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Infertility-related stress, social support, and coping of women experiencing infertility in Vietnam

BACKGROUND
Women with an infertility problem living in traditional and developing countries face extensive social pressure, infertility-related stress, and distress, which possibly affect their choices of coping strategies. The present study aims to investigate the impact of infertility-related stress and social support on coping of Vietnamese women who live with an infertility diagnosis.

PARTICIPANTS AND PROCEDURE
A cross-sectional study was conducted with 192 women diagnosed with infertility at two hospitals in the north and central regions of Vietnam. Participants completed a questionnaire consisting of the Multidimensional Scale of Perceived Social Support, the Copenhagen Multi-centre Psychosocial Infertility coping scales and the Fertility Problem Inventory, and questions about their sociodemographic characteristics, infertility-related history, and key social relationships. Four linear regression analyses were performed on four coping strategies: active-avoidance coping (AAC), active-confronting coping (ACC), passive-avoidance coping (PAC), and meaning-based coping (MBC).

RESULTS
The findings show that high infertility-related stress significantly predicted the use of avoidance coping strategies (AAC and PAC) among these women, while those with a high level of perceived social support tended to use ACC and MBC. None of the four linear regression models support the moderating role of social support in the relationship between infertility-related stress and coping styles.

CONCLUSIONS
The study findings show that levels of infertility-related stress and perceived social support have a direct effect on the choice of coping strategies among Vietnamese women diagnosed with infertility. The study results have practical implications in the Vietnamese context, including: (i) the development and adaptation of evidence-based and culturally appropriate interventions and counselling strategies; and (ii) social policy advocacy to better support women diagnosed with infertility, their husbands, and both as couples.

KEY WORDS
social support; coping; Vietnam; infertility-related stress

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BACKGROUND

OVERVIEW OF WOMEN WITH INFERTILITY

Infertility has been considered a major reproductive health problem worldwide. The International Committee for Monitoring Assisted Reproductive Technology (ICMART) and the World Health Organization (WHO) define infertility as a reproductive related disease which causes the failure to achieve a clinical pregnancy after 12 months or more among couples with regular unprotected sexual intercourse (Zegers-Hochschild et al., 2009). In 2010, there were approximately 48.5 million couples diagnosed with infertility (Mascarenhas et al., 2012). The WHO (2012) indicated that the overall burden of infertility on women remained the same from 1990 to 2010 across 190 countries.

Infertility and infertility treatment are associated with burdens and stress among couples, such as financial burdens, life goal changes, and reduced self-esteem (Burns & Covington, 2006; Luckse & Vacc, 1999). Newton et al. (1999) summarized five key aspects of infertility related stress, namely: social concern, sexual concern, relationship concern, rejection of childfree lifestyle, and need for parenthood. The importance of having children is particularly emphasized among couples, especially women in Asia and Africa, as it is associated with their worth in their family and community (Dyer & Patel, 2012). In many Asian countries, such as China, having children, particularly sons, to perpetuate one's family lineage is viewed as a priority of a married couple (Lee et al., 2001; Loke et al., 2012). Therefore, those who cannot meet this social standard reported a high level of stress associated with the disdain from their own community (Lee & Sun, 2000). For example, 80% of Chinese married couples with subfertility report their fear of infertility and an unpromising future without children in their family and community (Lau et al., 2008). In fact, subfertility and infertility are associated with marriage conflicts, divorce, abandonment, and financial insecurity (Patel, 2016).

Although infertility affects both husband and wife as a couple, women, especially women in Asian countries, tend to experience higher stress related to infertility, due to the common social prejudice that infertility is mostly women's problem (Chiew & Jan, 2018; Lee et al., 2009; Van den Broeck et al., 2010). Chinese women explicitly show their worries about the attitude of their husbands' families. The worry level is even higher if their husbands are the oldest or the only son in the family (Lee & Sun, 2000; Lee et al., 2009). The mental health problems related to infertility are higher among Iranian women even if the cause of infertility is male. The rates of depression, anxiety, hypochondriasis, and paranoia in infertile women and the wives of infertile men were significantly higher than those in husbands of infertile females in Iran (Karimzadeh et al., 2017). Women with infertility and/or infertility treatment list multiple difficulties related to their social relationships, career, financial, and health care. Depression has also been found to be very common in this group (Benyamini et al., 2005; Galhardo et al., 2020; Karimzadeh et al., 2017; Meller et al., 2002).

