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Interactive effects of social support and disclosure on fertility-related stress[1]

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Abstract

Individuals perceiving high social support tend to perceive better adjustment to infertility. However, it remains unclear whether this benefit is affected by the actual disclosure of the infertility condition. The present study aimed to examine the role of disclosure of fertility status in moderating the relationship between perceived social support and fertility-related stress. The study population (N = 698) was drawn from a longitudinal cohort design of Danish men and women beginning fertility treatment with a 12-month follow-up. Participants were 698 subjects (364 women and 334 men) who completed self-administered questionnaires measuring perceived social support at T1, and fertility status disclosure and fertility stress at T2. Results indicated that when infertility is not disclosed to at least a close relationship, the beneficial effects of social support on both social and personal stress cease to exist. Also, when participants perceived high social support, higher levels of social and personal stress were associated with keeping infertility as a secret within close relationships, but when low social support was perceived, high social and personal stress levels were associated with disclosing infertility to all close relationships. Findings from this study provide evidence that the prospective relationship between social support and fertility-related stress is moderated by the decision of disclosing infertility. Infertility health professionals can help couples in deciding to which contexts they should disclose their infertility by assessing social support.

Keywords: disclosure; infertility; moderation; social support; stress.

Interactive effects of social support and disclosure on fertility-related stress

An infertility diagnosis is attributed to a couple after 12 months of unprotected sexual intercourse (Zegers-Hochschild et al., 2009). Notwithstanding, defining oneself as infertile is a process that begins earlier as the members of a couple realize their successive attempts to conceive have failed (Orshan et al., 2009). This identification process progresses further as couples experience significant changes to their social network and subsequent sociocultural reality (Greil, 1997; Greil, Slauson-Blevins, & McQuillan, 2010). Most societies see parenthood as an essential milestone of adulthood (Bos & Van Rooij, 2007; Purewal & van den Akker, 2007), and young couples are continually exposed to normative pressure towards childbearing (Bernardi, 2003; Bute, 2009). For those struggling with a fertility problem, dealing with such pressure can lead to social isolation (Allison, 2011). Social expectations can produce strain on infertile people not only within the social relations sphere, but also on other important domains such as the marital relationship and personal health and well-being (Greil, 1997).

Even though disclosure is important to constructing and maintaining relationships (Greene, Derlega, & Mathews, 2006), couples might feel stigmatized and fear disclosing their fertility status to their social networks. In fact, those experiencing infertility often receive unhelpful social support from well-intended others, which results in additional stress (Mindes, Ingram, Kliewer, & James, 2003; Slade, O'Neill, Simpson, & Lashen, 2007). The present study examined the joint contribution of social support and disclosure of fertility status to fertility-related stress in the social, marital, and personal domains. Social support is an essential interpersonal resource in improving and preserving both physical and psychological well-being (Berkman, Glass, Brissette, & Seeman, 2000; Bolger & Amarel, 2007; Kawachi & Berkman, 2001). Perceived social support refers to a stable expectation of having an available confidant to

provide help or caring attitudes when needed (Cohen & Wills, 1985; Walen & Lachman, 2000). Having a sense that these sources of support are accessible becomes especially relevant in the event of a life crisis. There is well-documented evidence showing a positive relationship between social support and psychological adjustment in the face of a large number of chronic stressors including HIV-positive status, cancer, vision loss, and myocardial infarction (Kalichman, DiMarco, Austin, Luke, & DiFonzo, 2003; Reinhardt, Boerner, & Horowitz, 2006; Schwarzer & Knoll, 2007). Infertility has been compared to a chronic illness in the sense that it requires adaptation over time and no immediate resolution can be offered (Fleming & Burry, 1988). When it comes to dealing with the stress of infertility, there has been an increasing awareness of the important role interpersonal resources can play (Greil et al., 2010; Schmidt, 2009). In fact, a small but growing body of evidence shows that supportive behaviors from others influence adjustment to infertility. Overall support or support from specific sources such as partners and families has been positively associated with fertility adjustment (Mahajan et al., 2009), and negatively related with fertility stress (Gibson & Myers, 2002; Martins, Peterson, Almeida, & Costa, 2011), depression (Lechner, Bolman, & van Dalen, 2007; Lund, Sejbaek, Christensen, & Schmidt, 2009; Verhaak et al., 2005), and anxiety (Lechner et al., 2007; Verhaak et al., 2005).

Given the results of these studies, it would be reasonable to assume that infertile couples that have supportive relationships would always report healthier emotional outcomes than couples who cannot count on others for support. However, since one key purpose of social support is to provide a safe environment where one can talk openly about concerns and feelings (Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004), couples experiencing infertility who do not disclose their struggles to others are likely denied the benefits of such discussions. In

other words, if one does not feel comfortable disclosing an issue of central importance in a couple's relationship, adjusting to the emotional roller-coaster of infertility might be more difficult.

