

Psychological Stress among Men Suffering from Infertility

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Abstract: Childlessness brings about many stressful, painful, and distressing experiences for someone who is infertile. This study analysed the stress levels of 395 infertile men (with a mean age of 33.1 years; Standard Deviation (SD) = 4.98 in the three major cities of Hanoi, Đà Nẵng, and Hồ Chí Minh City with a marriage duration from over one to 25 years (with a mean duration of marriage being 5.27 years; SD = 3.84). The main methods of study were literature reviews and surveys using the Fertility Problem Inventory (FPI) questionnaire. The results of the research show that infertile men experience moderate stress. The highest area of stress is in the need to have children while the lowest stress is in sex life. The results also show the difference in the level of psychological stress of infertile men by survey location, place of residence, and education level.

Keywords: Stress, infertility, infertile men.

Subject classification: Psychology

1. Introduction

According to the International Committee for Monitoring Assisted Reproductive Technologies (ICMART) and the World Health Organization (WHO) (Zegers-Hochschild, et al., 2009), infertility is a medical term defined as a reproductive related disease which causes the failure to achieve a clinical pregnancy after 12 months or more, among couples having regular unprotected sexual intercourse. From a psychological perspective, infertility and infertility treatment lead to a lot of personal problems. Childlessness has resulted in both physical and emotional loss for couples in terms of life goals, position, and self-confidence (Lukse, M. P., & Vacc, N. A., 1999). Psychological problems encountered by those who are infertile include stress in their social relationships, their sexual concern, marital relationships, the need for parenthood, and rejection of childfree lifestyle (Newton, C. R., et al., 1999). Infertile couples are under great psychological pressure, along with financial pressure that

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also bring stress. Many are unable to seek more intensive treatment options, which means that there is little chance for them to have children (Wiersema, N. J., et al., 2006). In many cultures, a person's infertility can have serious consequences; for example, it can lead to acts of violence, divorce, discrimination, and ostracism. Individuals may perceive childlessness as a sign of impaired identity, disability, and impaired capacity (Dyer, S. J., et al., 2005; Cousineau, T. M. & Domar, A. D., 2007; Ombelet, W., et al., 2008).

Multiple studies from around the world show that men experience psychological problems due to infertility in different ways. Infertile men also experience a drop in self-esteem, with their social roles being obscured and the feeling that they are the cause of their wives' inability to conceive (Downey, J. & McKinney, M., 1992; Wright, J., et al., 1991). Men also suffer from infertility-related psychological stress therefore their problems must also be addressed during the infertility consultation process (Wischmann, T. & Thorn, P., 2013). In many cultures, male infertility remains a stigmatised condition and is associated with a lack of masculinity (Greil, A., 1997). Many studies have found that compared to a group of men who are well aware of their fertility conditions, infertile men have low self-esteem and high levels of anxiety (Kedem, P., et al., 1990; Glover, L., et al., 1996). In particular, in many Asian countries, having children and many grandchildren carries great importance. Let's look at China, for example. Most young Chinese men and women feel a cultural compulsion to have children in order to continue the family line (Lee, T. Y., et al., 2001; Loke, A. Y., et al., 2012). Chinese men also believe that they have not reached the "masculine" threshold until they actually have children (Lee, T. Y. & Sun, G. H., 2000). The inability to have children would be unfilial to their parents and make them feel as if they belong to "an imperfect family" (Ng, E., et al., 2004).

In Vietnam today, infertility remain huge issues for many families, not only in terms financial pressure but also the psychological impact on individuals and couples. Unsuccessful attempts to conceive causes great distress. Several studies point to the stress, distress, and despair that women face as a result of infertility and during infertility treatment (Nguyễn Thị Hằng Phương, 2011; Nguyễn Đỗ Hồng Nhung & Nguyễn Đỗ Hương Giang, 2017; Trương Quang Lâm, 2020). The aspect of parenting needs has the highest moderate stress scores for both spouses (Lê Thị Mỹ Hạnh & Nguyễn Thị Thanh Trúc, 2021). As for infertile men, the study by Đặng Hoàng Ngân, et al. (2020) shows that people with a lower educational background and unstable employment are less likely to actively deal with the problem of infertility (compared to the group with better education and work conditions), and not so active in seeking fertility treatment information. Besides, men who experience prolonged periods of infertility (7-13 years) and those whose infertility is self-inflicted, rarely openly show their feelings in order to avoid embarrassment.