A high level of stress related to infertility requires a high level of coping effort among women with infertility problems (Schmidt et al., 2005a, b). Schmidt et al. (2005a, b) suggested four styles of coping among people with infertility: (1) active-avoidance coping (AAC), (2) active-confronting coping (ACC), (3) passive-avoidance coping (PAC), and (4) meaning-based coping (MBC). Some other coping strategies among people with infertility problems are avoidance, blaming, responsibility-taking, problem-focused, positive re-evaluation, and social support seeking (Gourounti et al., 2010). Women tend to adopt avoidance coping strategies, i.e., avoiding thoughts, emotions, and situations reminding them of pregnancy and parenthood (Galhardo et al., 2020). Avoidance coping and confronting coping are both associated with a high level of stress among people with infertility problems (Lykeridou et al., 2011). In addition, women treated for infertility often struggle with coping with their own emotions, such as fear and worry, during their treatment (Podolska & Bidzan, 2011).

Social support is considered one of the key protective factors for women suffering from infertility-related stress. It is also worth mentioning that women use more social support than their male partners (Cousineau & Domar, 2007). Social support not only helps lower the level of infertility stress (Gibson & Myers, 2002; Matsubayashi et al., 2004; Öztürk et al., 2021; Schmidt et al., 2005a, b), but it also reduces depression and anxiety among women (Dembińska, 2016; Lechner et al., 2007; Verhaak et al., 2005). On the other hand, lack of social support, particularly from husbands, is associated with women's negative emotions and dissatisfaction with marriage (Luk & Loke, 2014). Although previous studies emphasize the importance of social support with respect to infertility-related stress among women, it remains unclear about whether social support affects the choice of coping styles, both as an independent factor and a moderator in the relationship between infertility-related stress and coping styles. In addition, it is important to investigate their relationship in a specific socio-historical context.

WOMEN WITH INFERTILITY IN VIETNAM

In the specific context of Vietnam, infertility has been a great concern to public health professionals. Approximately 7.7% of 14,300 couples aged from 15 to

49 in eight regions in Vietnam were diagnosed with infertility (Ministry of Health, 2017). The sociocultural context in Vietnam places intensive pressure on women with infertility problem. In developing countries, children are perceived as a source of marriage connection and family cohesion, as well as a future labour and income source for a couple in their older age (Barden-O'Fallon, 2005; Hollos et al., 2009; Wiersema et al., 2006). A common folk saying, "More children, more wealth" (*Nhiều con nhiều của)*, conveys this belief in Vietnamese culture. Relatives, friends, neighbours, and coworkers raise unintentional confronting questions to women if they do not have children after the first year of marriage (Nguyen, 2011a; Wiersema et al., 2006). The uncertainty of causes, possible solutions and results regarding the infertility problem and treatment increases the internal pressure on women. In addition, it is a common stigma in traditional societies that infertility is mainly women's dysfunction and accountability (Greil et al., 2010; Karaca & Unsal, 2012; Miles et al., 2009), as another old saying stating "unblessed trees bear no fruits, unblessed women bear no children" (*Cây độc không trái, gái độc không con)* imposes much higher stress on Vietnamese women (Tran et al., 2020). Scholars share their findings on negative emotions that Vietnamese women diagnosed with infertility experience, such as deep sadness, guilt, loneliness, relationship and future insecurity (Wiersema et al., 2006), low spirit, pain, disappointment, self-pity (Nguyen, 2011a), anxiety, distress, and hopelessness (Nguyen & Nguyen, 2017; Truong, 2020), and depression (Vo et al., 2019). Depression was detected in 12.2% of women diagnosed with infertility (Vo et al., 2019).

