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What Are the Issues Confronting Infertile Women? A Qualitative and Quantitative Approach

Katja Hämmerli
University of Bern, katja.haemmerli@ptp.unibe.ch

Hansjörg Znoj
University of Bern, hansjorg.znoj@psy.unibe.ch

Thomas Berger
University of Bern, thomas.berger@ptp.unibe.ch

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Abstract

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Keywords

Counselling, Distress, Emotions, Infertility, Internet, Pregnancy, Psychosocial Issues, Reproductive Medice, and Women's Health

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What are the Issues Confronting Infertile Women? A Qualitative and Quantitative Approach

Katja Hämmerli, Hansjörg Znoj, and Thomas Berger
University of Bern, Bern, Switzerland

Infertility is a stressful experience, yet little is known about the specific issues confronting infertile women. In the present study, researchers sought to identify themes important to infertile women and examine possible associations with mental health levels. Using qualitative content analysis, researchers analyzed the email messages of 57 infertile women participating in a German-language Internet-based treatment for infertility. The themes most important to infertile women were emotions surrounding their wish for a child, coping with this unfulfilled wish, and medical aspects. Clinically anxious women reported substantially and significantly more negative and positive emotions than non-anxious women did (Mann-Whitney U(1)=178; p=0.034). Participants who were both clinically anxious and depressed reported more negative emotions and substantially fewer positive emotions when compared to participants who were solely anxious. The themes identified, considered important by infertile women, could be helpful to health professionals working in fertility treatment. Key Words: Counselling, Distress, Emotions, Infertility, Internet, Pregnancy, Psychosocial Issues, Reproductive Medicine, and Women's Health

Introduction

Infertility is a stressful experience (Menning, 1980). But what exactly is meant by stressful experience in this context? What are the key issues confronting infertile patients? Little is known about the specific themes and burdens affecting infertile patients.

Many psychological studies have focused on the psychological consequences of infertility and its medical treatment. For instance, the effects of assisted reproductive treatment (ART) have frequently been discussed in the literature: ARTs are considered the most stressful techniques used to treat infertility (Eugster & Vingerhoets, 1999). Undergoing ART presents a physical and emotional burden associated with high levels of depressive symptoms, anxiety, and distress (Brkovich & Fisher, 1998; Chen, Chang, Tsai, & Juang, 2004; Eugster & Vingerhoets; Greil, 1997). The waiting period between embryo transfer and pregnancy test as well as the failure of such pregnancy attempts are described as presenting great strains for infertile patients (Boivin & Takefman, 1995; Klonoff-Cohen, Chu, Natarajan, & Sieber, 2001; Verhaak, Smeenk, Nahuis, Kremer, & Braat, 2007). In addition, stress surrounding infertility may be attributed to any number of specific issues, including prevention or postponement of an important life goal (having a child), the cyclic nature of treatment, the side effects of fertility medications, or marital conflicts related to infertility (Mahlstedt, 1985). Nevertheless, overall levels of mental distress, anxiety, and depression found among infertile patients do not appear to differ much from those observed in general populations (Covington & Burns, 2006; Dunkel-

Schetter & Lobel, 1991; Leiblum & Greenfeld, 1997). High levels of mental distress found among infertile patients are often interpreted as short-term reactions (Chen et al.; Eugster & Vingerhoets; Wischmann, 2005).

Historically, the psychological impact of infertility was first examined using qualitative methods (Valentine, 1986). Based on initial qualitative findings, numerous quantitative studies followed. These studies used standard instruments and designs in order to acquire data on the impact of infertility on individuals' mental health and on couples' relationships (Hammerberg, Astbury, & Baker, 2001; Slade, Emery, & Lieberman, 1997).

In recent years, the importance of qualitative research in this area has once again gained attention (Green, Galvin, & Horne, 2003; Peddie, van Teijlingen, & Bhattacharya, 2005; Redshaw, Hockley, & Davidson, 2007). However, to the best of our knowledge, no qualitative studies have been undertaken that investigate the psychosocial issues considered important by infertile patients as well as infertile patients' responses to these issues. Thus, the aim of the present study was to identify these critical themes and corresponding patient responses. In addition, we were interested in possible associations between specific responses to infertility and levels of mental health as measured by standard self-report questionnaires. The findings of qualitative research supply a richness of detail that is often absent in quantitative studies and may provide additional insights into the complexity of infertile women's psychological reactions and their impact on personal mental health.