Overall, studies carried out in Vietnam on the psychological aspects of infertile people in general and in infertile men, in particular, are still limited. Meanwhile, from a psychological perspective, in order to help individuals and couples overcome the pressures and difficulties they face when trying to have children, extensive research is needed in many areas/regions, using comprehensive research tools to assess the psychological problems of both infertile men and women. Therefore, within the scope of this paper, the authors present the results of their study on the psychological stress status of infertile men

by using the fertility problem inventory - FPI scale of Newton et al. (1999). The study was carried out in the following three major cities representing three regions in Vietnam: Hanoi, Đà Nẵng, and Hồ Chí Minh City. The purpose is to provide answers to the questions: “to what extent do infertile men in these three areas experience stress”, and “are there any differences in stress levels among the research target groups?”.

2. Target groups and research methods

2.1. Research target groups

The study surveyed 395 men from primary infertile childless couples, aged between 23 and 55 years (with a mean age of 33.1 years; $SD = 4.98$), and duration of marriage from over one to 25 years (mean duration of marriage being 5.27 years; $SD = 3.84$). Respondents were having medical examinations and treatments for infertility in the three mentioned cities. The study excluded those who did not agree to participate in the questionnaire. Table 1 describes the demographics of the target groups which took part as follows:

Table 1: Characteristics of Research Target Group Sample

Characteristics	Group	N	%	Characteristics	Group	N	%
Survey area ($\Sigma = 395$)	Hanoi	128	32.4	Years of pregnancy expectation ($\Sigma = 381$)	Up to 3 years	170	44.6
	Đà Nẵng	113	28.6		Over 3 years to 6 years	129	33.9
	Hồ Chí Minh City	154	39.0		Over 6 years to less than 10 years	49	12.9
Residence ($\Sigma = 389$)	Urban areas	223	57.3	Income ($\Sigma = 365$)	10 years or above	33	8.7
	Rural areas	122	31.4		Under 5 million	64	17.5
	Other places (e.g. coastal, mountainous areas)	44	11.3		VND 6 million - 10 million	199	54.5
Education ($\Sigma = 389$)	Intermediate and below	149	38.3	VND 11 million - 20 million	64	17.5	
	College, university or higher	240	61.7	Over VND 20 million	38	10.4	
Causes of infertility ($\Sigma = 364$)	From men	87	23.9	Child hierarchy in the family ($\Sigma = 369$)	Only child	54	14.6
	From women	47	12.9		Eldest child	97	26.3
	From both men and women	141	38.7		Not the eldest child	218	59.1
	Unexplained	89	24.5		1 to 3 years	214	58.0

Characteristics	Group	N	%	Characteristics	Group	N	%
Age ($\Sigma = 387$)	From 23 to 30	135	34.2	Years of diagnosed infertility ($\Sigma = 369$)	Over 3 years to 5 years	80	21.7
	Over 30 to 35	145	36.7		Over 5 years to 9 years	58	15.7
	From 36 to 55	107	27.1		Over 9 years	17	4.6

Source: Author.

2.2. Research methods

The research used the Fertility Problem Inventory (FPI) of Newton, et al. (1999) to assess the level of stress-related to infertility, based on the following five factors:

(1) **Social concern**: referring to personal sensitivity and pressure from comments and questions about infertility. Feelings of alienation or isolation from family members and co-workers which leads to awkwardness in a social setting (e.g. *Family get-togethers are especially difficult for me*).