Pennebaker (1995, 2000; Pennebaker & Susman, 1988) has provided substantial evidence to support the idea that occulting personal information can be both psychologically and physically stressful, whereas openness can improve health. Disclosure, defined as an interaction where personal information is voluntarily shared (Chaudoir & Fisher, 2010; Greene et al., 2006), can strengthen intimacy and trust and improve the overall quality of relationships (Derlega, Metts, Petronio, & Margulis, 1993; Reis & Shaver, 1988). However, when it comes to the disclosure of a concealable stigmatized identity, unburdening oneself of a particular worry might not always alleviate the associated stress. In fact, a significant number of individuals can experience negative outcomes such as misinterpretation, discrimination, stigmatization, rejection, or abandonment after disclosure (Alter & Oppenheimer, 2009; Chaudoir & Fisher, 2010; Kalichman et al., 2003; Vyavaharkar et al., 2011). Infertility may differ from other invisible stigmatized identities (Cousineau & Domar, 2007; Greil, 1991; Slade et al., 2007; Whiteford & Gonzalez, 1995) such as HIV-positive status or homosexuality: Because young married or cohabiting couples are often regularly confronted with intrusive questions about childbearing and pregnancy (Bute, 2009), individuals are likely to have to deal with the anxiety of having their infertility unveiled at some point (Ragins, 2008). Among long-term involuntarily childless couples, fertility problems are disclosed in close relationships in about 90% the cases, and in more distant relationships in about half of the cases (van Balen, Trimbos-Kemper, & Verdurmen, 1996).

Because of the complex relationship between receiving the positive emotional benefits of social support and disclosure of infertility, there is a need to examine the relational consequences of disclosure in varying social contexts (Greene et al., 2006). Moreover, the disclosure of fertility status is a relatively unexplored topic within the infertility literature, and the few completed studies have produced mixed findings. Van Balen et al. (1996) found that secrecy was related to poorer adjustment, while Schmidt, Holstein, Christensen, and Boivin (2005) found no differences in fertility stress in relation to the degree of secrecy adopted in communication strategies. Slade et al. (2007) reported that disclosure was associated with higher stress in women, and with lower levels of stigma consciousness in men. Finally, a recent qualitative interview study found that the use of silence was used as a strategy to avoid undesirable advice (Allison, 2011).

This diversity of results might be explained by recognizing that communication strategies do not always match individual needs (Schmidt et al., 2005) and that the effect of communication may be shaped by the social context and the degree to which needs can or cannot be openly expressed in that context. Social support and disclosure are related but contain distinct constructs that can co-occur at similar or contrasting levels. For example, an individual might feel the need to share a fertility problem with his or her parents even though the individual knows they are not supportive and responsive to his or her needs, and end up feeling greater stress than before the disclosure. Thus, it is plausible to expect that the disclosure of infertility may affect the way social support predicts fertility-related stress.

The current study examines the role of disclosure of fertility status in moderating the relation between social support and fertility-related stress. We investigated social support and disclosure within the social contexts of family, family-in-law, friends, and colleagues. Because

people usually share their emotions with close others (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998), these contexts were distinguished by their closeness-distance.

Separate analyses were performed for personal, marital, and social stress domains, as previous research has shown that infertility stress is experienced differently across these spheres (Greil, 1997; Schmidt, 1996; Tjørnhøj-Thomsen, 1999, 2005). Infertility-related social stress is related to perceived changes in one's social networks due to infertility, infertility marital stress refers to relational and sexual changes within the couple's marriage, and infertility personal stress is related to perceived physical and mental health changes. Significant joint effects of social support and disclosure were expected on both the personal stress domain and on the social stress domain. We hypothesized that while each individual's level of social support would be prospectively and negatively associated with his or her levels of fertility-related personal and social stress, the strength of this relationship would weaken as the level of disclosure of the fertility status decreased. Specifically, we expected that for individuals hiding their fertility status, the relationship between personal and social stress and social support would cease to be significant. Because infertility is a couple's shared problem (Peterson, Pirritano, Christensen, & Schmidt, 2008), and disclosure to one's partner is a given within infertility, it was expected that the interaction would not be significant in the marital domain. Because women have been found to report greater infertility-related stress when compared to men (Benyamini, Gozlan, & Kokia, 2009; Greil, 1997; McQuillan, Greil, White, & Jacob, 2003; Peterson, Newton, Rosen, & Skaggs, 2006), particularly within the personal and social stress domains (Boivin & Schmidt, 2005; Peterson et al., 2009; Peterson et al., 2008), gender was included as a control variable in the fertility-related stress domains models.

Method

Participants

Participants were derived from The Copenhagen Multi-centre Psychosocial Infertility (COMPI) Research Programme (Schmidt, 2006; Schmidt et al., 2003). This prospective cohort study comprised a consecutive sample of all new couples starting fertility treatment in one of five fertility clinics in Denmark initiated in 2000.