Position of the researchers

The present study represents a follow-up to a quantitative research project by us, the present authors. The first author originally examined psychological interventions for infertile patients in her doctoral dissertation. The second author is a specialist in the field of health psychology. The third author is an expert in internet-based treatments, having developed an internet-based intervention for patients with social phobia. Based on our experiences conducting face-to-face group interventions for infertile couples, we developed and evaluated an internet-based psychological treatment for infertile patients, which supplied the data examined in the present study.

After reviewing our own research into psychological interventions for infertility as well as the available literature on infertility, we realized that little is known about the specific psychological issues confronting infertile patients. Thus, for the present study, we employed qualitative and quantitative methods in order to identify specific themes and burdens affecting infertile patients. The present study was supported by the Swiss National Science Foundation.

Methods

Study design and participants

The present study combines qualitative and quantitative methods. First, we adopted a qualitative approach in order to gain insight into the psychosocial issues affecting infertile patients. Second, we included quantitative data to find out whether specific psychosocial issues and responses to infertility are related to specific levels of mental health measured according to standard self-report questionnaires. The data used in the present study derive from the Child Wish Online Coaching project (Hämmerli, Znoj, & Berger, 2010), an intervention developed by the present authors.

This 8-week Internet-based treatment for infertile patients consists of several components, including a self-help guide based on a cognitive-behavioral approach. In the course of the treatment, participants also receive assistance and support from a therapist via email. In this way, participants are encouraged to discuss important issues surrounding their unfulfilled wish for a child with a therapist online. Data used in the present study was obtained from a trial of Online Coaching led by three female therapists: one psychologist bearing a master's degree in clinical psychology and two postgraduate students of psychology. The first therapist, who combined a postgraduate course of studies in clinical psychology together with psychotherapy and is highly experienced in treating infertile patients, trained and supervised the latter two therapists before and during the trial. The emails exchanged between patients and therapists in the context of this trial constitute the data analyzed in the present study.

Our study sample was recruited by means of articles in regional newspapers and advertisements in Swiss and German fertility websites. Our research team collected the data used for the present study between May and September of 2008. Approval for the study was obtained from the Cantonal Research Ethics Committee in Bern (Switzerland). Our sample consisted of women suffering from primary or secondary infertility for at least one year, independent of actual medical treatment. Additional criteria for inclusion were: not receiving any other psychological treatment for the duration of the study; having access to the Internet; being at least 18 years of age; and, having written at least one email message to the therapist in the course of the online treatment. A total of 57 women fulfilled these criteria and were included in our qualitative analysis described here (see Table 1). With respect to age, the sample ranged from 26 to 42 years. In all, 59% of the women were from Switzerland, 40% were from Germany, and one woman was from Austria. The mean duration of participants' wish for a child was 2.9 years (range 1-7 years), and 45.6% of the participants had already made use of ART prior to beginning the Online Coaching treatment. The number of messages sent by participants ranged between one and 13 messages, with a mean of 3.77 (SD = 2.87). On average, the messages contained 732 words (SD = 953.09) and ranged in length from six to 4,911 words.

Qualitative analysis

We analyzed the email messages exchanged between patients and therapists using qualitative content analysis (Mayring, 2008). Demanding careful examination and constant comparison on the part of researchers, qualitative content analysis primarily relies on inductive reasoning to determine emergent categories and themes from a set of data. Nevertheless, the generation of such categories and themes may also be influenced by theories, and may therefore also include deductive reasoning.

Our qualitative content analysis involved several steps. In Step 1, we excluded any messages related to technological aspects of the Internet-based treatment from our analysis. In Step 2, two members of our research team began independently generating possible categories from the data using inductive reasoning. As is typically done in qualitative content analyses, our raters identified individual themes detected in the messages as coding units (in most cases paragraphs). While creating the categories, our raters applied the constant comparative method developed by Glaser and Strauss (1967). They compared text units assigned to a specific category to those already assigned to that category in order to better understand the category itself and to make differences between it and other categories more explicit. Each text unit was solely assigned to a single category (i.e., the categories were mutually exclusive).