(2) **Sexual concern**: loss of interest in sex, being put under pressure to have sex at the best time for the woman to get pregnant, and loss of sexual self-esteem (e.g. *During sex, all I can think about is wanting a child*).

(3) **Relationship concerns**: problems with open communication between partners or poor cooperation when it comes to infertility, difficulty accepting gender differences, and worries about the future of the couple's relationship (e.g. *When we talk about our fertility problem, my partner seems comforted by my comments*).

(4) **Rejection of childfree lifestyle**: a negative view that believing future marital happiness depends on having a child. Unable to find other satisfying/fulfilling roles until a couple has children (e.g. *Having a child is not necessary for my happiness*). (The propositions in this subscale are inverses).

(5) **Need for parenthood**: referring to individuals who are closely attached to their role as parents, whose primary goal in life is to be parents. (e.g. *I often feel that I was born to be a parent*). Cronbach's α coefficient of the whole scale is 0.80, and of the five subscales are 0.65, 0.74, 0.60, 0.77, and 0.7, respectively.

The respondents in the survey chose a score that best suited their point of view. The level of response was scored from 1 - "Strongly disagree" to 6 - "Strongly agree". Some inverse propositions were converted back to scores before the overall average was calculated. Based on the mean score and standard deviation of the scale (M = 3.42; SD = 0.47; Min = 1.77; Max = 5.05), the authors divided the overall stress levels of the surveyed target group as follows:

Between 1.77 - 2.94: low stress

Between 2.95 - 3.89: moderate stress

Between 3.90 - 5.05: high stress

Data were analysed using the SPSS mathematical software version 22.0. Some statistical analyses were employed such as Cronbach's Alpha reliability analysis, mean score, standard deviation, test of difference T-test, and Anova.

3. Research process

This study was approved by two organizations, the Vietnam National Foundation for Science and Technology Development (NAFOSTED), and the University of Social Sciences and Humanities, Vietnam National University (VNU), the research team works. In addition, the study was approved by three major hospitals in Hanoi, Đà Nẵng, and Hồ Chí Minh City.

In Vietnam, Lê Thị Mỹ Hạnh & Nguyễn Thị Thanh Trúc (2021) used the FPI scale to study infertile subjects and showed that the reliability of the whole scale was 0.88. However, the authors also contacted, and were approved by, the author of the FPI scale. The scale was then translated from English into Vietnamese to suit the Vietnamese culture; thereby, the subjects could understand what they were being asked and how to answer appropriately. An independent expert then translated back from Vietnamese to English to ensure accuracy. The survey was carried out at the three hospitals, with the support of medical staff. When couples were diagnosed with “primary infertility,” the men belong to this couple, were invited to participate in the study. The researcher explained in detail the purpose and significance of the study and the questionnaire. Participants could withdraw from the study without any potential consequences. The information was kept confidential during the entire research process. It took about 30 minutes to complete the questionnaire, and participants received a small gift at the end.

4. Research results

4.1. Stress levels in infertile men across study sample

The results show that, in the state of infertility, the global stress level of those surveyed was at a moderate level ($M = 3.42$; $SD = 0.47$). Specifically, 11.6% of men had low stress, 73.4% of men had moderate stress levels, while 14.9% of men experienced high stress levels. In terms of specifics, the stress level due to the need for parenthood is highest ($M = 4.17$; $SD = 0.77$), the second is the rejection of childfree lifestyle ($M = 3.87$; $SD = 0.86$), the third is the relationship concern ($M = 3.19$; $SD = 0.72$), the fourth refers to social concern ($M = 3.05$; $SD = 0.65$), while the lowest stress level relates to sexual concern ($M = 2.80$; $SD = 0.79$). The status of stress levels in infertile men is shown in Table 2.