In total, 2812 fertility patients received a baseline questionnaire (T1), and 2250 (80.0%) responded. One year later (T2), 2206 participants received the 1-year follow-up questionnaire (44 were lost to follow-up: 38 whose identity was not registered at T1, 4 whose address could not be traced, 1 who had died and 1 who suffered a severe brain injury), and 1934 (87.7%) responded. Because stress levels significantly differ between childlessness and secondary infertility (i.e., the inability to become pregnant after having one or more children) (Benyamini, Gozlan, & Kokia, 2005; McQuillan et al., 2003), participants who were pregnant at T1 or had a child after treatment (n = 1107), and participants who already had a child together with their partners at T1 (n= 29) were excluded. Participants who were not employed at baseline (n = 88) were also excluded to avoid bias associated with not managing social support and disclosure within the same life domains. Finally, we excluded those who left more than 50% unanswered items of a given measure (n = 12). The final sample for this study included 698 subjects, 364 women (52.1%) and 334 men (47.9%).

Procedure

Data were collected through four large public hospital-based fertility clinics and one private clinic. All COMPI data were collected during a period where access to assisted reproductive technology in Denmark was equal and tax-financed in the public health care

system. Between January 2000 and August 2001, all new couples entering a clinic for the first time received a sealed, pre-addressed and stamped envelope immediately before their first treatment attempt (T1). T2 questionnaires were sent 12 months after delivery of T1 questionnaires (January 2001 – August 2002). Participants who did not wish to participate returned an enclosed non-participating form, and a maximum of two-reminders at 10-day intervals was sent to those if the questionnaires or non-participating forms were not received.

The study followed the Declaration of Helsinki principles and was assessed by the Scientific Ethical Committee of Copenhagen and Frederiksberg Municipalities, who had no objections. Approval was given by the Danish Data Protection Agency.

Measures

The COMPI questionnaire booklet contains several questions related to reproductive health, stress, social relations, coping, and well-being (for a detailed description, see Schmidt, 2006). We describe here only the measures relevant to this study. Socio-demographic and biomedical information and perceived social support were assessed at baseline (T1). Disclosure of fertility status and fertility-related stress variables were assessed on the 12 month follow-up questionnaire (T2).

Perceived social support was a developed measure based on Due et al.'s (1999) conceptual framework on social relations. Following the question 'If you need support, can you talk with any of the following people?', participants rated their perceived social support for three different sources of support - family, friends, and colleagues. For each of these contexts, the response key was 'have none' and a five-point (1 =always; 5 = never) Likert scale. 'Have none' scores (n = 1-8) were coded as missing values, and items were reverse coded so that higher scores indicated

more social support. An alpha internal consistency reliability estimate of .68 was found for this subscale.

Disclosure of fertility status was assessed by eight dichotomous items. Following the statement 'I keep our infertility as a secret to…', participants indicated if they had disclosed their infertility or not to 'close family', 'distant family', 'close in-laws', 'distant in-laws', 'close friends', 'distant friends', 'close colleagues', and 'distant colleagues'. Because our disclosure variables were a set of binary indicators, we initially created disclosure groups to enter in the regression analysis. First, we performed an exploratory principal factor analysis (PCA) to extract sets of variables capturing common information. A PCA of the eight disclosure binary variables revealed a two-factor solution that accounted for 63.57% of the total variance. The first factor, accounting for 36.10%, included all distant relationships (KR-20 = .85); and the second factor included all close relationships (KR-20 = .70) and accounted for 27.48% of the total variance. This result indicates that intimate close relationships appear to be distinguished from more distant relationships. Second, we examined our sample disclosure patterns, revealing 59 possible combinations. Almost half of the participants (43%) reported having fully disclosed their infertility to both close and distant relationships, and no participants reported having disclosed infertility to a distant relationship while keeping infertility as a secret to all close relationships. Hence, participants were categorized into the following groups: (i) 'full disclosure', in which the subject had disclosed infertility to all his/her relationships (n = 300, 43%); (ii) 'disclosure to close relationships', in which infertility was disclosed to all close relationships and was kept secret to at least one distant relationship (n = 242, 35%); (iii) 'secrecy within close relationships', in which infertility was kept as a secret to at least one close

relationship, regardless of disclosure to distant relationships (n = 156, 22%); (iv) 'others' – no participants fell into this category.