Step 3 involved repeated validation of the coding scheme between the raters. We verified coding consistency by assessing inter-rater agreement. In an iterative process, problems concerning coding rules and definitions of categories were discussed and Step 2 and 3 were repeated until sufficient coding consistency was achieved. Finally, all messages were coded.

Table 1

Demographic description of the infertile women participating in the study

Variable	n=57	%
Age		
Mean age (years) (SD)	33.2 (3.8)	
Min-Max	26-42	
Occupational Status		
Full time employed	31	54.4
Part time employed	19	33.3
Self-employed	1	1.8
Housewife	2	3.5
In education	2	3.5
Unemployed	1	1.8
Nationality		
Switzerland	35	61.4
Germany	21	36.8
Other	1	1.8
Education Level		
Apprenticeship	17	29.9
High school diploma	10	17.5
Professional school	6	10.5
University	20	35.1
Other	4	7.0
Duration of child wish		
Mean duration (years) (SD)	2.9 (1.4)	
Min-Max	1-7	
Medical treatment		
No	2	3.5
Clinical diagnostics	3	5.3
Insemination	12	21.1
IVF/ICSI	25	43.9
Other	15	26.3
Psychological treatment		
Yes	8	14.0
No	49	86.0

Quantitative measures

The research team collected the following demographic data at baseline: age, occupational status, nationality, education level, duration of wish for a child, and

previous medical and psychological treatments. For the purpose of quantitative analysis, the following two self-report questionnaires were used during baseline assessment:

> *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977): The CES-D consists of 20 items and is used to quantify the severity of depressive symptomatology. Scores range from 0 to 60, with scores of 16 or higher indicating clinical depression (Radloff). At baseline, internal consistency of the CES-D in our sample was alpha = 0.93.
>
> *State-Trait Anxiety Inventory* (STAI; Spielberger, Gorsuch, & Lushene, 1970): The STAI consists of 40 items and is used to assess general levels of anxiety. Scores above 33 (STAI-S) or above 35 (STAI-T) indicate clinically significant state or trait anxiety respectively (Spielberger, Gorsuch, & Lushene). In our sample, the Cronbach's alphas at baseline were 0.93 for state anxiety and 0.91 for trait anxiety.

Statistical analysis

We evaluated the reliability of our qualitative text analysis using Cohen's kappa (Cohen, 1960), which represents a chance-corrected measure of agreement between two raters. In order to calculate the level of inter-rater reliability using this measure, the two raters coded 10% of the data (Wirtz & Caspar, 2002). For the sake of quantitative analysis, we used non-parametric tests (Spearman rank correlations, Mann-Whitney U tests), since the frequency of coded themes was not normally distributed.

Results

Inter-rater reliability

In order to analyze the reliability of the coding system, we calculated Cohen's kappa (see Table 2). The inter-rater reliabilities of the main categories ranged between $\kappa = 0.64$ (category: "pregnant women, families, children") and $\kappa = 0.92$ (category: "somatic signs associated with the wish for a child"). These values indicate good to excellent agreement between the two raters.

Themes emerging from the qualitative data analysis

The research team analyzed a total of 213 messages written by 57 infertile women. A total of 14 main categories encompassing 34 subcategories were extracted from these data (see Table 2). The most important themes that emerged from the qualitative analysis were as follows.

Theme 1: Emotions

In their written messages, the infertile women often described the emotions they experienced surrounding the unfulfilled wish for a child. Most frequently, they

wrote of hopes and fears: "I really hope we are lucky this time" or "Yesterday, I had to cry because of my fear of a negative result" are two examples. Other important emotions included sadness ("When I got home feeling totally dejected, I received a text message"), stress ("Exercise really helps me deal with stress"), and enjoyment ("Thanks to my happy anticipation of the next treatment, I'm able to look ahead with a sense of optimism"). The broad range of additional emotions described in the messages – such as jealousy, hopelessness, anger, self-pity, gratitude, blame, courage, shame, and disappointment – confirm that experiencing the unfulfilled wish for a child is a highly emotional life event. Most interestingly, negative emotions such as fear, sadness, and hopelessness nearly always occurred in combination with positive counterparts such as hope, gratitude, and enjoyment.

