Psychology of Women Quarterly
1-13

DOI: 10.1177/0361684315576208
pwq.sagepub.com

The Relationship Among Infertility, Self-Compassion, and Well-Being for Women With Primary or Secondary Infertility

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Abstract

The experience of infertility can cause distress in many women, and there is a dearth of research that addresses infertility type (i.e., primary or secondary) and strengths-based constructs, such as self-compassion. Although the prevalence of secondary infertility (i.e., experiencing infertility after having a child) is significantly greater than primary infertility (i.e., experiencing infertility without having prior children), the majority of infertility studies utilize samples of only women with primary infertility so that the voices of women with secondary infertility are largely uncaptured. The current study of 119 women experiencing primary infertility and 53 women experiencing secondary infertility explored the well-being of women with primary or secondary infertility, finding that both samples report similar levels of self-compassion, subjective well-being, and global fertility-related stress and that women with primary infertility report greater levels of fertility-related social concern. Self-compassion mediated the relation between the need for parenthood and subjective well-being for women with primary or secondary infertility. Further, self-compassion mediated the relation between social concern and subjective well-being for both groups of women, which may be especially important, given the stigmatized social identity and social isolation of those experiencing infertility. Self-compassion might serve as an emotional regulation strategy and a form of resiliency against feelings of self-blame or blame by society for infertility.

Keywords

infertility, self-concept, well-being, stress, parental attitudes, mothers, stress, self-concept

Roughly 1 in 10 couples will experience either primary or secondary infertility, with *primary infertility* defined as the inability to achieve a pregnancy after 12 months of unprotected intercourse and *secondary infertility* defined as the inability to conceive after previously experiencing a successful pregnancy (Burns & Covington, 2006). Due to the stigmatized social identity of childlessness (Galhardo, Pinto-Gouveia, Cunha, & Matos, 2013), the experience of infertility causes significant distress for many women, including feelings of guilt and alienation (Burns & Covington, 2006; Whiteford & Gonzalez, 1995). Internalization of social norms regarding gender roles has led women to report greater levels of infertility stigma, self-blame, and distress than men did, including higher levels of depression, stress, and lowered self-esteem (Anderson, Sharpe, Rattray, & Irvine, 2003; Galhardo et al., 2013; Greil, 1997; Slade, O'Neill, Simpson, & Lashen, 2007). Furthermore, women are more likely than men to assume personal responsibility for difficulties conceiving (Newton, 2006). In the few studies examining the differential experience of infertility depending on whether it was primary or secondary, the findings have indicated complex relations among infertility type, distress, and the role of psychological factors in predicting well-being that warrant further investigation.

Self-compassion has been identified as a psychological factor that mediates the effect of internal shame on fertility-related distress (Galhardo et al., 2013) so that self-compassion represents a promising emotion-regulation strategy that warrants further empirical study (Neff, Kirkpatrick, & Rude, 2007). Although much research has explored the relationship between infertility and negative psychological factors (Cwikel, Gidron, & Sheiner, 2004), more information is needed on protective factors such as self-compassion that

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can empower women to ward off feelings of self-blame in the face of infertility (Galhardo et al., 2013). In this study, we examine the specific risk factor of infertility type and the protective factor of self-compassion in users of online infertility support forums to begin to identify which psychological and status factors are most relevant for improving the quality of life of women with infertility.

In women experiencing emotional distress over infertility, feelings of self-blame, isolation, grief, depression, and distress have been reported (Galhardo et al., 2013; Greil, 1997), with primary infertility assumed to create greater levels of distress and depression than secondary infertility (Epstein & Rosenberg, 2005). Compared to women with secondary infertility, women with primary infertility have reported greater levels of global fertility-related distress and greater levels of social concern (e.g., sense of social isolation or alienation) and sexual concern (e.g., decreased enjoyment of sex; Newton, Sherrard, & Glavac, 1999). However, Newton, Sherrard, and Glavac (1999) found that women with primary or secondary infertility indicated similar levels of concern about the impact of infertility on their relationships with their romantic partner and their emphasis on parenthood as a primary life goal, as well as that women with primary infertility endorsed a more positive view of a childfree lifestyle. The authors concluded that having a prior child when facing infertility serves as a buffer against the negative effects of treatment failure and infertility stress more generally so that their finding that women with secondary infertility reported less acceptance of a childfree lifestyle was due to their participants actively seeking infertility treatment. In other words, participants' expressed need for parenthood, or the importance of parenthood in their life, may have been a more significant predictor of some aspects of fertility-related stress than their infertility type. Newton et al.'s results highlight the need to examine specific areas of fertility-related distress and the differential experiences connected to infertility type and the need for parenthood. If examining only the global distress levels, women with primary infertility appear to struggle more than women with secondary infertility, and the specific concerns of women with secondary infertility about the impact of infertility on their relationships, their identification of parenthood as a primary life goal, and their negative views of a childfree lifestyle can be overlooked.

The experience of secondary infertility presents its own unique, and often under-estimated, challenges. Women with secondary infertility have reported a sense of isolation not only from the fertile world but also from the infertile world because those with primary infertility are often insensitive to the distress of those with secondary infertility (Simons, 1998). Further, among the worldwide population, secondary infertility rates have been reported as high as 35%, compared to the estimated range of 1–8% for primary infertility (Burns & Covington, 2006). Despite their unique experiences and their greater prevalence than women with primary infertility, women with secondary infertility are relatively absent from psychosocial infertility research, and infertility research often utilizes primary infertility as its reference group, subsuming secondary infertility (Simons, 1998). It remains unclear as to how important infertility type is in understanding the psychosocial experience of infertility and to what extent the general infertility body of research captures the experience of secondary infertility.