Fertility-related stress was assessed by The COMPI Fertility Problem Stress Scales, measuring the amount of stress the fertility problem placed on the personal, social, and marital domains. The instrument has 14 items, seven of them taken from The Fertility Problem Stress Inventory (Abbey, Andrews, & Halman, 1991), and seven developed from The Psychosocial Infertility Interview Study (Schmidt, 1996). The items were factor analyzed and stress was confirmed in relation to three different domains (for a detailed description of this measure, see Schmidt et al., 2005). The personal stress subscale assessed the stress infertility had produced on the person's life and on mental and physical health (6 items; e.g. "It is very stressful for me to deal with this fertility problem"; $\alpha = .85$); the social stress subscale assessed the fertility-related stress on social relations with family, friends, and colleagues (4 items; e.g. "How much stress has the fertility problem placed on your relationship with your family?"; $\alpha = .84$); and the marital stress subscale assessed the extent to which infertility had produced strain on the marital and sexual relationship (4 items; e.g. "Infertility has caused stress about divorce"; $\alpha = .76$). The confirmatory factor analysis (CFA) for this sample confirmed the original structure, revealing overall good fit indices [$\chi^2(67) = 200.76$; standardized root mean square residual (SRMR) = 0.05; comparative fit index (CFI) = 0.97; root mean square error of approximation (RMSEA) = 0.05]. The response key for the subscales personal stress, social stress, and two items from marital stress was a four-point Likert scale (1 =not at all; 4 = a great deal), and for the remaining two items concerning marital stress a five-point Likert scale (1 =strongly disagree; 5 = strongly disagree) was used. For each subscale, items were summed up to produce total scores. Higher scores indicated more personal, social, and marital stress.

Analytical Strategy

To examine the role of disclosure of fertility status in the social support-fertility stress relationship, key assumptions for multivariate linear regression analyses were met, and guidelines for testing interaction effects were followed (Aiken & West, 1991; Baron & Kenny, 1986; Frazier, Tix, & Barron, 2004). To allow the exploration of moderation effects, the social support variable was mean-centered (also avoiding multicollinearity problems) and the disclosure of fertility status was coded into two dummy choice conditions ('full disclosure' and 'secrecy within close relationships') against a control condition ('disclosure to close relationships') (Aiken & West, 1991). Because we were interested in the influence of social support and disclosure over and above gender differences, all analyses were performed with participants' gender as a covariate. For each dependent variable (personal, marital, and social fertility-related stress) , predictor variables were entered in four blocks: (a) gender; (b) social support; (c) disclosure of fertility status; and (d) product terms between social support and disclosure variables. Interaction occurs when the incremental variance explained by the product term is significant above the variance explained by the predictors' main effects, or when the beta value of the product term is significant (Aiken & West, 1991; Baron & Kenny, 1986). When significant interactions were found, we decomposed this conditional effect to better understand the structure of the relation. To further probe the moderation effects, we plotted significant interactions and determined simple slopes of significance according to the procedures outlined by Aiken and West (1991).

Results

Demographic and Descriptive Statistics

At baseline, participants had a mean age of 34 years (M = 33.55; SD = 4.69). All subjects were married or living together with their partners for ~8 years (M = 7.62; SD = 3.75), and were attempting to have a child for an average of 4 years (M = 4.34; SD = 2.41). Sixty-three percent of the participants had already been submitted to fertility treatments prior to inclusion in COMPI. Thirty percent reported a diagnosis of infertility attributed to a female cause, 28% reported a male factor diagnosis, and 10% reported a combined male-female causation.

Table 1 presents descriptive statistics for the predictors and outcome utilized in the study. A vast majority of participants reported having disclosed their infertility to close relationships, including friends, family, in-laws and colleagues. Almost three quarters decided to disclose their infertility to distant family and family-in-law members. Sixty-six percent of the participants chose to disclose infertility to distant friends, and almost half told distant colleagues about their infertility. Overall, 300 subjects decided to disclose infertility to all their relationships. Within the 'disclosure to close relationships' group (n = 242), the most reported secrecy was to distant colleagues (35%), followed by all distant relationships (24%), and both distant colleagues and friends (17%). The most reported combinations within the 'secrecy within close relationships' group (n = 156) were secrecy to close colleagues (35%), secrecy to close family in-law (14%), full secrecy (10%) and secrecy to both close direct and in-law family (9%).

Insert Table 1 about here

Interaction Effects Results

As hypothesized, results revealed statistically significant interactions between perceived social support and disclosure of fertility status related to fertility stress social and personal domains, but no significant interactions were found related to the marital domain (data not shown).

Infertility marital stress. Even though no moderation effects were found, he final regression analysis showed social support as the only significant predictor of marital stress (β = -.260, p. < .001), F(6, 667) = 4.04, p. = .001.

Insert Table 2 about here

Infertility social stress. The final regression model predicted 11% of the variance in social stress scores, F(6, 672) = 13.73, p. < .001 (see table 2). Above and beyond the effects of gender, social support remained negatively associated with social stress (β = -.375, p. < .001). A significant association was also found for the dummy variable contrasting the full disclosure condition to the control condition (disclosure to close relationships) (β = -.088, p. = .036). Importantly, these main effects were qualified by the interaction between social support and full disclosure (β = .160, p. = .003). No significant association was found between the dummy variable contrasting secrecy within close relationships with disclosure to close relationships and infertility social stress. However, this association was conditioned by the interaction social support X secrecy within close relationships (β = -.118, p. = .015).