Theme 2: Coping with childlessness

Many participants wrote about their ways of dealing with infertility and their unfulfilled wish for a child. It turned out that the various coping styles described by Schmidt, Christensen and Holenstein (2005) were very useful in capturing the strategies outlined in the participants' messages. These authors adapted the Ways of Coping Questionnaire by Lazarus and Folkman (1984) to apply to infertile patients, thereby distinguishing four coping styles: active-confronting coping, meaning-based coping, active-avoidance coping, and passive-avoidance coping. In our study, an example of active-confronting coping included: "We have decided to take a break from trying to have a child and are going to take a trip somewhere." An example of meaning-based coping strategies included: "I try to tell myself that these people can't do anything to harm my baby." Finally, evidence of active-avoidance coping strategies (e.g., "I tried to take my mind off of the situation") and passive-avoidance coping strategies (e.g., "I could only sit in the corner and wait for the result") were also found in the messages.

Theme 3: Medical aspects

Evidently, the participants in our psychosocial Online Coaching treatment also desired to discuss medical aspects surrounding infertility and its medical treatment. This category was further subdivided into "Diagnostics," "Treatment," and "Financial aspects of medical treatment." "My uterus is myomatous" or "Today, I have another one of thousands of pre-exams" are examples from the subcategory "Diagnostics." "Yesterday, I had my second embryo transfer" or "Now, we are in the next treatment cycle" are examples from the subcategory "Treatment." In addition, several participants mentioned the financial burden of medical treatments.

Theme 4: Aspects and activities independent of the wish for a child

A considerable number of messages surrounded activities and aspects of the infertile women's lives that were not directly related to their unfulfilled wish for a child. It was possible to reliably divide this category between positive aspects – based on statements such as "Well, at least we've finished our new aquarium and put fish in it" – and negative aspects, based on statements such as "I'm trying to find a solution for my family so that my sister can recover."

Table 2

Common themes emerging from the qualitative analysis of the messages, and the inter-rater reliabilities for the main categories

Issues confronting infertile women	**Inter-rater reliability (Cohen's kappa)**
1) Emotions concerning child wish *Hope* *Anxiety* *Sadness* *Stress* *Enjoyment* *Jealousy* *Hopelessness* *Anger* *(Self-) Pity* *Gratefulness* *Blame* *Courage* *Shame* *Disappointment* *Inferiority* *Other emotions*	0.82
2) Coping with childlessness *Active-confronting coping* *Meaning-based coping* *Active-avoidance coping* *Passive-avoidance coping* *Unspecific coping*	0.83
3) Medical aspects *Medical Treatment* *Diagnostics* *Financial aspects*	0.72
4) Life independent of the wish for a child *Positive* *Negative*	0.80
5) Attitude towards the wish for a child *Subjective explanatory model* *Strong focus on the wish for a child* *Negative aspects of the wish for a child* *Positive aspects of the wish for a child*	0.89
6) Couples' relationships *Positive aspects* *Negative aspects*	0.89
7) General well-being *Positive* *Negative*	0.83
8) Negative results concerning a pregnancy	0.66
9) Thoughts concerning the wish for a child	0.73
10) Somatic signs/medical conditions associated with the wish for a child	0.92
11) Own possible or earlier pregnancy	0.85
12) Waiting periods	0.85
13) Pregnant women, families, children	0.64
14) Loss of control	0.79

Theme 5: Attitude towards the wish for a child

Participants also revealed their manner of thinking about their unfulfilled wish for a child. Some participants tried to find explanations for their unfulfilled wish for a child (e.g., "Sometimes I wonder if the image I have of my mother somehow produces a block in me"). Others described an intense, sometimes ruminative focus upon the wish for a child (e.g., "I can't think of anything else except our desire to

have a child"). Finally, negative (e.g., "Sometimes I'm afraid of becoming emotionally numb") and positive attitudes (e.g., "This experience has given me the chance to think about many things in my life") toward the unfulfilled child wish were revealed.

Other themes that were extracted from the data are presented in Table 2. They included: "Couples' relationship" (positive and negative statements regarding women' relationships with their partners); "General well-being" (e.g., "I've improved a lot today"); "Negative results concerning a pregnancy" (e.g., initiation of menstruation, a miscarriage, a negative pregnancy test, or termination of a pregnancy); "Somatic signs associated with the wish for a child" (e.g., bodily sensations linked to the wish for a child such as premenstrual syndrome); the "Waiting periods" (e.g., waiting for the start of a treatment or the results of a pregnancy test); and, "Loss of control" (e.g., statements concerning the impossibility of influencing the outcome of a treatment).