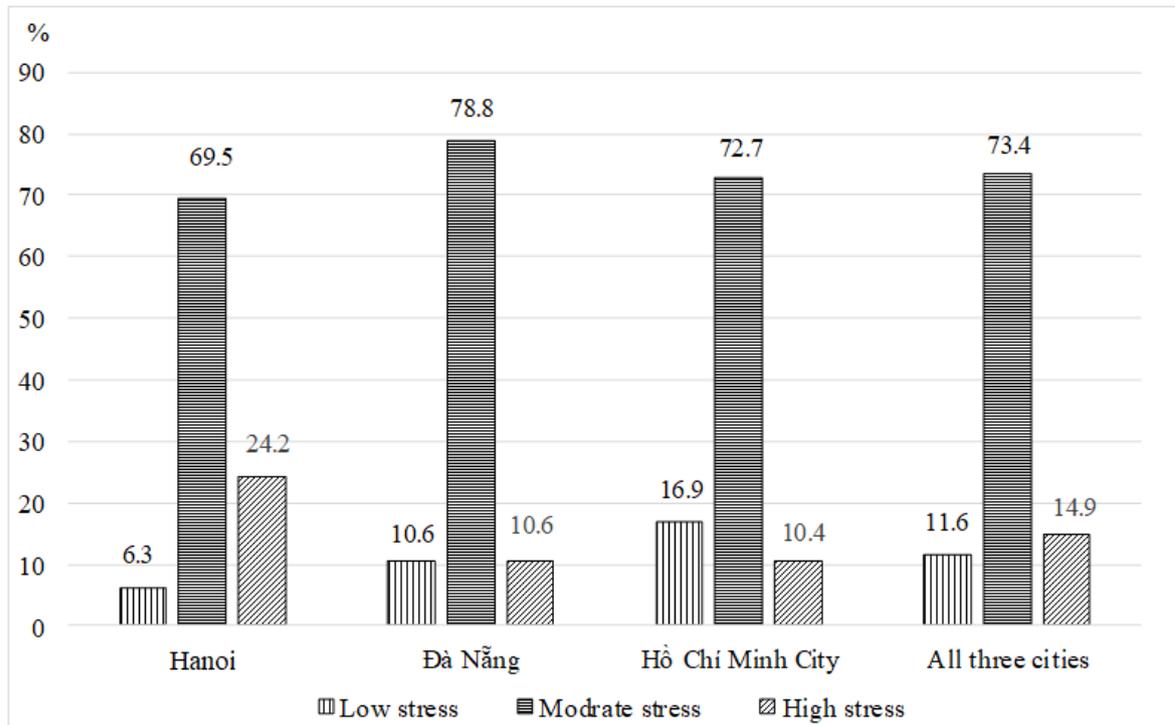
Overall, the proportion of infertile men with low stress levels was lower in Hanoi than in Đà Nẵng and Hồ Chí Minh City (6.3% versus 16.9% and 10.6 respectively). In contrast, the proportion of infertile men in Hanoi experiencing high levels of stress was more than twice that of the other two cities (24.2% versus 10.6% and 10.4%).

Table 2: Stress Levels in Infertile Men

Stressful aspects	N	Min	Max	Mean	SD
Social concern	395	1.30	5.30	3.05	0.65
Sexual concern	395	1.13	5.50	2.80	0.79
Relationship concern	395	1.57	5.33	3.19	0.72
Rejection of childfree lifestyle	395	1.50	6.00	3.87	0.86
Need for parent hood	395	1.50	6.00	4.17	0.77
Global stress	395	1.77	5.05	3.42	0.47

Source: Author.

Figure 1: Stress in Infertile Men by Survey Area



Source: Author.

