



„AL. I. CUZA” UNIVERSITY OF IAȘI



Faculty of Psychology and Educational Sciences

# **Ph. D. THESIS**

**Psychological Factors Related to Successful IVF in Infertile  
Couples**

*ABSTRACT*

**Scientific coordinator:**

**Prof. MARIA NICOLETA TURLIUC, Ph. D.**

**Doctor's degree candidate:**

**ROXANA TUDORACHE (DUMITRU)**

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Infertility is a life event and a special experience through the implications it has for the lives of infertile individuals / couples, but also for the society they live in. Technological development and growing specialization degree of practitioners favored improvement of pregnancy rates which infertile couples obtain through medically assisted human reproduction (MAR) procedures.

The current survey has aimed to highlight psychological factors which determine success of MAR procedures that infertile couples decide to follow in order to fulfill their wish to become parents. Two reasons have led to the choice of this research topic: a) professional concerns of the author who, for over three years, has been counseling infertile couples in a specialized clinic in Iași city, Romania; dealing with a large number of infertile couples occasioned many observations and findings on the patterns of psychological response to the infertility problem; b) the fact that, while in the international speciality literature psychological and social dimension of infertility began to stir interest of researchers from various fields, in Romania this issue has not raised too much interest yet.

### **SURVEY I:** *Construction and validation of a tool assessing resilience in infertile couples*

**Theoretical premises.** In the research literature of developmental psychology as well as traumatic events psychology, resilience is generally described as a dynamic process that involves adjustment and at the same time, a result of

adaptation of an individual in terms of cognitive, emotional and social functioning, despite threatening circumstances regarding psychological balance (Masten, Best and Garmezy, 1990). A very large number of surveys results highlight, self-efficacy, perseverance, internal locus of control and active coping (focused on solving life problems) as internal factors (Luthans, Vogelgesang and Lester, 2006; Tedeschi and Kilmer, 2005) and social support as external factors (Hardy, Concato and Gill, 2004; Werner and Smith, 2001) of resilience. Within the context of the survey that we have conducted, resilience has been referred to as meaning a person's ability to recover from stressful confrontation with a stressful request (Smith et al., 2008). Study results suggest that resilience is a nonspecific (general) protective factor against stress correlated with infertility (Sexton, Byrd and Von Kluge, 2010), playing a positive predictive part in relation to life quality and wellbeing indicators in infertile people/couples (Herrmann et al., 2011).

**Objective.** Based on current conceptualizations of infertility issues, as well as on the perspective of awareness of the importance of resilience, as a key resource of the adjustment process, the current survey has taken into account the construction and validation of a multidimensional questionnaire designed to assess resilience factors in infertile couples.

**Methodology.** The first working version of the Resilience Assessment Questionnaire in Infertile Couples (RAIC) was administered to 100 adults, partners from 50 marital or non-marital couples diagnosed with infertility. The sample that the 12-item RAIC instrument was counter-validated included 132 adults who formed 66 marital or non-marital couples.

The RAIC instrument is the result of a qualitative and quantitative approach that the author of this survey has performed in three stages. In a first stage, 20 items were formulated, which aimed operationalization of four factors that contributed to resilience in infertile couples, taking into account the results of studies as well as already known resilience assessment instruments. It also aimed to estimate its reliability (internal consistency). The third stage aimed to counter-validate factorial solution for the second version with 12 items, obtained through applying exploratory analysis (Dumitru, Turliuc and Herb, 2014). In this respect, confirmatory factorial analysis with AMOS 20.00 application was performed.

**Results.** The data of exploratory factor analysis revealed four factors that together explained 50.05% of the total variance of scores on items. Depending on the saturation of items in the extracted factors, three items for each of the factors were retained, thus resulting a version with 12 items which was counter-validated on another sample of infertile couples.

Construct validity of the second working version of RAIC was retested comparing a hypothetical model with a single latent factor to one which included four interrelated factors. The data of confirmatory factorial analysis highlighted statistical superiority of the metric model with four interrelated factors, which are self-efficacy in overcoming difficulties caused by infertility, internal locus of control, coping focused on overcoming difficulties associated with infertility as well as perception regarding availability of social support. The factors displayed acceptable intercorrelations, with the social support dimension perceived highly differently from the other three dimensions, a result which

brought to light the distinction between internal and external factors of resilience.