Quantitative Results

Frequency of qualitative categories

Table 3 presents the coding frequency for each qualitative category. "Emotions" was the most prevalent category. Of the 57 female participants, 61.4% verbalized feelings concerning their unfulfilled wish for a child. Hope, anxiety, sadness, stress, and enjoyment were the most commonly expressed emotions, accounting for 61% of all emotions mentioned. We found a Spearman rank correlation of $rho(57) = 0.77$ between the frequency of negative and positive emotions mentioned: The more that a given participant wrote about negative emotions, the more likely it was that that same participant verbalized positive emotions as well.

With respect to the category "Coping with childlessness," we found that 63.2% of the participants mentioned their way of coping with the unfulfilled wish for a child. Most of the women described active-confronting coping strategies (35.1%), followed by meaning-based (28.8%), active-avoidance (16.2%), and passive-avoidance (12%) coping strategies. A closer inspection of the data revealed that use of specific coping strategies did not appear stable over time. For instance, a participant who reported use of active-confronting coping in one message might write about meaning-based coping in another message. In terms of correlations, the association between the four coping strategies ranged between $rho(57) = 0.36$ and $rho(57) = 0.56$.

Socio-demographic characteristics and frequency of categories

Statements concerning medical aspects were made by more than half of the participants (56.1%). With respect to this category, a Mann-Whitney U test revealed no significant mean difference between infertile women receiving medical treatment and women not receiving medical treatment (Mann-Whitney $U(1) = 394$; $p = 0.920$). Among the participants who wrote about medical aspects, 64.3% discussed medical treatments, 30.5% raised issues related to diagnostics, while 5% mentioned financial aspects.

Table 3

Frequency of qualitative categories: Number of responses of total sample

Issues confronting infertile women	**Number of responses of total sample (N = 57) (%)**
1) Emotions concerning the wish for a child	262
Hope	*36 (13.7)*
Anxiety	*36 (13.7)*
Sadness	*32 (12.2)*
Stress	*30 (11.5)*
Enjoyment	*27 (10.3)*
Jealousy	*9 (3.4)*
Hopelessness	*9 (3.4)*
Anger	*8 (3.1)*
(Self-) Pity	*6 (2.3)*
Gratefulness	*5 (1.9)*
Blame	*3 (1.1)*
Courage	*3 (1.1)*
Shame	*3 (1.1)*
Disappointment	*2 (0.8)*
Inferiority	*1 (0.4)*
Other emotions	*52 (19.8)*
2) Coping with childlessness	191
Active-confronting coping	*67 (35.1)*
Meaning-based coping	*55 (28.8)*
Active-avoidance coping	*31 (16.2)*
Passive-avoidance coping	*23 (12.0)*
Unspecific coping	*15 (7.9)*
3) Medical aspects	154
Medical Treatment	*99 (64.3)*
Diagnostic	*47 (30.5)*
Financial aspects	*8 (5.2)*
4) Life independent of the wish for a child	146
Positive	*93 (63.7)*
Negative	*52 (35.6)*
5) Attitude towards the wish for a child	94
Subjective explanatory model	*39 (41.5)*
Strong focus on the wish for a child	*30 (31.9)*
Negative aspects of the wish for a child	*13 (13.8)*
Positive aspects of the wish for a child	*12 (12.8)*
6) Couples' relationships	93
Positive aspects	*51 (54.8)*
Negative aspects	*42 (45.2)*
7) General well-being	79
Positive	*47 (59.5)*
Negative	*32 (40.5)*
8) Negative results concerning a pregnancy	52
9) Thoughts concerning the wish for a child	47
10) Somatic signs/medical conditions associated with the wish for a child	39
11) Own possible or earlier pregnancy	34
12) Waiting periods	33
13) Pregnant women, families, children	33
14) Loss of control	28
Total	**1285**

We explored differences and relationships between demographic characteristics and the frequency with which participants wrote about specific themes. No significant rank correlations were found between the age of the participants and the frequency with which they mentioned any of the themes belonging to the established categories. In addition, no significant rank correlations were found between the duration of participants' wish for a child and subjects of any of the categories. The only significant associations that emerged from the data were small and were related to participants' level of education. Participants with a higher level of education tended to write more frequently about themes independent of their wish for a child ($rho(57) = 0.33$, $p = 0.012$) as well as about waiting periods, such as when waiting for the results of a pregnancy test ($rho(57) = 0.27$, $p = 0.045$). No significant differences were revealed with respect to the frequency with which particular groupings of participants (e.g., nationality, occupational status, medical treatment, previous psychological treatments) mentioned themes in a given category. Overall, participants' demographic characteristics and their history of medical or psychological treatment did not appear to exert an influence on the issues they raised in their statements.