Faced with multiple challenges and negative emotions associated with infertility, Vietnamese women adopt different coping strategies. A few available studies on this group report different ways of women's coping. In Nguyen's study (2011b), women mostly adopted a direct confronting coping strategy by actively seeking treatment mainly from formal healthcare services. Some of them showed both a positive attitude and wishful thinking, while others sought help from religious facilities for this out-of-control problem. In another study conducted with Vietnamese women in the north, passive coping was found to be adopted more often than active coping. MBC was the least frequent use of coping, particularly in the group of older infertile women (aged 36-45). In addition, women in rural areas did not either show their emotions regarding infertility treatment or accept comforting words from others (Dang et al., 2020).

During the coping process, social support, including tangible, information, and emotion support, plays an important role. On the other hand, too much attention from family and in-laws and extensive suggestions on food and treatment methods could bring more pressure and stress than encouragement to women. Such pressure and stress forced women to try to meet their families' expectations; hence, it could bring more psychological harm to them (Wiersema et al., 2006). However, this study and the others do not clarify the level of social support Vietnamese women received while coping with their infertility-related stress. In addition, not much is known about the underlying mechanism of the relationship among perceived social support, infertility-related stress, and the choice of coping strategies among Vietnamese women.

RESEARCH AIMS AND QUESTIONS

Considering the knowledge gaps in the literature, the present study aims to investigate the impact of infertility-related stress and social support on coping of Vietnamese women who live diagnosed with infertility. To be more specific, this study seeks to answer the following research questions:

1. Does infertility-related stress have a direct impact on each coping style (AAC, ACC, PAC, and MBC)?
2. Does social support have a direct impact on each coping style?
3. Is the impact of infertility-related stress on each coping style modified by social support?

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

A total of 192 women with a primary infertility diagnosis, who had never become pregnant before, were recruited from two hospitals in the northern and central regions of Vietnam, using convenient sampling. The key demographic characteristics of participants are presented in Table 1. All women in the study, aged 22 and above, were married for at least a year. Their average years of pregnancy expectation were 4.76 (*SD* = 3.18), which was close to their average years of diagnosed infertility (*M* = 4.35, *SD* = 3.10). Participants reported an average score of infertility-related stress of 164.20 (*SD* = 17.76), while social support averaged 61.57 (*SD* = 13.20). The mean scores of AAC, ACC, PAC, and MBC were 8.12 (*SD* = 2.60), 19.94 (*SD* = 3.89), 9.32 (*SD* = 2.21), and 14.69 (*SD* = 2.47) respectively.

MEASURES

Infertility-related stress. Infertility-related stress in Vietnamese women was measured with the Fertility Problem Inventory (FPI; Newton et al., 1999). The FPI consists of 46 items covering five key aspects of infertility-related stress: (1) social concern (e.g., "It doesn't bother me when I'm asked questions about children"; "It doesn't bother me when others talk about their

Table 1

Descriptive characteristics of the study sample (N = 192)

Variables	Valid observations	% (*n*) or [min-max]	*M* (*SD*)	Cronbach's α
Demographic characteristics/ covariates				
Age	182	[22-45]	31 (4.50)	
Education	192			
High school and lower		39.58 (76)		
College and higher		60.42 (116)		
Years of marriage	173	[1-21]	5.63 (3.96)	
Years of pregnancy expectation	167	[0.3-21]	4.76 (3.18)	
Years of diagnosed infertility	173	[0.3-21]	4.35 (3.10)	
Determinants				
Infertility-related stress	132	[114-208]	164.20 (17.76)	.59
Social concern	167	[16-49]	32.44 (6.52)	.67
Sexual concern	168	[10-37]	22.82 (6.19)	.74
Relationship concern	169	[17-41]	31.20 (4.82)	.69
Rejection of child-free lifestyle	157	[16-48]	33.43 (6.67)	.80
Need for parenthood	159	[19-58]	44.84 (6.26)	.75
Social support	175	[12-84]	61.57 (13.20)	.90
Outcome variables				
Active-avoidance coping (AAC)	183	[4-15]	8.12 (2.60)	.76
Active-confronting coping (ACC)	174	[9-28]	19.04 (3.89)	.77
Passive-avoidance coping (PAC)	179	[3-12]	9.32 (2.21)	.82
Meaning-based coping (MBC)	177	[9-20]	14.69 (2.47)	.57