In one of the few empirical studies that explored the impact of prior children for infertility distress, McQuillan, Stone, and Greil (2007) failed to find a direct relation between infertility type and life satisfaction. Instead, they reported that external resources (e.g., employment) and internal resources (e.g., religiosity) better explain the association between infertility and lowered life satisfaction than infertility type alone. In particular, employment offset the negative association between infertility and decreased life satisfaction for women who had never had a child (i.e., primary infertility). These findings suggest that women with primary or secondary infertility may have similar levels of life satisfaction if they have strong internal psychological resources (e.g., religiosity) and external resources (e.g., employment). Given the decrease in religiosity reported in the United States (U.S. Census Bureau, 2012), it is important to consider additional psychological resources besides religiosity when exploring the well-being of women experiencing infertility. In contrast, the percentage of U.S. women employed has increased in the last 40 years, from 40.8% of women employed in 1970 to 53.2% of women employed in 2011 (U.S. Bureau of Labor Statistics, 2013). Therefore, employment may continue to be an external resource worthy of further study.

In summary, the few prior studies distinguishing between the experiences of women with primary or secondary infertility suggest that type of infertility may matter less than resource and psychological factors in capturing the association between infertility and general well-being. However, the significant internal shame felt by women without children, perhaps due to social stigma around childlessness (Galhardo et al., 2013), may result in greater fertility-related distress, specifically in areas related to social concerns for women with primary infertility.

Not until the 1970s did the medical community stop blaming women for causing their infertility and instead recognize that the experience of infertility could cause, rather than be caused by, psychological distress (Burns & Covington, 2006). Recently, infertility specialists have acknowledged that, for too long, individuals with infertility have been treated using only a biomedical model that defines health as the absence of disease and views infertile women through a deficit-based model without acknowledging that strengths, resilience, and positive aspects of functioning may influence how women experience infertility.

Self-esteem is one of the few protective factors that has been studied in relation to infertility (Daniluk & Tench,

2007), but outside the infertility literature, self-esteem has been criticized for failing to separate the high regard for oneself from feelings of superiority toward others and for its trait-like nature, which makes it a difficult point of intervention (Neff, Kirkpatrick, & Rude, 2007). Self-esteem's reliance on self-evaluation and comparison with others has been linked to narcissism, self-absorption, self-centeredness, and lack of concern for others (Baumeister, Bushman, & Campbell, 2000). It has been proposed that self-compassion might more adequately capture the protective effects of self-esteem without its negative comparative elements (Leary, Tate, Adams, Allen, & Hancock, 2007).

Self-compassion embodies treating oneself kindly during painful experiences or failure (i.e., self-kindness), recognizing one's painful experiences or failure as part of the human experience (i.e., common humanity), and implementing mindfulness skills rather than ruminating in the face of painful experiences or failure (i.e., mindfulness; Neff, 2004). Because many women express feelings of inadequacy, failure, and shame (Burns & Covington, 2006) as well as blame themselves for their infertility (Cwikel et al., 2004; Galhardo et al., 2013), self-compassion may mitigate the effects of feelings of guilt and may help women move beyond an individualistic, self-blaming perspective. Galhardo, Pinto-Gouveia, Cunha, and Matos (2013) found that in women experiencing primary infertility, self-compassion fully mediated the relation between internal shame and infertility-related stress. More generally, self-compassion has been found to correlate positively with life satisfaction, positive affect (PA), and self-esteem and to correlate negatively with depression, anxiety, self-criticism, and rumination (Neff, Hsieh, & Dejitthirat, 2005; Neff, Rude, & Kirkpatrick, 2007).

It is also suggested that self-compassion represents a more malleable point of intervention than self-esteem (Neff et al., 2007). Self-esteem often falters in the face of difficulties or failure, whereas self-compassion theoretically remains unaffected, or less affected, in the face of suffering (Neff, 2008). Self-compassion may serve as an emotion-regulation coping strategy when experiencing a chronic health condition such as infertility (Galhardo et al., 2013), and it may serve as a mediator between fertility-related stress and general well-being. For those experiencing significant distress due to infertility, self-compassion may represent one pathway for coping with fertility concerns and hopefully decrease the spillover of fertility-related stress into general well-being.

To assess how infertility relates to general and fertility-specific functioning, we explored infertility type, fertility-related stress, and self-compassion in relation to subjective well-being. Emmons and Diener's (1985) concept of subjective well-being represents a validated and widely used framework consisting of the cognitive self-assessment of life satisfaction and the emotional experience of PA and negative affect (NA). To the extent that one experiences a high level of PA, a low level of NA, and a high level of life satisfaction, one is considered to have high subjective well-being (Deci & Ryan, 2008).

Infertility researchers typically have recruited women seeking medical treatment at reproductive centers, although such sampling procedures only target a subset of women experiencing infertility. Additionally, a large percentage of women with secondary infertility may never seek medical treatment. In an attempt to increase the representativeness of our study, we recruited participants through online support groups so as to include women not seeking medical treatment as well as women experiencing secondary infertility. Recent studies report that an increasing number of individuals are turning to the Internet to connect with others also experiencing infertility (Kahlor & Mackert, 2009; Rawal & Haddad, 2006).

The Present Study

The purpose of this study was to further our understanding of whether the experience of fertility-related stress differs depending on infertility type (i.e., primary or secondary) and to move beyond the use of a deficit-based model by exploring the role of self-compassion in predicting subjective well-being. Based on prior research findings (McQuillan, Stone, & Greil, 2007) that delineate the need for further research to illuminate the complex relation between infertility type with well-being and fertility-specific domains of distress (e.g., social concern and need for parenthood), we predict (a) that no differences will be found between women experiencing primary or secondary infertility in the levels of subjective well-being and self-compassion (e.g., nonfertility-specific components of well-being; Prediction 1), (b) that women with primary infertility will report greater levels of global fertility-related stress and specific social concern than women with secondary infertility (Hypothesis 2), and (c) that fertility-related stress, self-compassion, and employment will predict well-being above and beyond infertility type (i.e., primary or secondary; Hypothesis 3). Further, building upon Galhardo et al.'s (2013) identification of self-compassion as a mediator between negative self-evaluations and distress, we hypothesize (a) that for women with either primary or secondary infertility who identify a strong need for parenthood, self-compassion will mediate the relation between the need for parenthood and subjective well-being (Hypothesis 4) and (b) that only for women with primary infertility, self-compassion will mediate the relation between social concerns (e.g., feelings of isolation from peers) and subjective well-being (Hypothesis 5).