Significant interactions on fertility-related social stress are plotted in figure 1. Specifically, perceived social support negatively predicted fertility social stress in the 'full disclosure' (β = -.124, p. = .031) and 'disclosure to close relationships' groups (β = -.375, p. < .001), whereas

social support was not associated with fertility social stress for those who decided to keep infertility as a secret to one or more close relationships, (β = -.137, n.s.). Also, while at high and mean levels of perceived social support those who kept infertility as a secret to their close relationships scored higher levels of social stress (Y = 1.65 and Y = 2.01, respectively), at low social support those who had the highest social stress were the ones that did disclose to all their close relationships (Y = 2.88). Full disclosure was associated with lower levels of infertility-related social-stress at low (Y = 1.75) and medium levels (Y = 1.41) of social support. However, the group perceiving high social support and disclosing infertility to close relationships was the one who revealed the lowest infertility-related social stress scores (Y = 0.89). It seems that disclosing to all close relationships while keeping infertility as a secret to distant relationships has opposite effects on fertility social stress at different ends of the social support spectrum.

Insert Figure 1 about here

Infertility personal stress. The variables in the final model predicted 17% of the variance in personal stress scores, F(6, 673) = 23.50, p. < .001 (see table 2). Similarly to the social stress model, social support (β = -.260, p. < .001) and full disclosure (β = -.105, p. = .009) remained negatively associated with personal stress above and beyond the effects of gender, but not secrecy within close relationships. No significant interaction was found between social support and full disclosure. Nonetheless, the association between restricted disclosure to close relationships and the levels of personal stress was conditioned by an interaction with social support (β = .101, p. = .029).

Post-hoc results concerning the interaction between social support and disclosure on infertility-related personal stress are presented in Figure 2. Similarly to the interaction effect on

social stress, the beneficial effect of social support on personal stress ceased to be significant when infertility was kept as a secret within close relationships (β = -.056, n.s.), but remained significant when the fertility status was revealed to all close relationships (β = -.260, p. < .001), or when a full disclosure approach was adopted (β = -.112, p. = .044). Full disclosure was related to lower levels of personal stress regardless whether perceived social support levels were low (*Y* = 5.44), medium (*Y* = 4.88), or high (*Y* = 4.33). Whereas at low and mean levels of social support disclosure of infertility to all close relationships was associated with higher levels of personal stress (*Y* = 7.23, and *Y* = 5.94, respectively), at high levels of social support the group scoring higher on personal stress was the one keeping infertility as a secret within close relationships (*Y* = 5.46).

Insert Figure 2 about here

Discussion

The present study aimed to examine the role of disclosure of fertility status in moderating the relationship between perceived social support and fertility-related personal, marital, and social stress. Disclosure of infertility moderated the association between social support and personal and social stress, but not marital stress. These findings are an important step in targeting interpersonal factors that influence one's ability to adjust to the stress of infertility.

In our study, almost a quarter (22%) of the participants reported hiding their fertility problem to at least one close relationship, and 35% to at least one distant relationship. The workplace – were most waking hours are spent- was the context in which more participants were hiding their infertility, both within close and distant social networks. These findings suggest that dealing with the social implications in facing infertility is a challenging situation for many,

where managing disclosure and secrecy can originate "disclosure disconnects" (Ragins, 2008), i.e., presenting different identities across various life domains.

Disclosure of the fertility status was not associated with fertility-related marital stress and, as expected, did not moderate the relationship between social support and marital stress. Even though partners may disagree on who is worthy of disclosure, the decision to disclose a couple's infertility problem is co-owned (Steuber & Solomon, 2011a). In our study, the disclosure of the fertility problem per se does not seem to affect the marital relationship. However, results revealed a main effect of initial perceived social support in predicting marital stress one year later. Taking into account the fact that outside support from family and community contexts can be a protective factor of the marital system (Patterson, 2002; Peilian et al., 2011), it seems that having high levels of perceived social support from relatives, friends or workmates can also decrease the stress associated to experiencing infertility exerted within the relationship.

We hypothesized that the beneficial impact of social support on both the personal and social stress would cease to be significant if infertility was not disclosed. These hypotheses were only partially confirmed. The inverse relationship between social support and personal and social fertility stress ceases to be significant when individuals refrain from disclosing their infertility to at least one of their close relationships, but not when infertility is kept as a secret only from distant relationships. As mentioned before, perceived social support refers to a stable expectation of experiencing caring attitudes from others (Walen & Lachman, 2000). It is only natural that those expectations relate particularly to significant close relationships, much more than to distant social networks. In effect, at high levels of social support, the group presenting the highest levels of both personal and social stress was the one who chose to keep the fertility problem as a secret within close relationships. This evidence comes to reinforce the idea that

hiding a personal crisis like infertility from close relationships may represent such a burden to the point of suppressing the potential benefit that those same relationships could provide (Steuber & Solomon, 2011b).