4.2. Differences in stress levels in infertile men by group

Results in Table 3 show that there is a statistically significant difference in stress levels between groups of infertile men, specifically as follows:

Table 3: Comparison of Stress Levels in Infertile Men by Group

Stressful aspects	Group	Mean	SD	t/F; df; p
Social concern	(1a) Hanoi	3.17	0.68	F = 3.43; df = 392; p = 0.033
	(1b) Đà Nẵng	2.97	0.58	
	(1c) Hồ Chí Minh City	3.00	0.67	
	(2a) Urban areas	3.04	0.64	t = -0.52; df = 348; p = 0.600
	(2b) Rural areas	3.08	0.70	
	(3a) Intermediate and below	3.11	0.64	t = 1.23; df = 393; p = 0.218
	(3b) College, university or higher education	3.02	0.67	
Sexual concern	(1a) Hanoi	2.88	0.82	F = 1.18; df = 392; p = 0.164
	(1b) Đà Nẵng	2.69	0.73	
	(1c) Hồ Chí Minh City	2.82	0.81	
	(2a) Urban areas	2.77	0.80	t = -1.53; df = 348; p = 0.127
	(2b) Rural areas	2.90	0.79	
	(3a) Intermediate and below	2.95	0.78	t = 2.74; df = 393; p = 0.006
	(3b) College, university or higher education	2.72	0.80	
Relationship concern	(1a) Hanoi	3.31	0.74	F = 4.17; df = 392; p = 0.016
	(1b) Đà Nẵng	3.04	0.68	
	(1c) Hồ Chí Minh City	3.20	0.72	
	(2a) Urban areas	3.21	0.75	t = -0.33; df = 348; p = 0.736
	(2b) Rural areas	3.24	0.68	t = -0.33; df = 348; p = 0.736
	(3a) Intermediate and below	3.24	0.71	t = 0.76; df = 393; p = 0.446
	(3b) College, university or higher education	3.18	0.73	
Rejection of childfree lifestyle	(1a) Hanoi	4.12	0.92	F = 9.62; df = 392; p < 0.001
	(1b) Đà Nẵng	3.88	0.79	
	(1c) Hồ Chí Minh City	3.67	0.82	
	(2a) Urban areas	3.74	0.85	t = -3.52; df = 348; p < 0.001
	(2b) Rural areas	4.09	0.90	
	(3a) Intermediate and below	3.95	0.82	t = 1.44; df = 393; p = 0.151
	(3b) College, university or higher education	3.82	0.89	

Stressful aspects	Group	Mean	SD	t/F; df; p
Need for parenthood	(1a) Hanoi	4.37	0.77	
	(1b) Đà Nẵng	4.14	0.75	F = 7.32; df = 392; p = 0.001
	(1c) Hồ Chí Minh City	4.02	0.75	
	(2a) Urban areas	4.05	0.73	t = -4.29; df = 348; p < 0.001
	(2b) Rural areas	4.42	0.80	
	(3a) Intermediate and below	4.30	0.82	
	(3b) College, university or higher education	4.09	0.72	t = 2.62; df = 393; p = 0.009
Global stress	(1a) Hanoi	3.57	0.49	
	(1b) Đà Nẵng	3.35	0.42	F = 10.24; df = 392; p < 0.001
	(1c) Hồ Chí Minh City	3.34	0.46	
	(2a) Urban areas	3.36	0.46	t = -3.41; df = 348; p = 0.001
	(2b) Rural areas	3.55	0.50	
	(3a) Intermediate and below	3.51	0.43	
	(3b) College, university or higher education	3.37	0.49	t = 2.91; df = 393; p = 0.004

Note: $p < 0.01$ and $p < 0.05$.

Source: Author.

By survey area: in terms of global stress levels, infertile men in Hanoi were more stressed than their Đà Nẵng and Hồ Chí Minh City counterparts ($M = 3.57$ versus $M = 3.35$ and $M = 3.34$; $p < 0.01$).

This difference is also seen in the following four aspects: (i) social concern ($M = 3.17$ versus $M = 2.97$ and $M = 3.00$; $p < 0.05$), (ii) relationship concern ($M = 3.31$ versus $M = 3.04$ and $M = 3.02$; $p < 0.05$), (iii) rejection of childfree lifestyle ($M = 4.12$ versus $M = 3.88$ and $M = 3.67$; $p < 0.01$), and (iv) need for parenthood ($M = 4.37$ versus $M = 4.14$ and $M = 4.02$; $p < 0.01$).