Method

Participants

An a priori power analysis indicated that a minimum of 89 participants was needed for a multiple regression to detect a medium effect size based on an α of .05 and a power of

.95. Because our study involves multiple analyses, we sought out a minimum of 50 participants from each type of infertility diagnosis. Participants were 172 women who self-identified as having either primary ($n = 119$) or secondary ($n = 53$) infertility. Women with primary infertility ($M = 31.81$, $SD = 5.51$, range 21–51 years) were significantly younger than women with secondary infertility ($M = 33.76$, $SD = 5.89$, range 21–47 years), $t(170) = -2.27$, $p = .02$. Of the entire sample, 3 (1.74%) participants self-identified as African American, 7 (4.07%) as Asian, 5 (2.91%) as Biracial, 6 (3.49%) as Latino, 2 (1.16%) as Native American, 142 (82.56%) as White, and 9 (4.07%) selected as "Other" or did not specify their race/ethnicity. In regard to their country of residence, 78 (65.5%) of women with primary infertility and 44 (83%) of women with secondary infertility identified the United States, 30 (25.2%) of primary and 8 (13.2%) of secondary women identified Canada or the United Kingdom, and the remaining home countries endorsed by 2 or fewer women included Australia, South Africa, France, Romania, New Zealand, and India.

Regarding income, 31% ($n = 54$) of the sample reported a household income of less than US$60,000 whereas 36% ($n = 62$) reported an income of US$60,000–100,000 and 28% ($n = 50$ made more than US$100,000 (3.5% did not report their income). Fully 94% ($n = 162$) of the sample self-identified as heterosexual, 3% ($n = 5$) as bisexual, 1% ($n = 1$) as lesbian, and 2% ($n = 4$) did not identify their sexual orientation. Of those with primary infertility, 84% ($n = 100$) reported that they were married, 2.5% ($n = 3$) reported that they were engaged, 3.3% ($n = 4$) did not report their relationship status, and 2 (1.7%) reported that they were either remarried, single, or "other." Of those with secondary infertility, 92.5% ($n = 49$) reported that they were married, 3.8% ($n = 2$) reported that they were engaged, and 1.9% ($n = 1$) reported that they were either remarried or single. The majority of the sample (58.1%; $n = 100$)) reported full-time employment. Women with primary infertility ($M = 22.79$, $SD = 20.78$, range 12–120) were similar to women with secondary infertility ($M = 38.28$ months, $SD = 33.44$, range 12–180) in their average number of months trying to get pregnant, $t(170) = .76$, $p = .45$.

Measures

Reproductive medical history. Questions about participants' medical histories included participants' type of infertility diagnosis; the source of their diagnosis (e.g., medical professional or self-diagnosis); whether participants had pursued infertility treatment and, if so, what types of treatment; and history of use of biomedical technology to achieve pregnancy. Information about participants' medical histories is presented in Table 1. The only significant differences found were that women with primary infertility reported being more likely to have utilized endometrial surgery and acupuncture as treatments for infertility (see Table 1).

Fertility-related stress. The Fertility Problem Inventory (FPI) was created to capture perceived stress specific to populations experiencing infertility (Newton et al., 1999). The FPI includes 46 items that yield a summed overall score, as well as summed scores for each of five subscales measuring social concern (10 items), sexual concern (8 items), relationship concern (10 items), rejection of childfree lifestyle (8 items), and the need for parenthood (10 items). Items are rated on a 6-point Likert-type scale from 1 (*strongly disagree*) to 6 *(strongly agree*). Example items include "I can't help comparing myself with friends who have children" (social concern); "During sex, all I can think about is wanting a child/another child" (sexual concern); "Because of infertility, I worry that my partner and I are drifting apart" (relationship concern); "Having a child/another child is not necessary for my happiness" (rejection of childfree lifestyle); and "I will do just about anything to have a child/another child" (need for parenthood). Newton et al. (1999) reported discriminant validity intercorrelations for the five subscales of the FPI ranging from .26 to .66. Both the global and individual subscales have been used in prior research, based upon whether the focus of the research was general fertility-related stress (Slade et al., 2007) or specific life domains affected by infertility (e.g., sexual concerns; Peterson, Newton, & Feingold, 2007).

An examination of FPI's convergent validity showed that a higher global stress score correlated with higher scores for depression (.40–.60) and anxiety (.37–.41), as well as with lower levels of marital adjustment (−.23 and −.40). Test–retest reliability for global stress within a 30-day period was reported as .83, and internal consistency coefficients ranged from .77 to .93 (Newton et al., 1999). For our study's sample, the FPI had a Cronbach's α of .92 for women with primary infertility and of .91 for women with secondary infertility; for the total sample, the Cronbach's αs were .86 for social concern, .80 for sexual concern, .84 for relationship concern, .82 for rejection of childfree lifestyle, and .81 for need for parenthood. In this study, the individual subscales are reported to compare them across women with primary or secondary infertility, and the global FPI score is utilized in the regression analyses to assess the level of global fertility-related stress as it relates to subjective well-being. Moreover, the use of the individual subscales allows for the examination of self-compassion as a mediator for social concerns and the need for parenthood with subjective well-being.

Self-compassion. We used the 26-item Self-Compassion Scale (SCS; Neff, 2003) to obtain a global score of self-compassion. This measure includes six subscales measuring self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification; however, we used the only total averaged score. Example items include "I'm kind to myself when I'm experiencing suffering" (self-kindness subscale); "When I feel inadequate in some way, I try to

Table 1. Reproductive Medical History of Participants.