children"); (2) sexual concern (e.g., "I find I've lost enjoyment of sex because of the fertility problem"; "I feel like I've failed at sex"); (3) relationship concern (e.g., "I can't show my partner how I feel because it will make him/her feel upset"; "My partner doesn't understand the way the fertility problem affects me"); (4) rejection of childfree lifestyle (e.g., "Couples without a child are just as happy as those with children"; "I could see a number of advantages if we didn't have a child"); and (5) need for parenthood (e.g., "Pregnancy and childbirth are the two most important events in a couple's relationship"; "For me, being a parent is a more important goal than having a satisfying career"). For each item, participants chose one response out of six choices (1 – *strongly agree*; 2 – *moderately agree*; 3 – *slightly agree*; 4 – *slightly disagree*; 5 – *moderately disagree*; 6 – *strongly disagree*). Global stress was computed by summarizing the points of all 46 items. Cronbach's α coefficients of the five subscales were .67, .74, .69, .79, and .74 respectively, and of the global stress was .59.

Social support. The Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988) was used to measure the level of perceived social support from family (e.g., "My family really tries to help me"); friends (e.g., "I can talk about my problems with my friends"); and significant others, who were not family and friends (e.g., "There is a special person with whom I can share my joys and sorrows"). Twelve-item ratings were set on a 7-point Likert-type scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Cronbach's α coefficient of this variable was .90.

Coping. We adopted the Copenhagen Multi-Centre Psychosocial Infertility (COMPI; Schmidt et al., 2005a, b) scale to measure different styles of coping of Vietnamese women. COMPI includes four sub-scales, namely: (1) active-avoidance coping (AAC) (e.g., "I leave when people are talking about pregnancies

and children"), (2) active-confronting coping (ACC) (e.g., "I ask other childless people for advice"), (3) passive-avoidance coping (PAC) (e.g., "I hope a miracle will happen"), and (4) meaning-based coping (MBC) (e.g., "I think about the fertility problem in a positive light"). Participants chose one response ranging from 1 to 4 for each item (1 – *not used*; 2 – *used somewhat*; 3 – *used quiet a bit*; and 4 – *used a great deal*). The score of each sub-scale was the summation of its items' points. Cronbach's α coefficients of the four subscales were .75, .76, .82, and .56 respectively.

Background variables. A set of background variables was included in the study, consisting of a binary variable (education with 0 – high school and lower, 1 – college and higher), and continuous variables (age, years of marriage, years of pregnancy expectation, and years of diagnosed infertility).

PROCEDURE

The study was approved by the Committee for appraisal and issuance of research ethics codes of University of Social Sciences and Humanities, Vietnam National University in Hanoi (no. 2890/CN-XHNV-KH). Data collection consisted of two phases. In phase 1, the standardized scales in the questionnaire were translated from English to Vietnamese by the core research team. Then, an independent consultant conducted a back translation from Vietnamese to English to validate the translation. A pilot study with 55 infertile women in Northern Vietnam was conducted to test the cultural appropriateness and feasibility of the questionnaire, as well as to finetune it. A professional team provided feedback for the revised questionnaire before finalizing it for phase 2.

In phase 2, the research team collaborated with the health professionals at the two hospitals to invite women with a primary infertility diagnosis to participate in the study. We explained the study aim and procedure, and potential benefits and risks when participating in the study. We also made it clear that participants could participate in and withdraw from the study voluntarily at any time without any consequences. Their information would be used for research purposes only and would remain anonymous and protected in the study. For the 192 women who agreed to participate in the study (none of them dropped out), trained research assistants interviewed them using the finalized questionnaire at the hospital. Each interview took from 30 to 35 minutes and participants received a gift bag of supplements.