By place of residence: respondents living in rural areas had higher global stress levels than those in urban areas ($M = 3.55$ versus $M = 3.36$; $p < 0.1$). In addition, those in rural areas had higher stress levels with regard to rejection of childfree lifestyle ($M = 4.09$ versus $M = 3.74$; $p < 0.01$) and need for parenthood ($M = 4.42$ versus $M = 4.05$; $p < 0.01$).

By level of education: the global stress level of men with intermediate or lower education is higher than that of the college or university educated men ($M = 3.51$ versus $M = 3.37$; $p < 0.01$). In addition, those with an intermediate or lower education experienced higher levels of stress in their sexual concern ($M = 2.95$ versus $M = 2.72$; $p < 0.01$) and need for parenthood ($M = 4.30$ versus $M = 4.09$; $p < 0.01$).

4. Discussions

From the above research results, the following arguments can be put forward:

Firstly, infertile men participate in the treatment process somewhat less rigorously than women, while women undergo complicated treatment processes (endoscopy, ovarian stimulation, egg retrieval, embryo transfer, etc.), regardless where the infertility lies (with the woman or man) (Webb, R. E., & Daniluk, J. C., 1999). Therefore, stress in men related to infertility may be moderate because of their denial, repression, or hiding their emotional vulnerability in order to support their wife during infertility and treatment (Pollack, W. S., 1998; Throsby, K. & Gill, R., 2004; Cousineau, T. M. & Domar, A. D., 2007). Research results show that the majority of men experience moderate global stress, while a relatively large proportion have high-stress levels, which the highest relates to need for parenthood, followed by a rejection of a childfree lifestyle. This is similar to studies conducted in other countries which show that infertile men suffer higher rates of low self-esteem and anxiety, and are more depressed than the control group (i.e. men who are more susceptible to fertilization) (Kedem, P., et al., 1990; Glover, L., et al., 1999).

Secondly, several studies have shown that infertile men and men undergoing infertility treatment reported high levels of stress in the sexual aspect. Their sexual satisfaction is less when compared to fertile men; they experience psychological stress when trying to have sex to conceive, and they are under pressure because the woman's ovulation cycle determines the time of sex (Monga, M., et al., 2004). The sexual stress associated with infertility was referred to as the pressure to have sex at a predetermined time and the loss of interest in sex (Peterson, B. D., et al., 2007). If infertile couples seek fertility treatment, they must follow a certain sexual activity regime to increase their chances of conceiving; this can negatively impact on their sexual relationship and marriage (Cousineau, T. M., & Domar, A. D., 2007). However, the authors' research results show that although there is a level of stress in the sex lives of those surveyed, it is at the lowest level compared to other aspects. And this is also shown in the previous study using the same FPI scale, both in Vietnam (Lê Thị Mỹ Hạnh & Nguyễn Thị Thanh Trúc, 2021) and other countries such as China (Bai, C., et al., 2019), Italy (Donarelli, Z., et al., 2015), and Canada (Arpin, V., et al., 2019). Specifically, infertile men experience the highest levels of stress when it comes to need for parenthood and the lowest stress in their sexual concern. Thus, this can be explained from a cultural perspective - having children is the most important issue for infertile people. A couple's primary goal of having children is a universal desire in many countries and cultures. However, the authors believe that further study is needed to clarify the sexual stress of infertile men. Research results only show the difference between the group of subjects with intermediate or lower education levels with higher stress in their sex life than those with college or university degrees or higher.