	Infertility Type					
	Primary Infertility		Secondary Infertility			
	n	Percentage	*n*	Percentage	χ^2 (*df*)	*p*
Previous pregnancy outcomes	69		53		10.3 (4)	.07
Miscarriage	32	46.4	27	50.9		
Ectopic pregnancy	11	15.9	3	5.7		
Abortion	13	18.8	4	7.5		
Stillbirth	7	10.1	1	1.9		
Other	6	8.7	1	1.9		
Diagnosed cause of infertility					1.74 (3)	.63
Female factor	54	45.4	19	35.9		
Male factor	9	7.6	5	9.4		
Combined female–male factor	17	14.3	7	13.2		
Unexplained	35	29.4	21	39.6		
Other	1	0.8	1	1.9		
Not reported	3	2.5	0	0.0		
Source of infertility diagnosis[a]					1.50 (4)	.83
Infertility specialist	84	70.6	34	64.2		
Gynecologist/obstetrician	43	36.1	15	28.3		
General practitioner	8	6.7	1	1.9		
Self-diagnosis	7	5.9	2	3.8		
Not reported	3	2.5	1	1.9		
Utilized medical treatment					.09 (1)	.77
Yes	103	86.6	48	90.6		
No	13	10.9	5	9.4		
Not reported	3	2.5	0	0.0		
Types of treatments pursued[a]						
ICI	6	5.0	5	9.4	.30 (1)	.58
IVF	30	25.2	14	26.4	.16 (1)	.69
Endometrial surgery	17	14.3	1	1.9	5.59 (1)	.02*
Surgery to repair a septum	3	2.5	1	1.9	.21 (1)	.64
Fibroid surgery	4	3.4	4	7.5	1.44 (1)	.23
Tubal surgery	7	5.9	2	3.8	.78 (1)	.38
Donor eggs	2	1.7	3	5.7	2.73 (1)	.10
Donor sperm	4	3.4	2	3.8	.02 (1)	.89
ICSI	20	16.8	7	13.2	.85 (1)	.36
Ovulation induction medication	62	52.1	31	58.5	.04 (1)	.85
IUI	47	39.5	20	37.7	.43 (1)	.52
Surrogate or gestational carrier	1	0.8	0	0.0	.56 (1)	.45
Assisted hatching	5	4.2	6	11.3	1.61 (1)	.20
Laparoscopy	32	26.9	12	22.6	1.39 (1)	.24
Acupuncture	41	34.5	12	22.6	4.26 (1)	.04*
Meditation	26	21.8	10	18.9	.82 (1)	.37
No treatment	10	8.4	4	7.5	.30 (1)	.58
Payment for treatment					3.26 (3)	.35
Insurance covers all cost	7	14.3	8	15.7		
Insurance plus self-pay	38	45.2	26	51.0		
All self-pay	30	35.7	14	16.7		
Other	9	10.7	3	5.9		

[a]Participants could select more than one response for this item so that the column percentages do not sum to 100%.
*$p < .05$.

remind myself that feelings of inadequacy are shared by most people'' (community humanity subscale); and ''When I fail at something important to me I try to keep things in perspective'' (mindfulness subscale). Each item is rated from 1 (*almost never*) to 5 (*almost always*). In her validation research of the SCS, Neff (2003) reported strong construct, content, convergent, and discriminant validity, and an overall internal reliability of .92. Test–retest reliability based on administering the scale twice over a 3-week period was reported as .93. For the present study, Cronbach's αs for the

total score was .94 for women with primary infertility and .93 for those with secondary infertility.

Subjective well-being. Subjective well-being has been conceptualized as the extent to which an individual views their overall life in a positive way, and it is a multidimensional construct reflecting high levels of life satisfaction and PA as well as low levels of NA (Deci & Ryan, 2008; Diener, Lucas, & Oishi, 2005). It is calculated by adding life satisfaction with PA and subtracting NA, and the use of these three components has been supported in confirmatory factor analysis (Albuquerque, Pedroso de Lima, Figueiredo, & Matos, 2012).

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) has been established as a reliable and valid cognitive-based measure of global life satisfaction (Pavot & Diener, 1993). The SWLS contains 5 items to be answered on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with a total summed score of 5 indicating minimal life satisfaction and a total score of 35 indicating the highest possible life satisfaction. Example items are "If I could live my life over, I would change almost nothing" and "I am satisfied with my life." In their review of the uses of the SWLS, Pavot and Diener (1993) found strong convergent and discriminant validity. The SWLS correlates negatively with measures of distress, such as the Beck Depression Inventory (Blais, Vallerand, Pelletier, & Briere, 1989), and factor analytic studies have supported its one-dimensional structure (Pavot, Diener, Colvin, & Sandvik, 1991). The temporal stability of the SWLS has been supported by a finding of a .82 test–retest stability coefficient over 2 months, and it has also been shown to have an internal consistency coefficient of .87 (Pavot & Diener, 1993). In this study, SWLS had a Cronbach's α of .87 for the primary infertility sample and .85 for the secondary infertility sample.

The 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) assessed the emotional component of subjective well-being, including scale scores for both PA and NA. The PANAS contains 10 positive emotions, such as determined and attentive, and 10 negative emotions, such as distressed and guilty. Intensity of each emotion for the past week is rated on a 5-point scale from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS has been shown to have high reliability and validity (Crawford & Henry, 2004) and to be stable over a 2-month period (Watson et al., 1988). More specifically, confirmatory factor analysis supported its construct validity and revealed that the NA and the PA scales assess two distinct but moderately negatively correlated factors (Crawford & Henry, 2004). Prior internal consistencies were .89 for the PA scale and .85 for the NA scale (Crawford & Henry, 2004). In this study, the PA scale's internal reliability was .89 for women with primary infertility and .84 for women with secondary infertility; the NA scale's αs were .84 and .91, respectively.

Procedure

Our study recruited participants through online support groups for primary or secondary infertility (Daily Strength Infertility support group and Secondary Infertility support group). On the date of the first posting of the survey announcement, the Daily Strength Infertility support group listed 4,002 members and the Secondary Infertility support group listed 251 members. However, it was not possible to track how often each member visited the website nor was it possible to calculate how many times the survey announcement was viewed.