With regards to personal stress, there was no interaction between the full disclosure group with any other group, and the ones fully disclosing their fertility problem were those with the least personal stress regardless of how much social support had been perceived. On the other hand, full disclosure had the lowest social stress levels only at low and medium levels of social support. At high levels of social support, the group showing the lowest social stress levels was the one that disclosed their infertility to all close relationships, but kept it as a secret to at least one distant relationship. This may be because individuals who receive high social support from close relationships might not fear social withdrawal or isolation and keep a sense of privacy by not disclosing their fertility problem to less close and trustworthy bonds. Whereas keeping infertility as a secret to distant relationships can make adjustment to infertility easier if one previously perceives high levels of social support, the opposite seems to happen at low levels of social support. It is not surprising that social and personal stress can rise when there is a decision to disclose infertility to intimate sources that were already perceived as not supportive while hiding it from distant sources. In this particular case where low social support from close ones is perceived, distant relationships might be especially helpful as useful sources of support (Emmerick, 2006; Granovetter, 1973), since connecting to a more disparate range of resources might increase the probability of receiving more diverse responses. Still, even when perceiving little support, full disclosure of one's fertility status was the type of disclosure associated with lower social and personal fertility stress.

Counselors and other mental health professionals are often confronted with the question of whether or not their clients should disclose their fertility problem. Learning how to endure infertility and its treatments within different social contexts is one of the significant challenges for people facing infertility (Schmidt, 2009), and findings from this study have implications for health professionals working within this field. Couples can decide to hide infertility from their loved ones as a consequence of having received a discriminatory commentary (Daniluk, 2001), but for those who feel that close family, friends or workmates can function as a safe haven, disclosing their infertility status might be valuable in order to benefit from general social support when facing this life stressor. On the other hand, it might be safer to advise patients that feel more unsupported and isolated from their close relationships to find a distant context in which they can confide their fertility problem. These patients, who might feel misunderstood from receiving little to no support, should be particularly targeted to attend counseling, support groups or group psychological interventions. Support groups can bring social support and a sense of belonging to reduce infertility associated stress, and infertility educational group interventions have been showing positive effects in several domains (Boivin, 2003). Cognitive-behavioral and support groups targeting the stress of the infertility experience have been shown to significantly improve participants' psychological well-being when compared with control participants (Domar et al., 2000). Also, because it is difficult for the general public to better understand the psychosocial consequences of infertility and be aware of the downfalls of generalizing a pronatalist discourse (Allison, 2011), educational campaigns aiming to reduce stigma against infertility and childlessness are warranted.

The findings from this study should be interpreted within the context of its limitations. First, disclosure of the fertility status was assessed when participating couples had already been

trying to achieve a pregnancy for an average of 5 years (1 year after baseline assessment), and it is important to have in mind that infertility disclosure patterns are dynamic and change over time (Bute & Vik, 2010). Besides not considering the difficult treatment decisions many couples have to take and how these might shift disclosure choices, results are also limited to those seeking treatment, and should not be generalized to those that decided not to pursue treatment, those using third-party reproduction, or those seeking adoption. It could be valuable in future studies to examine how disclosure influences infertility stress developmental trajectories. Second, we obtained a generalized measure of how social support was perceived in different contexts but we did not accessed specific supportive behaviors provided, nor frequency of contact or the quality of relationships with these social support networks. Third, while we controlled for gender effects, it might be valuable to include other predictors in the presented model, as it is conceivable that other variables (e.g., coping strategies) could mediate the interaction effects of social support and disclosure on fertility stress. Although gender differences were not the focus of this study, it would also be valuable to test for the possibility of different interaction effects of social support and disclosure in men and women experiencing infertility. Furthermore, because infertility is a shared stressor, it is also important to study the impact of a partner's disclosure and social support resources on fertility stress.

In conclusion, both professionals and patients should be aware that appraisal of social support can be a valuable tool when couples are making the joint decision of disclosure. While trying to conceal the fertility problem might impede couples from taking advantage of social support from their closest relationships, turning to other distant relationships might be worth the risk when close relationships are not perceived as available. Future research that examines the content of disclosure, as well as how to deal with invasive unsupportive reactions, is warranted.

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Table 1.

Descriptive statistics for study variables (N = 698)

Variable	M	SD	n	%
Perceived social support, range 1-5	3.86	0.82		
Disclosure of fertility status				
Close family			640	91.7
Close friends			658	94.3
Close family in-law			628	90.0
Close colleagues			601	86.1
Distant family			513	73.5
Distant family in-law			512	73.4
Distant friends			462	66.2
Distant colleagues			338	48.4
Fertility-related stress				
Personal stress, range 0-20	7.36	4.96		
Social stress, range 0-14	2.32	2.66		
Marital stress, range 0-12	4.82	3.43		

Table 2.

