-I	173.81(14.31)	.00**
FPI-Non-I	151.25(21.13)	
PPS-I	82.88(10.43)	.03*
PPS-Non-I	73.80(10.80)	

\*P&lt;.05, \*\*p&lt;.001

Table 2. Correlations among variables (N = 50)

<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1. FPI	1.00			
2. PPS	.73**	1.00		
3. Length of time living in Canada	-.49**	.29	1.00	
4. Years of marriage	.44*	.69**	.33	1.00
5. Years of infertility	.02	.46*	.26	.71**

\*P&lt;.05, \*\*p&lt;.01

#### 4. Discussion

It is not surprising to find that nonimmigrants' total family income was higher than that of immigrants in this study. Studies have showed that immigration can be a difficult experience with many challenges. Immigrants may have concerns or worries when they try to learn a new language and find a new job. Immigrants are often negatively stereotyped, and these stereotypes have negative consequences for their psychosocial well-being. Immigration-related stress has been connected with low family annual incomes (Whitehead et al., 2020). Crossman (2013) reported that a gap existed in low-income rates between immigrants and those born in Canada, and this gap has risen greatly over the past 30 years. The low-income rate among recent immigrants is much higher than among the Canadian-born. The finding on family income in our study is consistent with Crossman's report. Although most immigrants in this study had double incomes, their family income was still lower than that of nonimmigrants. Canadian infertile patients can, fortunately, benefit from the public coverage for infertility treatment to receive expensive treatments regardless of their income or socio-economic status (SES); however, they still need to pay the costs for fertility drugs, depending on how many IVF cycles they go through (Government of Canada, 2020b). They may also need to pay unforeseen expenses, such as genetic testing or storing sperm, eggs or embryos. Family income being positively related to infertility stress in this study indicated that Canadian-born infertile couples were not financially worry free. Furthermore, the need to be absent from work for treatment may, in the long run, cause extra stressors when seeking infertility treatment.

The result of this study indicated that immigrants had more infertility stress (FPI) and problems (PPS) than nonimmigrants. One possible explanation could be attributed to cultural influence. Canada's immigrants come from almost 200 countries with 1/5 of the Canadian population being foreign-born (immigrants). Most immigrants were from south Asia and Asia, including the Philippines, China and India (Government of Canada, 2020a). Having a child is more important to some cultures than to others. The reasons for wanting a child may be the continuation of the family name. Bos and Van Rooij (2007) investigated motives to have a child and stated that couples in Western societies view having a child as an expression of personal development, and their relationship to the child is the most important thing. There is less social pressure to continue the family line. A biological child, therefore, is not the only option these couples have. Adoption is a common avenue of family-building in Western societies (Smeeton & Ward, 2017). In addition, many couples would choose to be "DINK" (Double Income, No Kids) if infertility treatments were unsuccessful after a preset period. In contrast, some Eastern societies desire a birth child to continue the family line. Failing to conceive goes against the social expectation of a marriage (De et al., 2017). The couple could face a life crisis that may devastate their relationship to each other and their relationship to other family members. Although such data was not collected in this study, immigrants in this study may have moved to Canada alone or with limited family members. Expanding and extending their family may be an important task for them. It is understandable that the infertility stress and problems of immigrants were higher than their counter partners.

The results of infertility stress and problems in this study were supported by other studies. Hasson et al. (2017) did a cross-section study with Canadian infertile couples and found that immigrants were more likely to report an inferior quality of life (QoL) and to achieve significantly lower scores in emotional and social perspectives. They concluded that ethnic and cultural factors may play a role in low, fertility-related QoL and that immigrants may be at increased risk for emotional distress. Similar findings were found in other migrant populations. A study conducted in Germany found that Turkish Germans experienced significantly higher infertility distress than ethnic Germans (Vanderlinden, 2009). Studies on infertile Africans in the Middle East and Muslim-Arab immigrants in the United States found them to have high rates of negative emotions also. The major reason these immigrants encountered higher distress was due to cultural expectations (Inhorn & Fakih, 2006; White et al., 2006).

The results also indicated that immigrants had significantly higher scores in the two FPI factors, Infertility Life Domain (ILD) and Importance of Parenthood (IP), than nonimmigrants. The ILD factors include questions related to social concerns, relationship concerns and sexual concerns. Donarelli et al. (2015) mentioned that social concerns can influence the construct measured by the FPI, especially the social expectation related to the traditional meaning of a family, which can increase stress on infertile couples. It is reasonable that immigrants showed higher scores in this factor than nonimmigrants due to the social expectation of wanting a child. The IP factor includes questions related to the need for parenthood. It, again, indicated that the desire to become a parent made immigrants more stressful than nonimmigrants. This result reflected that these two factors are equally important when measuring the FPI.

An interesting finding in this study was a significant negative relationship between the length of time living in Canada and stress scores. Studies showed that long-term immigrants in Canada are likely to reduce the size of their family as their socio-economic and cultural characteristics converge to those of the Canadian-born population (Woldemicael & Beaujot, 2010). It is possible that the participants in this study also adopted European views of individualism after living in Canada for a while. Although they still received infertility treatment, they might have other motives for fulfilling their life goal. Therefore, the stress accompanying infertility may decrease the longer they live in Canada.

Infertility is a threat to marriage, especially when the infertile woman is struggling with infertility and her husband is not the centre of the problem. Couples may have different feelings toward infertility and face several relationship challenges caused by infertility. They need to decide when to have treatments, when to tell family members or friends, and when to stop treatments. (Tao et al., 2012). None of these decisions are easy. It is brutal but real. Studies have shown that male factor infertility did not have a negative impact on marriage. However, female factor infertility usually resulted in an unstable marital relationship. Other factors may be associated with the quality of a marital relationship, such as a couple's sexual satisfaction or their perceptions of infertility. It is predictable that the length of the marriage can have a positive effect on the infertility stress and psychosocial problems experienced by the couples in this study.

Several studies showed a significant correlation between the duration of infertility and the level of stress experienced by infertile patients (Hocaoglu, 2018; Wiweko et al., 2017). It was intriguing to find that a positive relationship existed between the length of infertility and psychosocial problems, but such relationship was not shown between the length of infertility and infertility stress in this study. The psychosocial problems of the study asked participants about specific problems they experienced during infertility treatment, especially problems related to having a child around such as, "Do they feel comfortable being in places with children"? The answers to these types of sensitive questions may reflect their true feelings. Furthermore, the PPS includes questions related to treatment expenses, which might have an indirect effect on the positive correlation. A successful pregnancy often depends on repeated treatments; and the longer the infertility continues, the more treatments are required. Nevertheless, since our result is inconsistent with other studies, further study is needed.

The limitation of the study was the small sample size. The sample was drawn from an infertility clinic located in Toronto, Canada, so the results may not be generalized to other infertility clinics. Future studies with a larger sample are recommended.

## 5. Conclusion

The results of this study enhanced our knowledge on the psychosocial and cultural factors of infertile couples. Findings suggest that immigrants had more infertility stress and problems than nonimmigrants. The length of the marriage had a positive relationship to infertility stress and problems. A positive relationship also existed between the length of the infertility and the infertility problems. In addition, the longer infertile couples resided in Canada, the lower the stress. Understanding the stress and problems infertile couples face provides the basis

for informing and changing nursing practices with infertile couples, adjusting health policy related to infertility treatment, and needing future research in this area.

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