DATA ANALYSIS

First, descriptive and correlation analyses were conducted on key variables of the study. Second, four linear regression analyses were performed on four outcome variables (AAC, ACC, PAC, and MBC). The background variables (age, education, years of marriage, years of pregnancy expectation, and years of diagnosed infertility) and determinants (infertility-related stress and social support) were entered in the four models. Interactions between the two determinants for each outcome variable were also performed. Data were analysed using STATA 16.0 and the statistical significance level was set at .05.

RESULTS

BIVARIATE CORRELATIONS AMONG STUDY VARIABLES

Table 2 presents bivariate correlations among key variables of the study. Being older and having higher infertility-related stress were associated with higher use of AAC ($r = -.22$, $p = .003$ and $r = .45$, $p < .001$) and PAC ($r = -.18$, $p = .017$ and $r = .30$, $p < .001$), while having more social support was associated with higher use of ACC ($r = .39$, $p < .001$), and MBC ($r = .44$, $p < .001$), and PAC ($r = .16$, $p = .042$). Among the four styles of coping, ACC, PAC, and MBC were significantly correlated with each other, while AAC was associated with ACC and PAC only.

MULTIVARIATE MODELS OF COPING

Table 3 summarizes multivariate models of the use of four coping styles. In Models 1 and 3, after controlling for background variables, infertility-related stress was found to have a significant, direct effect on the use AAC (β = .41) and PAC (β = .32). In Models 2 and 4, social support was a significant predictor of the use of ACC (β = .37) and MBC (β = .46). In Model 1 only, background variables, including age (β = −.34) and years of pregnancy expectation (β = −.46), were found to significantly predict the use of coping (AAC). In each model, neither infertility-related stress nor social support showed a direct effect on the style of coping; therefore, none of the four models met the requirements to perform interaction analyses between these two determinants. In other words, no interactions were found between infertility-related stress and social support in all four models.

DISCUSSION

The present study examines the relationship among infertility-related stress, social support, and coping of 192 Vietnamese women diagnosed with infertility in the north and central regions. The findings show that high infertility-related stress significantly predicted

the use of avoidance coping strategies (AAC and PAC) among these women, while those with a high level of perceived social support tended to use ACC and MBC. None of the four linear regression models show the moderating role of social support in the relationship between infertility-related stress and coping styles. This study, however, has its limitations. Data were collected with a small sample of 192 women

Table 2

Correlation of studied variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) AAC	–										
(2) ACC	.34*	–									
(3) PAC	.23*	.35*	–								
(4) MBC	.07	.39*	.33*	–							
(5) Age	−.22*	−.01	−.18*	−.12	–						
(6) Education	−.14	−.15	−.10	−.05	.02	–					
(7) Years of marriage	−.01	.10	−.06	−.09	.61*	−.19*	–				
(8) Years of pregnancy expectation	−.06	−.01	−.05	−.15	.49*	−.19*	.83*	–			
(9) Years of diagnosed infertility	−.02	.04	−.03	−.11	.47*	−.19*	.77*	.93*	–		
(10) Infertility-related stress	.45*	.15	.30*	−.09	−.14	−.34*	.01	.00	−.04	–	
(11) Social support	.06	.39*	.16*	.44*	.08	−.13	.05	.04	.07	−.001	–

Note. AAC – active-avoidance coping; ACC – active-confronting coping; PAC – passive-avoidance coping; MBC – meaning-based coping; *$p < .05$.

Table 3

Linear regression models of coping

	Standardized coefficient (β)			
	Model 1 (AAC)	Model 2 (ACC)	Model 3 (PAC)	Model 4 (MBC)
Background variable				
Age	−.34*	.17	.02	.06
Education (college and higher)	.00	−.18	−.14	−.07
Years of marriage	.26	−.11	−.12	−.21
Years of pregnancy expectation	−.46*	−.01	−.08	−.23
Years of diagnosed infertility	.39	−.08	.12	.18
Determinant				
Infertility-related stress	.41*	.10	.32*	−.06
Social support	−.001	.37*	.17	.46*
Summary statistic				
R^2	.31*	.19*	.18*	.26*
Adjusted R^2	.26*	.13*	.12*	.20*

Note. AAC – active-avoidance coping; ACC – active-confronting coping; PAC – passive-avoidance coping; MBC – meaning-based coping; *$p < .05$.

diagnosed with infertility using the convenient sampling method, which restricts the generalizability of the study results. Due to the small sample size, the study could not detect the effect of the geographical and cultural context on coping styles of participating women. Despite these limitations, the study results provide an insight into the coping mechanism of this vulnerable and hard-to-reach group in the Confucianism society of Vietnam.