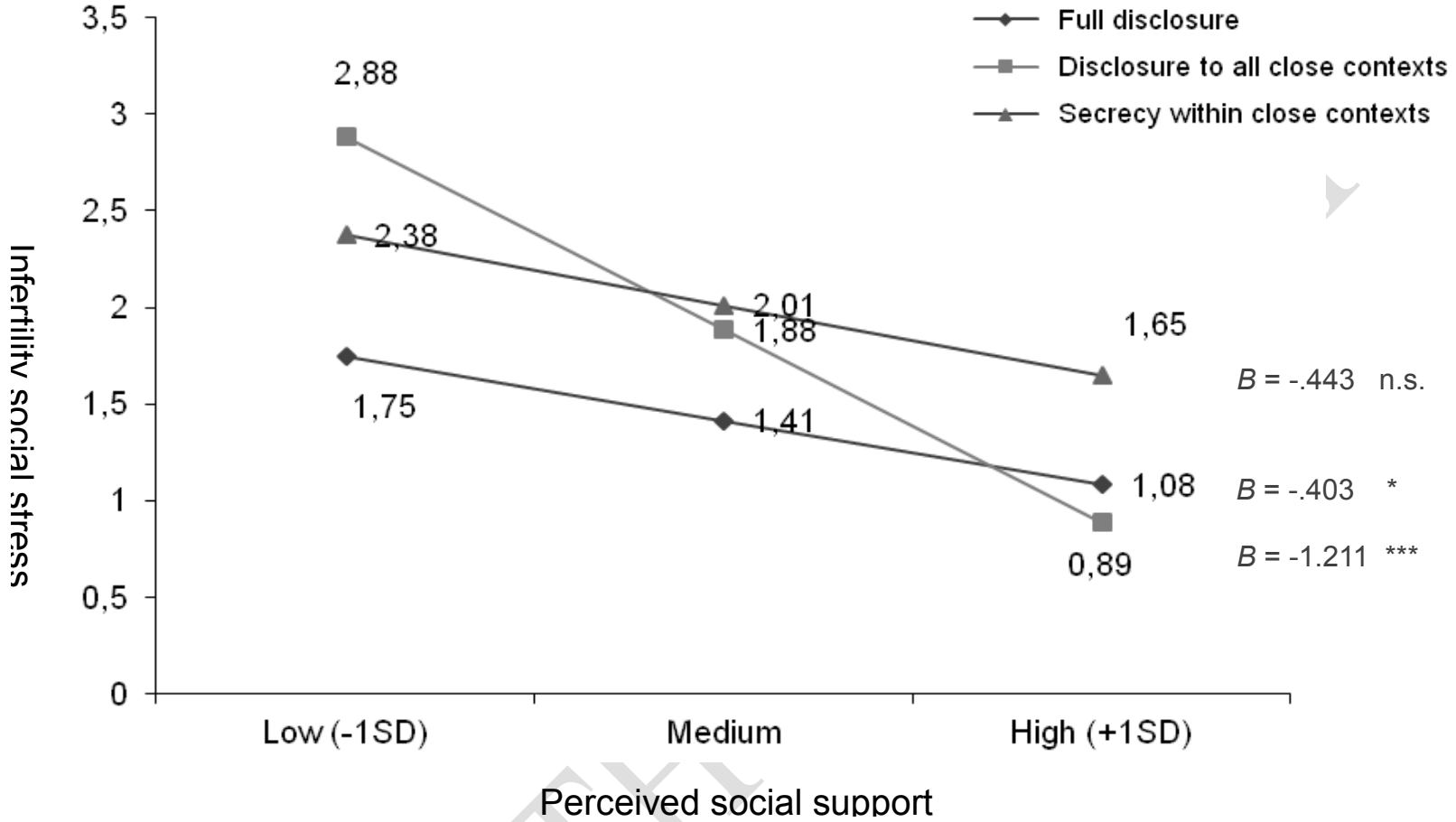
Hierarchical multiple regression analyses predicting infertility-related social and personal stress from social support and disclosure of fertility status.

	Infertility-related stress domain											
	Social stress						Personal stress					
Predictor	*B*	SE *B*	β	ΔR^2	ΔF	*df*	*B*	SE *B*	β	ΔR^2	ΔF	*df*
Block 1				.037	26.32***	1,677				.131	102.63***	1,678
Gender (0 = male)	1.03	0.20	.193***				3.60	0.36	.363***			
Block 2				.050	37.37***	1,676				.026	20.76***	1,677
Gender	1.23	0.20	.230***				3.87	0.36	.389***			
Social support	-0.74	0.12	-.228***				-0.98	0.22	-.163***			
Block 3				.008	3.00*	1,674				.009	3.70*	1,675
Gender	1.17	0.20	.219***				3.74	0.36	.376***			
Social support (centered)	-0.69	0.12	-.214***				-0.90	0.22	-.150***			
Full disclosure (dummy [a])	-0.46	0.23	-.086*				-1.07	0.40	-.106**			
Secrecy within close relationships (dummy [a])	0.06	0.27	.010				-0.32	0.47	-.027			
Block 4				.013	5.02**	1,672				.007	2.78	1,673
Gender	1.14	0.20	.214***				3.70	0.36	.372***			
Social support (centered)	-1.21	0.20	-.375***				-1.57	0.37	-.260***			
Full disclosure (dummy [a])	-0.47	0.22	-.088*				-1.06	0.40	-.105**			
Secrecy within close relationships (dummy [a])	0.13	0.27	.020				-0.20	0.48	-.017			
Social support X full disclosure	0.81	0.28	.160**				0.90	0.49	.095			
Social support X secrecy within close relationships	0.77	0.32	.118*				1.24	0.57	.101*			

Note. [a] reference group – "disclosure to close relationships"; * p < .05; ** p < .01; *** p < .001

Figure 1.