The online announcement for our study described the purpose and importance of the study, and it stated that viewers were eligible to participate if they were women over the age of 18 who have been unable to become pregnant after 12 months of unprotected intercourse or have been unable to carry a pregnancy to full term. Further, this announcement provided a direct link to the survey's web address, which was hosted by PsychData (https://psychdata.com). At this site, participants accessed the informed consent page, demographic and medical history questionnaires, and then completed the FPI (Newton et al., 1999), PANAS (Watson et al., 1988), the SCS (Neff, 2003), and the SWLS (Diener et al., 1985). Once participants gave their electronic consent and submitted the completed survey, they were directed to a final page that explained the purpose of the study in greater detail and offered information about the primary researcher as well as referral sources. Finally, as an incentive for participation, respondents could choose to enter their e-mail address to be entered into a drawing for a US$100 online gift certificate. Participants' survey responses were anonymous.

Results

Preliminary Analyses

Across all study variables, values for tests for skewness and kurtosis were lower than 1, indicating that the variables were close to normally distributed. Means, standard deviations, and correlations among all study variables for each infertility type are shown in Table 2. Correlations between demographic (age, relationship length, education, socioeconomic status [SES], and employment) and medical variables (use of medical treatment for infertility and number of months trying to get pregnant) were examined to detect potentially confounding variables. To assess the relationship between the multi-level nominal demographic variables of race and country of origin (e.g., United States, Canada, and England) and the reproductive history variable of diagnosed cause of infertility (e.g., female factor, male factor, and combined factor) with the predictor and outcome variables, one-way analyses of variance were run using an α of .01, finding no significant differences.

Self-compassion was found to have a large effect size with subjective well-being for women with both primary

Table 2. Descriptive Statistics and Correlations Among Study Variables by Infertility Type (Primary or Secondary).

	Infertility Type				Correlations														
	Primary		Secondary																
Variables	*M*	*SD*	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Demographics																			
1. Age[a]	31.81	5.51	33.76	5.89	—	.25**	.30**	.39**	.09	.10	.27**	−.15	−.04	.03	.07	−.32**	−.25**	−.01	−.02
2. Rel	7.42	3.92	2.84	2.61	.48**	—	.04	.05	−.13	.05	.38**	−.11	.04	.12	−.06	−.08	−.03	.02	.10
3. Educ[a]					.20	.14	—	.28**	−.03	.02	.04	−.06	.05	.02	.07	−.17	−.13	.02	.03
4. SES					.27	.25	.21	—	−.32**	−.31**	−.03	−.30**	−.10	−.20*	−.18	−.36**	−.34**	.17	.16
5. Emp					.11	.04	−.15	−.30*	—	.12	.05	.13	.12	−.03	−.06	−.08	−.07	−.10	.01
Medical treatment																			
6. Med					−.17	−.16	.02	−.11	.01	—	.02	.08	−.13	.07	−.24*	.03	.05	.14	−.09
7. Time	22.79	20.78	38.28	33.44	.40**	.70**	−.11	−.14	.24	−.06	—	−.10	−.01	.11	.11	.12	.13	−.02	−.13
Measures																			
8. FPI	178.36	33.32	178.68	31.97	−.44**	−.31**	−.16	−.21	−.17	−.24	−.18	—	.71**	.75**	.68**	.70**	.80**	−.59*	−.65**
9. SocC	44.84	9.48	37.13	11.22	−.28*	.01	−.16	−.08	−.22	−.05	.02	.74**	—	.47**	.41**	.29**	.40**	−.53**	−.59**
10. SexC	27.88	8.90	31.53	7.71	−.40**	.03	−.15	−.07	−.17	−.17	.00	.71**	.35*	—	.48**	.30**	.50**	−.49**	−.50**
11. RelC	28.83	9.67	33.31	10.73	−.18	.01	−.29*	.05	−.13	−.09	−.01	.68**	.24	.58**	—	.25**	.31**	−.49**	−.49**
12. RejL	31.77	8.31	31.77	7.57	−.30*	−.04	−.14	−.07	.17	−.15	−.22	.70**	.51**	.23	.23	—	.74**	−.26**	−.31**
13. NeedP	45.04	9.35	44.94	7.62	−.52**	−.16	−.37*	−.25	−.07	−.25	−.01	.74**	.44**	.40**	.30*	.65**	—	−.35**	−.40**
14. SCS	2.69	.70	2.67	.24	.14	−.02	.14	−.03	.06	−.10	.09	−.43**	−.27*	−.55**	−.34*	−.23	−.15	—	.68**
15. SWB	15.21	18.25	16.91	17.78	.32*	−.25	.03	−.08	.08	.06	−.06	−.55**	−.40**	.53**	−.41**	−.33*	−.24	.57**	—

Note. Age = current age; Rel = number of years in current relationship; Educ = highest level of education achieved; SES = socioeconomic status; Emp = employment: 1 = *full-time*, 2 = *not full-time*; Med = medical treatment for infertility; 1 = *yes*, 2 = *no*; Time = number of months trying to get pregnant; FPI = Fertility Problem Inventory; SocC = Social Concern subscale of Fertility Problem Inventory; SexC = Sexual Concerns subscale of Fertility Problem Inventory; RelC = Relationship Concerns subscale of Fertility Problem Inventory; RejL = Rejection of Childfree Lifestyle subscale of Fertility Problem Inventory; NeedP = Need for Parenthood subscale of Fertility Problem Inventory; SCS = Self-Compassion Scale; SWB = Subjective Well-Being. Correlations reported above the diagonal of the correlation matrix are for women experiencing primary infertility; below, secondary infertility.

[a]Correlations reported for this variable are Spearman's ρ correlations.

*$p < .05$. **$p < .01$.

Table 3. Hierarchical Regression Examining Fertility-Related Stress, Self-Compassion, and Employment on Subjective Well-being.