Clinical status and frequency of categories

We further examined whether the issues raised by clinically distressed participants could be distinguished from the themes discussed by participants that were not clinically depressed or anxious. For this purpose, two groups were created according to the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) and the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970). In the CES-D, scores above 15 are considered to reflect clinical depression (Radloff). Of the 57 participants, 31 exceeded this criterion for clinical depression, while 26 did not. Nonparametric Mann-Whitney tests revealed no differences between the two groups according to any of the categories, with p-values ranging from 0.06 to 0.96. For instance, although clinically depressed participants mentioned negative emotions slightly more often than non-depressed participants, this difference was far from significant, registering a p-value of 0.22.

With regard to the STAI, scores above 33 on the state anxiety scale (STAI-S) and scores above 35 on the trait anxiety scale (STAI-T) indicate clinically significant anxiety (Spielberger et al., 1970). As there was near-perfect overlap between participants who exceeded the cut-off scores on the STAI-S and the STAI-T scales, we decided to concentrate solely on the STAI-T scale to distinguish two groups. A total of 44 of the 57 participants exceeded the criteria for clinically significant trait anxiety. This produced two unequal groups, with the non-anxious group on the small side (N=13). Nevertheless, the clinically anxious group verbalized substantially and significantly more emotions than the non-anxious group (Mann-Whitney $U(1)=178$; $p=0.034$): Interestingly, this applied to both negative and positive emotions. On average, the frequency with which clinically anxious participants mentioned negative emotions was 2.93, while the frequency among non-anxious women was 0.77. Further, clinically anxious participants mentioned positive emotions eight times more often than non-anxious participants (mean frequency 1.57 vs. 0.17). Further dividing the clinically anxious group into a clinically depressed group and non-depressed group revealed an interesting dissociation between negative and positive emotions. We identified 16 participants who were clinically anxious but not clinically depressed. On average, this subgroup mentioned a negative emotion 2.38 times and a

positive emotion 2.50 times. The 28 participants who were both clinically anxious and clinically depressed reported a negative emotion 3.25 times and a positive emotion 1.04 times. This means that among clinically anxious patients, the addition of clinical depression was related to an increase in the number of negative emotions reported (from 2.38 to 3.25) as well as a decrease in positive emotions (from 2.50 to 1.04).

Discussion

The present study provided an opportunity to shed light on the issues confronting infertile women: The three most important themes we identified were emotions surrounding the wish for a child, coping with the wish for a child, and medical aspects. Other important issues included life independent of the wish for a child, individual attitudes towards the wish for a child, couples' relationships, and general well-being. With one exception – that of highly educated women mentioning waiting periods and aspects independent of their wish for a child wish with greater frequency – the themes uncovered in our study occurred among the infertile women independent of their demographic characteristics or their histories of medical or psychological treatment. Clinically anxious women mentioned emotions significantly more often than non-anxious women: negative emotions about four times and positive emotions about eight times more frequently. Further, significantly fewer positive emotions were reported among women who fulfilled the criteria for both clinical anxiety and depression.

The single most important issue cited by the infertile women was the presence of emotions surrounding the unfulfilled wish for a child. The experience of infertility and its medical treatment are often described as a rollercoaster ride of emotions (Menning, 1980; Watkins & Baldo, 2004). In our sample, generally negative emotions like anxiety occurred alongside positive emotions like hope and enjoyment. This finding confirms that positive and negative emotions are equally present and relevant among infertile women.

One interesting result of the present study was that infertile women with clinically relevant levels of anxiety mentioned positive and negative emotions significantly more often than those who did not suffer from clinically relevant anxiety. In addition, those participants who were both clinically anxious and depressed exhibited fewer positive and more negative emotions than those who were solely clinically anxious. The present finding of fewer positive and more negative emotions among depressed participants may be explained by the fact that depression is linked to a decrease in positive emotions as well as an increase in negative emotions (Gotlib & Hammen, 2002; Greenberg & Watson, 2006). Findings from neuroscience also support the notion that depression bears a direct link to reductions in positive emotions (Davidson, Pizzagalli, Nitschke, & Putman, 2002; Grawe, 2007).