Thirdly, the three major cities in the study represent the three regions in Vietnam. Infertile men surveyed in Hanoi had higher global stress levels than those in Đà Nẵng and

Hồ Chí Minh City. At the same time, those in Hanoi also experienced greater stress in social and marital relationships, rejection of a childfree lifestyle, and the need for parenthood. To explain this, the authors believe that cultural factors have clearly influenced the psychology of people in general and infertile men in particular. People living in the North are strongly influenced by the traditional Confucian culture, which values children and dictates that they are necessary to continue the family line. Therefore, among men of the opinion that it is necessary to have children, the pressure to be a parent will be great. In addition, in the North, sons are influenced by their family members, especially their grandparents and parents who desire great/grandchildren. Getting married and having at least one son is one of the criteria for showing filial piety to parents and grandparents (Ha, T. T., et al., 2020). Within a family there will be disappointment and anxiety if a son or daughter-in-law is infertile and unable to have children (Truong Quang Lâm, 2020). Such a situation causes greater stress levels in those infertile men surveyed in Hanoi than in Đà Nẵng and Hồ Chí Minh City.

Fourthly, education levels have been shown to be a strong predictor of seeking medical help in both infertile men and women (Moreau, C., et al., 2010; Swift, E. E., & Liu, K. E., 2014). The results of this study show that men with secondary education or below have a higher global stress level related to infertility than those with a college/university degree or higher. At the same time, this target group is also under more pressure in terms of sex life and the need for parenthood. The understanding here being that higher educated people have greater awareness and they can also source more information. Therefore, they can cope better with their own situation, so stress levels are lower. Besides, people with a college and university education or higher, can enjoy better job opportunities, better socio-economic status, and access to better support.

Lastly, in all three surveyed locations those living in rural areas experienced higher levels of global stress than those in urban areas, and stress in terms of rejection of childfree lifestyle and the need for parenthood was also higher. This can be explained by:

(1) People living in rural areas have less dominant socio-economic characteristics than urban residents. Therefore, their access to information, social support resources, and income opportunities are also more limited than their counterparts. In addition, infertility treatment is very costly, which exacerbates the financial stress for men and women (Fisher, J. R. & Hammarberg, K., 2012; Wischmann, T. & Thorn, P., 2013). Even after complicated treatments such as in vitro fertilisation (IVF), for those unlucky couples for whom IVF fails, that money is considered “thrown into the river and into the sea”, and they have to prepare money for the next course of treatment (Trần Hà Thu, et al., 2020). At the same time, because of the specific stages involved, women have to dedicate their time to infertility treatment (even having to have time off work). They also need to rest, and men are under pressure to earn money; hence, men in rural areas experience more stress than their urban counterparts.

(2) People living in rural areas are more heavily influenced by *having to have children* than those in urban areas. This result is also shown in a recent study that rural couples are

stressed in higher pressure to have children than urban couples (Trần Hà Thu, et al., 2020). Due to less dominant socio-economic characteristics as a consequence of increased pressure to have children, and with the Vietnamese tenets of “*children are assets to be saved*”, or “*it is better to have many children than a large fortune*”, children are therefore regarded as a guaranteed source of support for the elderly and infirm. This has also been demonstrated in many studies, and children are a reliable human resource in many rural areas and in developing countries (Hollo, M., 2003; Barden-O’Fallon, J., 2005; Hollos, M., et al., 2009).

5. Conclusion

In summary, the results of research on psychological stress experienced by infertile men in three major cities in Vietnam show that most have moderate stress levels, with a certain percentage of infertile men under high stress levels. In every respect, men have the highest stress in terms of parenting needs and the lowest in their sex lives. There are differences among the target groups by survey area, place of residence, and education level. Psychological and cultural explanations have contributed to clarifying the above findings. Overall, this is a preliminary study carried out to investigate the negative effects of infertility on men's psychology. In fact, when it comes to social pressure, given what women have to go through during infertility treatment, they have to shoulder a greater burden than men, especially with complicated treatment techniques, and the first course of treatment does not always succeed. The findings also identify the psychological stress of men with regard to need for parenthood. The authors believe that the question of whether men experience less stress than women due to infertility is still a topic that needs to be explored further in future studies.

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