Predictors	*R*	ΔR^2	*df*	ΔF	β	*p*	Semi-partial r^2
Step 1	.12	.02	158	.74		.54	
Age					.06	.48	.00
Relationship length					−.03	.74	−.08
Socioeconomic status (SES)					.09	.26	.01
Step 2	.13	.001	157	.19		.66	
Age					.05	.58	.002
Relationship length					−.004	.96	−.04
SES					.09	.29	.01
Type of infertility					.04	.66	.001
Step 3	.76	.56	156	62.51		.00	
Age					−.03	.64	.001
Relationship length					.02	.71	.000
SES					−.03	.66	.001
Type of infertility					.05	.49	.001
Fertility-related stress					−.43	.00	−.12
Self-compassion					.45	.00	.14
Employment					−.02	.81	.000

Note. $N = 151$. Type of infertility and employment are dichotomous variables, with primary infertility and not currently employed serving as the reference group, respectively.

and second infertility. Further, self-compassion related to global infertility-related stress inversely for women with primary or secondary infertility (i.e., higher levels of self-compassion were related to lower levels of infertility-related stress)—having a large and a medium effect size, respectively. Turning to the specific subscales of the FPI, for women with primary infertility, self-compassion had an inverse relation and large effect size for social concerns (e.g., feelings of alienation or isolation from peers and family); a medium effect size with sexual concerns, relationship concerns, and the need for parenthood; and a small effect size with rejection of a childfree lifestyle. For women with secondary infertility, self-compassion had an inverse relation and large effect size with sexual concerns; a medium effect size with relationship concerns; and a small effect size with social concerns, rejection of a childfree lifestyle, and the need for parenthood.

Hypothesis Testing

To assess Prediction 1 that no differences would be found in the levels of subjective well-being and self-compassion between women experiencing primary or secondary infertility, *t*-tests for independent groups were conducted. This prediction was supported by the failure to find significant differences between the two groups of women for subjective well-being, $t(170) = -.57$, $p = .71$, and self-compassion, $t(170) = .07$, $p = .61$.

To examine Hypothesis 2 that women with primary infertility would report greater levels of global fertility-related stress, specifically social concern, compared to women with secondary infertility, *t*-tests for independent groups were conducted for the total score on the FPI and for its social concern subscale. This hypothesis was partially supported given that we found that women with primary or secondary infertility failed to report significantly different levels of global fertility-related distress, $t(170) = -0.06$, $p = .71$, but that women with primary infertility reported significantly higher levels of social concern, $t(170) = 4.65$, $p < .01$.

To test Hypothesis 3 that fertility-related stress, self-compassion, and employment will predict well-being above and beyond infertility type alone, we conducted hierarchical regression analyses with fertility-related stress as the criterion variable. Based on the correlation analyses, SES, age, and relationship length were controlled to ensure that the effects of these variables were accounted for in the first step of the hierarchical regression analyses. Infertility type (i.e., primary or secondary) was dummy coded with primary infertility as the reference group and added in the second step of the hierarchical regression. Based on prior research, employment (McQuillan et al., 2007), self-compassion (Galhardo et al., 2013), and fertility-related stress were added in the third step. Table 3 reports the results of the regression analyses. Partial support was found for Hypothesis 3 in that self-compassion and fertility-related stress explained additional variance in well-being above and beyond that explained by infertility type, but employment status did not. More specifically, after controlling for age, relationship length, SES, and infertility type, the inclusion of fertility-related distress, self-compassion, and employment to the regression model accounted for an additional 56% of the variance in subjective well-being, ΔF (2, 156) = 62.51, $R^2 = .56$, $p < .00$, Cohen's $f^2 = 1.31$, indicating a large effect size.

We utilized bootstrap analyses to test our two mediated models. Bootstrap analysis allows for greater statistical power without the assumption of multivariate normality in the sampling distribution (Mallinckrodt, Abraham, Wei, &

Russell, 2006; Preacher & Hayes, 2008). Preacher and Hayes (2008) designed an SPSS macro for mediation models that was used in the present study. This macro provides a parameter estimate of the total and specific indirect effects, as well as confidence intervals (CIs), by generating between 1,000 and 20,000 random samples. The indirect effect was calculated by following the recommendations by Preacher and Hayes (2008) to repeat with 10,000 samples to determine the parameter estimate. The indirect effect is statistically significant, and thus mediation is indicated, if zero is not contained in the 95% bias-corrected CI for the parameter estimate.

Hypothesis 4 predicted that, for the total sample, self-compassion would mediate the relation between the need for parenthood and subjective well-being (need for parenthood→self-compassion→subjective well-being). This hypothesis was supported ($b_{\text{need for parenthood}} = -.382$, 95% CI [−.579, −.212]). Additionally, as hypothesized, self-compassion mediated the relation between social concerns and subjective well-being for women with primary infertility ($b_{\text{social concerns}} = -.517$, 95% CI [−.790, −.274]). However, contrary to Hypothesis 5, self-compassion also mediated the relationship between social concern and subjective well-being for women with secondary infertility ($b_{\text{social concerns}} = -.223$, 95% CI [−.492, −.023]).

The reverse casual models of whether self-compassion mediated the relationship between subjective well-being and need for parenthood (i.e., subjective well-being→self-compassion→need for parenthood) and between subjective well-being and social concerns (i.e., subjective well-being→self-compassion→social concerns) were tested and failed to be significant, increasing confidence in the temporal ordering of these variables in the model.

Discussion

In this study, we found similar levels of self-compassion, subjective well-being, and global fertility-related stress levels in women with primary or secondary infertility, as well as some shared and some disparate experiences of specific aspects of fertility-related stress. Overall, we found that fertility-related distress and self-compassion predicted well-being above and beyond fertility type alone. Further, self-compassion mediated the relation between the need for parenthood and subjective well-being for women with primary or secondary infertility. Additionally, self-compassion mediated the relation between social concerns and subjective well-being for both groups of women.