Emotion regulation is crucial to general well-being. Psychological problems like anxiety and depression are strongly associated with deficits in emotion regulation (Gross & Levenson, 1997). Interventions that target emotion-regulation skills may improve the effectiveness of psychotherapeutic interventions (Berking, Wupperman, Reichardt, Pejic, Dippel, & Znoj, 2008). Having the ability to identify and label emotions is an important skill in regulating one's emotions (Bagby, Parker, & Taylor, 1994; Feldman-Barrett, Gross, Christensen, & Benvenuto, 2001).

The greater frequency of emotions mentioned among clinically distressed women might also be a result of the Internet-based treatment in which they were participating. The results of a separate evaluation of the Internet-based treatment itself

revealed that it was especially effective for patients with clinically relevant levels of distress and depression (Hämmerli, Znoj, & Berger, 2010). As a result, such participants' increased expression of emotions can be viewed as an important treatment effect. The results of the present study indicate that infertile women, particularly those with clinically relevant levels of anxiety, bear a great need to communicate their emotions surrounding the unfulfilled wish for a child. In addition, infertile women must learn to cope with the "ups and downs" of various emotions, for example, feelings of hope and anxiety ("I don't know whether to be hopeful or pessimistic") as well as handle incriminating feelings like jealousy and blame.

Coping with the unfulfilled wish for a child was another relevant theme frequently cited by the study participants. Infertility is characterized by the following dimensions of stress: unpredictability, negativity, uncontrollability, and ambiguity (Stanton & Dunkel-Schetter, 1991). In addition, infertility is often perceived as dichotomous: on the one hand, it is considered harmful (e.g., threatening important life goals) and uncontrollable (e.g., attaining conception); on the other hand, it is seen as somehow beneficial (e.g., strengthening a couple's marriage) and controllable (e.g., when deciding for medical treatment; Stanton, 1991). For the majority of couples, infertility amounts to a chronic stressor due to associated emotional distress, demanding treatments, and various events that accumulate over an extended period of time and require different coping strategies in order to successfully adjust, adapt, and maintain emotional and marital equilibrium regardless of the ultimate outcome (Covington & Burns, 2006; Schmidt et al., 2005). The present results show that infertile women used active-confronting and meaning-based coping strategies with the greatest frequency. These two coping strategies are often associated with low fertility problem stress (Berghuis & Stanton, 2002; Schmidt et al.; Terry & Hynes, 1998). In our sample, active-avoidance and passive-avoidance coping strategies were used with lesser frequency.

Medical aspects represented the third issue most frequently mentioned by the study participants. According to the present results, many infertile women are concerned with medical treatment and diagnostic aspects. Surprisingly – in view of the high costs of medical treatment – financial aspects were rarely mentioned. The demand for medical services related to infertility is on the rise (Covington & Burns, 2006). Many infertile couples are subjected to a medical marathon ranging from diagnostic inquiries to high-tech treatments such as in vitro fertilization (IVF). Assisted reproductive treatments are considered particularly stressful by many infertile patients and can trigger high levels of short-term mental distress (Chen et al., 2004; Eugster & Vingerhoets, 1999). There is some evidence that distress levels may influence the outcome of fertility treatments, as well as influence patients' decisions to continue treatment or not (Domar, 2006). Psychological interventions have been shown to be effective in improving infertile patients' mental health and even in increasing their pregnancy rate (Haemmerli, Znoj, & Barth, 2009).

The issues of importance to infertile women identified in the present study appear to occur independent of their psychosocial characteristics. One particular exception was the fact that women with a higher education level more frequently mentioned aspects of their lives independent of the wish for a child, in addition to mentioning waiting periods with greater frequency. An explanation for the first part of this result may be that infertile women with a higher level of education actually have more going on in their lives independent of their wish for a child – such as career goals or leisure activities – or simply choose to focus more on such aspects. As for

waiting periods: we have no plausible explanation for the result that more highly educated women have a greater need to discuss such waiting periods.