Consistent with the literature on infertile women in different contexts (Peterson et al., 2006a, cited in Peterson et al., 2008; Schmidt et al., 2005a; Terry & Hynes, 1998), infertility-related stress was found to be significantly associated with avoidance coping strategies, including both AAC and PAC, among Vietnamese women diagnosed with infertility. Under intensive pressure to have children in a traditional society, where becoming a mother is not seen as a private matter, women often face questions about their pregnancy. Especially, young people living with their parents after getting married, and having at least one son for the succession of the family name, are considered criteria of filial piety (Ha et al., 2020). These situations often bring them emotional pain, as well as increasing infertility-related stress and psychological distress (Greil et al., 2010; Peterson et al., 2008). Women with high infertility-related stress, hence, tend to protect themselves from painful experiences by adopting avoidance coping strategies (i.e., steering away or abandoning conversations related to pregnancy and motherhood) (Schmidt et al., 2005a). These strategies, however, were found to be linked to a rising level of infertility-related stress (Martins et al., 2011; Peterson et al., 2008).

In addition, our study results indicate that being older and expecting to be pregnant for a long time significantly predict the use of AAC among infertile Vietnamese women. In other words, the older they became and the longer they expected to be a mother, the more often these women avoided engaging in conversations related to pregnancy and motherhood with others. This finding could be explained by the well-known information about the association between women's age and their chances of getting pregnant (Chandra et al., 2005; Cousineau & Domar, 2007; Roupa et al., 2009; the Practice Committee of the American Society for Reproductive Medicine, 2006), which places more pressure on older women. They tend to adopt AAC as a way to protect themselves from added stress and painful feeling (Rashidi et al., 2011).

In line with previous studies (Crockett et al., 2007; Hayden et al., 2007; Peterson et al., 2008), our findings show that women with high levels of perceived social support tended to use ACC and MBC. Receiving adequate social support, such as useful information, financial aid, and sympathy, from family, friends, and others boosts women's sense of belonging and being respected (Rashidi et al., 2011; Thoits, 1995), and self-confidence to share their concerns and feelings, confront their problems, and actively participate in problem-solving (Crockett et al., 2007; Hayden et al., 2007). For example, they approach their infertility diagnosis with a positive attitude and actively search for a solution, such as asking other women with similar problems for advice and finding a meaning in their treatment process.

Notably, our study did not detect any significant interaction between infertility-related stress and social support in their relationships with coping styles in all four models. This could be explained by the fact that women often receive from social support from people without an infertility problem. Support from those sources could be counterproductive for women who live with infertility-related stress on daily basis, as they might think that others could not understand their experiences (Rashidi et al., 2011). In fact, infertile women tend not to seek help from their family members and friends (Pedro, 2015). On the other hand, although our study did not support the moderating effect of social support on the relationship between infertility-related stress and coping styles, this result should be reassessed in future studies with larger sample sizes.

CONCLUSION AND IMPLICATIONS

In summary, the study findings show that levels of infertility-related stress and perceived social support have a direct effect on the choice of coping strategies among Vietnamese women diagnosed with infertility. Future related studies could further examine the relationship among infertility-related stress, social support, and coping strategies in larger samples of women in different contexts and possibly with married men clinically diagnosed with infertility.

The study results have practical implications in the Vietnamese context. First, the key findings inform social service professionals about the importance of levels of infertility-related stress and perceived social support for women's choice of coping strategies, which is helpful to develop and adapt interventions and counselling strategies for not only women, but also for their husbands, and for both as couples. Second, our study results are evidence for social policy advocacy to better support women diagnosed with infertility in particular, and people, including both men and women, with this reproductive health problem in general.

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