Our study found no significant differences in reported levels of subjective well-being and infertility-related stress for women with primary or secondary infertility who use online infertility support groups. Women with primary or secondary infertility reported low levels of life satisfaction and PA, as well as elevated levels of NA and global infertility-related stress. These findings suggest that secondary infertility is not necessarily less distressing than primary infertility, although the sources of distress for women with primary or secondary infertility may be different.

Although having a prior child does not appear to buffer against general fertility-related stress as Newton et al. (1999) suggested, it does appear to have an association with fertility-related social concerns. This study offered further support for the greater perception of social concerns of women experiencing primary infertility compared to women experiencing secondary infertility (Newton et al., 1999). Women with primary infertility report a greater sensitivity to comments about their childlessness, are reminded of their child-less status more often, and experience greater levels of social isolation and alienation from their peers and family. Such findings exemplify the importance of the social context in understanding primary infertility, the pressure that stems from societal expectations surrounding procreation, and the need to move beyond intrapsychic factors in conceptualizing the infertility experience. Further, as indicated in the high correlations between social concerns and self-compassion and subjective well-being in women experiencing primary infertility, there is a close relationship between these women's sense of connection to others and their overall well-being.

For women with either primary or secondary infertility, fertility-related stress and self-compassion, but not employment, were significant predictors of subjective well-being. Psychological variables, rather than infertility type alone, appear to be important to understanding the well-being of women experiencing either primary or secondary infertility. Employment failed to be a significant predictor of fertility-related stress, and therefore the importance of the worker identity in relation to the need for parenthood remains unclear. This may be again due to our sample's characteristics because women with infertility who seek support online may be less likely to view their career path as an alternative to motherhood. In other words, their use of an online support group may indicate a higher level of attention to their infertility than women who are not participating in online support groups, and other online support group users may reinforce the view of motherhood as an important life goal.

Previous research has linked self-compassion to problem-focused coping strategies and positive reframing of problems, which may be because self-compassion allows for a sophisticated level of emotional clarity that promotes emotional acceptance in the face of difficult circumstances that typically arouse increased levels of stress (Neff, Kirkpatrick, & Dejittirat, 2004). As a further extension, Neff, Kirkpatrick, and Dejittirat (2004) conceptualize self-compassion as a form of resiliency against the negative impact of acknowledging one's faults and as a self-nurturance strategy especially helpful for those with self-critical thinking patterns, which could be important for women who struggle with blaming themselves for their infertility or with feeling blamed by society for their infertility. This study provides evidence that for women with

either primary or secondary infertility who closely identify with the parenthood role and who view becoming a mother an essential life role, this need for parenthood was indirectly associated with subjective well-being through self-compassion. This pattern suggests that higher levels of self-compassion could potentially have a protective effect for infertile women with a high need for parenthood. Self-compassion previously has been found to have an association with women's positive attitudes toward their bodies (Berry, 2007), and it may be especially important when women feel like their bodies have failed them through infertility, thereby thwarting their life goal of becoming a mother.

Moreover, the identification of self-compassion as a mediator between social concerns of women with primary or secondary infertility and subjective well-being may be especially important, given the stigmatization of social identity of those experiencing infertility (Whiteford & Gonzalez, 1995). Although women with primary infertility may feel isolated from their peers and family due to their infertility, the cultivation of self-compassion may represent one way they can recognize that they are not alone in their suffering (i.e., common humanity component of self-compassion) and be kind, rather than judgmental, of themselves (i.e., self-kindness component of self-compassion) for feeling distance from their peers and family. Further, self-compassion may be a helpful coping strategy for women experiencing secondary infertility as well. Women with secondary infertility have expressed feeling disconnected from both the fertile world and the infertile world because both may fail to understand the pain that can stem from their desire for another child (Simons, 1998). Perhaps the nature of their social isolation differs from that of women with primary infertility or has a weaker association with their overall well-being, but for women with secondary infertility who experience a lack of connection with others, self-compassion may help them cope. More generally, self-compassion might serve as an emotional regulation strategy for socially related distress, regardless of its nature, for women experiencing both types of infertility.

Strengths, Limitations, and Future Directions

One of our study's strongest research contributions was its demonstration of the relevance of studying positive psychological constructs—specifically self-compassion—for understanding the well-being of women experiencing infertility by adopting a more complex view of infertility that goes beyond a deficit model to more fully capture women's lived experiences. Additionally, our study establishes the need to move beyond understanding the infertility experience based solely on infertility type, while also acknowledging the similarities and differences between those experiencing primary or secondary infertility.

However, this study is limited in that it included a subset of demographic, medical, and psychological variables, and other variables not currently examined also may be related to women's well-being. Although analyses were conducted to assess for potential differences and the potential impact of participants' age, race, country of origin, relationship length, socioeconomic level, the diagnosed cause of infertility, past pregnancies and outcomes, utilization of medical treatment for infertility, and payment of infertility treatment, other factors such as access to mandated health coverage for infertility or congruence between romantic partners' desire for a child may explain additional variance in these women's well-being. Further, three of the women with secondary infertility indicated that they had also experienced primary infertility. It remains unknown as to how experiencing primary and secondary infertility might relate to fertility-related concerns and well-being; additional research is needed on the experiencing of being diagnosed with both primary and secondary infertility while trying to conceive. Moreover, the small sample size of women with secondary infertility is a limitation more generally. Although the secondary infertility sample size was within the acceptable range for conducting bootstrap mediation (Fritz & MacKinnon, 2007), the mediational analysis in this study warrants replication with a larger sample of women experiencing secondary infertility.

Although the model in this study explained 56% of the variance in subjective well-being, further research could examine psychological factors such as religiosity or optimism that may predict additional variance. The cross-sectional design of our study represented a limitation in that it does not allow for causal statements. By using a control group of women who are not experiencing infertility in addition to multiple groups of women with different types of infertility (e.g., primary), future research more directly could use longitudinal designs to assess whether psychological variables serve as a mediator and for whom.