In addition to the issues identified in the present study, other well-known themes may also bear great importance to infertile women. For example, sexuality is often an important issue to infertile women, as infertile couples' sexual activity is frequently impacted at some point (Wischmann, 2005). Another theme associated with infertility is the stress that results from others' reactions to infertility and communicating with others about infertility in general (Lemmens, Vervaeke, Enzlin, Bakelants, Vanderschueren, D'Hooghe, et al., 2004). Further, adapting to unintentional childlessness, letting go of the wish for a child, and seeking out alternative life goals or other parenting options such as adoption all represent emotionally difficult processes (Daniluk, 2001). The relevant themes mentioned by the infertile women in this study are not considered exhaustive. It is important to address infertile women directly regarding the above-mentioned issues, as it is not always easy for patients to raise such themes independently.

The present study has its limitations. Due to the small sample size, there may be a lack of statistical power necessary to detect significant relationships between the themes identified and the infertile women's mental health levels. We also limited our analysis to infertile women since very few infertile men participated in the study. Further, the present sample took part in an Internet-based treatment study and may be not representative of infertile patients in general. Selection bias may be present as the sample consisted of individuals who had expressed interest in an Internet-based treatment.

Future research should further evaluate the issues of importance to infertile women so as to increase our understanding of their specific problems and needs. The role of emotions among infertile patients in general, and among highly distressed infertile patients in particular, must be better understood. To date, there has been little research examining gender-specific aspects of infertility or psychological interventions for infertile patients. The issues of importance to infertile men, for example, were not captured in the present study. Infertile women and men ought to be analyzed separately as there appear to be differences between the issues confronting them as groups. Having a precise understanding of the issues important to infertile patients represents a precondition for providing them specific and efficient psychological support.

Conclusions

The present study provides insights into the issues confronting infertile women. The issues we identified may be helpful to health professionals working in the area of fertility treatment. In particular, it appears important that such professionals direct their attention to the emotions experienced by infertile women. As infertile women confront many different emotions, emotion regulation plays a central role in their experience of infertility. In cases where infertile women make frequent mention of their emotions, this may indicate the presence of high levels of anxiety. Infertile women should be offered support in coping with their emotions. Particularly when providing psychological support to infertile women with clinically high levels of anxiety and depression, enhancement of positive emotions presents an important goal. Another issue of great importance to infertile women is coping with the unfulfilled wish for a child in general. Infertile women must be supported in dealing with strains concerning their childlessness by means of active-confronting and

meaning-based coping strategies. Finally, psychological support should be available to infertile patients at every stage of medical treatment and actively offered to those patients experiencing high levels of distress.

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Author's Note

Dr. Katja Haemmerli is a Post-doc assistant at the University of Bern in the Department of Clinical Psychology and Psychotherapy. She is a Psychotherapist in education (Master of Advanced Studies in Psychotherapy), and her research interests include Psychotherapy research, psychological interventions for infertile patients, and Internet-based treatments. Correspondences regarding this article can be addressed to: Katja Hämmerli, University of Bern, Institute of Psychology, Department of Clinical Psychology and Psychotherapy, Gesellschaftsstrasse 49, 3012 Bern, Switzerland; Phone: 0041 31 631 45 83; Fax: 0041 31 631 41 55; E-mail: katja.haemmerli@ptp.unibe.ch

Dr. Hansjoerg Znoj is a Professor for Clinical Psychology and Psychotherapy at the University of Bern. He has been a Professor for Clinical Psychology at the University of Bern since 2006. Grants and honours include: Swiss National Foundation (SNF) personal grant recipient from 1993 to 1996; recipient of SNF grants to research coping with spinal cord injury, coping among traumatized Bosnian refugees, and infertility. He is the recipient of grants from Oncosuisse, SUVA. Research interests include psychotherapy process research, coping and

regulation of emotion following traumatizing life events, clinical psychology, health psychology, and bereavement. E-mail: hansjörg.znoj@psy.unibe.ch

Dr. Thomas Berger is a Post-doc assistant at the University of Bern in the Department of Clinical Psychology and Psychotherapy. He is the Swiss National Foundation (SNF) personal grant recipient from 2008 to 2010, and his research interests include: psychotherapy research, Internet-based treatments, and the training of psychotherapists. E-mail: thomas.berger@ptp.unibe.ch

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