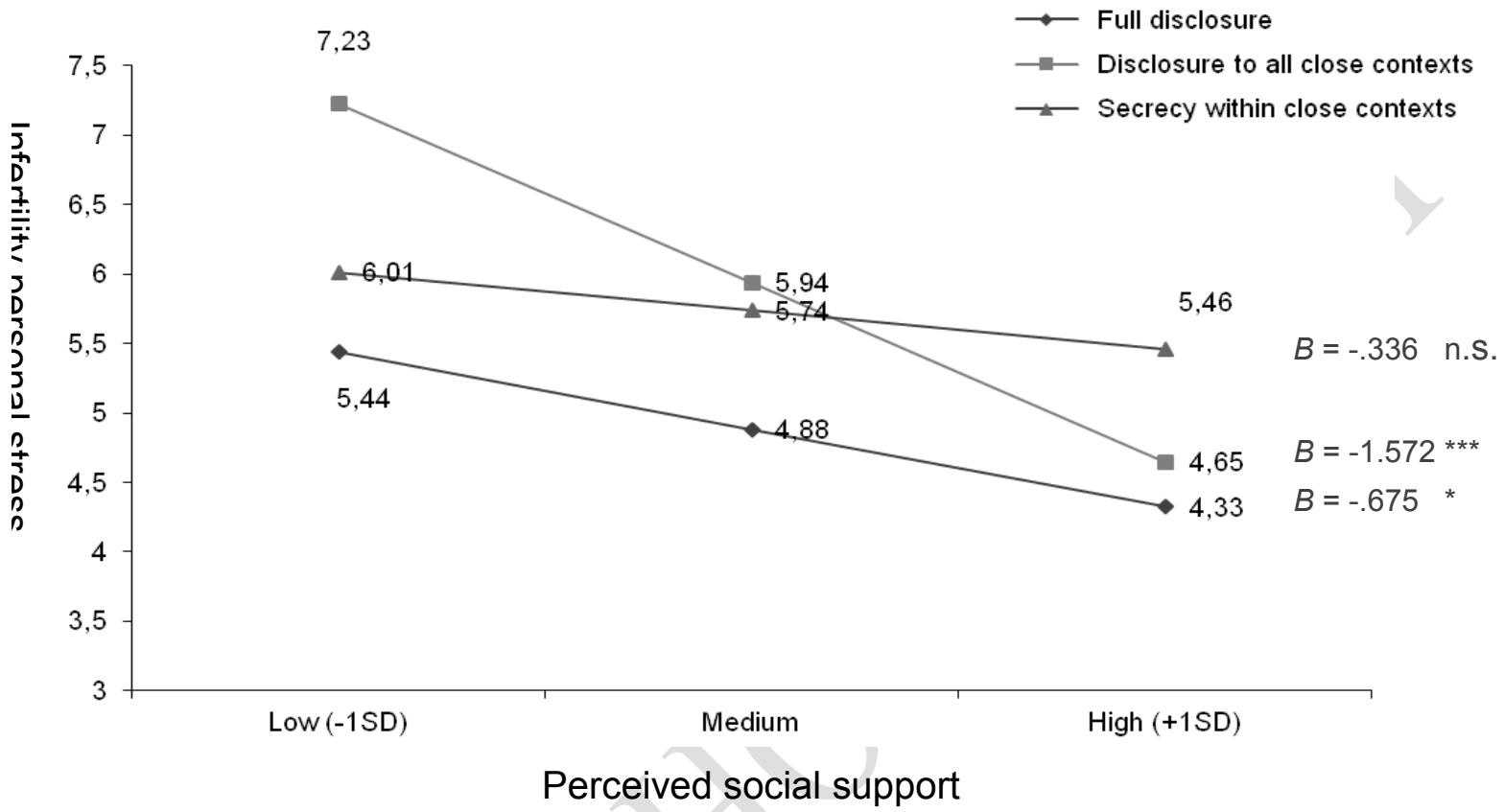
Interaction of perceived social support and disclosure of fertility status on social fertility stress.



Note. * p < .05; *** p < .001

Figure 2.

Interaction of perceived social support and disclosure of fertility status on personal fertility stress.



Note. * p < .05; *** p < .001