Additional limitations of this study include the sampling method and potential for self-selection bias. Traditional infertility research has been conducted using samples of volunteers from infertility clinics and local support groups. Yet, most women with secondary infertility do not actively seek treatment at clinics nor participate in local support groups (Burns & Covington, 2006). Reaching the secondary infertility population is a difficult but important task. Internet research offers one possibility for contact with women with secondary infertility, but Internet research's inherent issues with reliability, validity, and generalizability need to be acknowledged openly. A self-selection bias among the participants existed if only those who are higher in self-compassion or distress choose to complete the survey. In addition, the representativeness of the sample was limited to those who are searching for online support to help them with their infertility experiences, and the current sample was predominantly White and heterosexual. Although prior research has demonstrated that over half of infertility patients utilize the Internet for infertility-related purposes (Kahlor & Mackert, 2009; Rawal & Haddad, 2006), the generalizability of this study to the broader infertility population is restricted,

and little is known about the experiences of racial and sexual minority women experiencing infertility.

Practice Implications

Despite its limitations, our findings highlight the importance of moving beyond the medical diagnosis of infertility to understand whose well-being is most affected by the experience of infertility and why. For mental health professionals and infertility specialists who may have direct contact assessing the psychosocial concerns of women experiencing infertility, it is critical to avoid making assumptions about how having a diagnosis of primary or secondary infertility may have an impact on women's well-being. The heterogeneity of women facing primary or secondary infertility needs to be recognized while acknowledging that infertility occurs within a social and personal context—the power of which cannot be overlooked. Instead, the present research suggests the relevance of exploring in clinical work and in empirical models women's internalized need for parenthood and specific fertility-related concerns, especially social concerns. Our findings suggest that understanding the extent to which women experiencing infertility have a strong need for parenthood may be important in determining how to improve their well-being during a stressful life experience. Not all women experiencing infertility may have the same level of need for parenthood, and it may be helpful for clinicians to assess that need when designing psychological interventions.

In addition to establishing the significance of addressing women's need for parenthood, this study suggests that the next step for practitioners and researchers is to examine the social context in which the need for parenthood develops and how that context intersections with women's fertility-related distress. Prior research on women's internalized shame around infertility and the current study's finding that women experiencing primary infertility expressed greater level of social concerns embodies the continued attention our society places on motherhood. Although the importance of motherhood has been investigated on the individual level (McQuillan, Greil, Shreffler, & Tichenor, 2008), additional research using a systems-based framework is needed to examine the role of cultural expectations and institutional factors. To deconstruct the social concerns of women experiencing infertility, practitioners and researchers need to attend to the meaning of childlessness (both voluntary and involuntary) and to work to reduce the cultural and institutional stigma faced by women without children (e.g., childlessness being considered deviant; McQuillan et al., 2008). Counselors could help facilitate discussions about when and how women's desire for children developed and the extent to which they have received and/or internalized societal messages about the imperative to have children or to have more than one child. These discussions may help empower women to develop self-awareness around their motherhood identity and identify ways that they can feel more in control over the extent to which societal pressures about motherhood affect them.

Although a systems approach is needed to address the social concerns of women experiencing infertility, the present research suggests that self-compassion can play a significant role in an intrapsychic level for the well-being of women experiencing primary or secondary infertility and may help them cope with the social pressures they face. It may be helpful for fertility counselors or counselors working with women experiencing infertility to assess women's feelings of loneliness or social isolation and any patterns of social withdrawal stemming from their infertility experience. Interventions presenting self-compassion as a method for self-soothing have recently been implemented (Gilbert & Procter, 2006), and they may be especially relevant for women experiencing infertility who have a strong need for parenthood and are at risk for social isolation due to their infertility experience. In addition to improved psychological well-being more generally, in a study of individuals facing a multitude of health conditions, those with high and low self-compassion perceived their health conditions as equally concerning, but those with high levels of self-compassion were able to better manage their emotions (Terry, Leary, Mehta, & Henderson, 2013). Thus, self-compassion may be especially effective as a coping strategy for painful emotions, including social concerns, for women who perceive a strong need for parenthood.

Neff and Germer (2013) recently conducted a randomized controlled trial of an 8-week Mindful Self-Compassion (MSC) program, finding that in a sample of community adults, intervention participants reported significant pre- and postgains in self-compassion, mindfulness, and well-being that were maintained at 6-month and 1-year follow-ups. Their MSC program consists of interventions such as identifying and memorizing a set of self-compassionate phrases to apply in daily life, writing a letter to oneself from the perspective of a compassionate friend, and practicing affectionate breathing during which participants imagine feelings of warmth and affection entering their bodies with each breathe (Neff & Germer, 2013). Based on the MSC program, a self-compassion intervention tailored specifically for women experiencing infertility could be utilized that focuses on exercises such as memorizing self-compassionate phrases to use during challenging fertility-related social interactions and applying their urge to nurture a child to how they might treat themselves more kindly during such a challenging life experience as infertility. Additionally, a self-compassionate approach to their infertility experience might allow them to be mindfully present with their painful emotions, such as those stemming from triggering social interactions (e.g., attending a friend's baby shower), without overly identifying with those emotions. As Hofman, Grossman, and Hinton (2011) have described, equanimity, loving-kindness, compassion, and joy in the joy of others allow one to experience nonjudgmental mindfulness that comprises self-compassion.

Self-compassion interventions directed at cultivating these emotion-regulation skills then could be assessed to determine the extent to which they help participants increase their life satisfaction and PA, manage their NA, and feel connected rather than isolated from others due to the social pressure felt around having children.

Conclusion

Our correlational study demonstrated significant relationships between the positive psychological variable of self-compassion and subjective well-being of women experiencing either primary or secondary infertility who utilized online infertility support groups. In addition to examining how infertility relates to negative outcomes such as depression and anxiety, it is important to understand how it relates to positive aspects of functioning such as subjective well-being and what strengths-based variables can help empower women as they face the potentially distressing experience of infertility. In short, our study contributes to a greater awareness of the multifaceted dimensions of experiencing infertility, including psychological factors such as self-compassion, that are relevant and important positive psychological variables worthy of further exploration in women with either primary or secondary infertility.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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