Except for the perceived social support, statistically significant positive and moderate values of the correlations between scores on RAIC and score of the Connor-Davidson Resilience Scale / CD-RISC (Connor and Davidson, 2003) are evidence of (convergent) construct validity of RAIC questionnaire.

Data of fidelity analysis for the working version with 12 items displayed a satisfactory internal consistency ( $\alpha$  coefficient) for three of the RAIC scales, as well as a good internal consistency for the scale related to perceived social support. Given that each factor of resilience was operated only through three items each, the results are acceptable.

**SURVEY II:** *History and effects of stress associated with infertility: testing an integrative model*

**Theoretical premises.** The results of several studies suggest that psychological stress is a risk factor for reproductive performance of men and women, the variables that mediate the relationship between demands of life and reproductive performance depending on the nervous, endocrine, and immune system (Edelmann, 1990; Hjollund et al., 1999). On the other hand, infertility is one of the most stressful life experiences for couples who face this problem (Andrews Abbey and Halman, 1991; Van den Broeck, D'Hooghe, Enzlin and Demittenaere, 2010).

Theories which were concerned with identifying factors that explain individual differences in terms of adaptation psycho-emotional and social experience infertility have stressed the role of personality traits (Verhaak et al., 2005), cognitive characteristics (Abbey, Halman and Andrews, 1992; Faramarz et al., 2014; Fekkes et al., 2003), the style of attachment to their spouse (Donarelli et al., 2012) as well as external resources, such as locus of control (Hsu and Kuo, 2002; Martins, Peterson Almeida Costa, 2011).

**Objective.** The study aims to highlight the contribution that a number of individual general characteristics and specific characteristics related to infertility experience infertility have in explaining the variability of stress and subjective wellbeing among partners belonging to infertile couples and in explaining the success of MAR procedures.

**Methodology.** Data analysis was based on the protocols with answers of 170 adults, among which 85 respondents were women and 85 were men who were partners in infertile marital couples. Participants filled in a protocol that included ten standardized questionnaires.

**Results.** Partners from analyzed couples reported a moderate level of stress caused by infertility they faced, as well as a relatively high level of wellbeing indicated by the high score regarding life satisfaction, as well as by the low score regarding negative affectivity. Data reported in the literature which was concerned with infertility problems show that this experience is stressful, especially for women, but not so devastating as feared in the common perception (Dunkel-Schetter and Lobel, 1991; Greil, 1997). The result that we have achieved could be

explained by the characteristics of couples who were studied. Thus, over 65% of them were to undergo a first medical procedure in trying to achieve a pregnancy. Moreover, the data collected through psychological counseling, showed that some couples had decided to access medical services of "Omini" Medical Centre on the recommendation of other couples who had followed successful artificial insemination or in vitro fertilization treatment.

For the entire sample of participants, the regression analysis data illustrated neuroticism, alexithymia, internal locus of control and irrational beliefs as positive predictors of stress associated with infertility. Together, these four independent variables explained 20.08% of the participants in the study differences regarding stress caused by infertility. A high level of emotional instability was associated with higher levels of stress. This result confirmed the findings reported in other studies (Verhaak et al., 2005), according to which neuroticism tends to be a risk factor for stress that women experience as a result of a first confrontation with the failure of the medical treatment. Studies suggest that neuroticism is associated with passive strategies of adjustment to stressful demands, oriented towards avoiding involvement in action or towards focusing on negative emotions (Carver and Connor-Smith, 2010). Therefore, the coping style of emotionally unstable individuals is another factor to be taken into account when analyzing the relationship between neuroticism and stress associated with infertility.

Regarding the predictive role of alexithymia, the result suggests that individuals / couples experiencing difficulties in identifying, describing and expressing their emotions, trying to



suppress negative emotions are more vulnerable to stress associated with infertility. The partners of a couple can see infertility as a stigmatizing experience (Covington and Hammer-Burns, 2006), who often prefer not to discuss about. It was observed tendency of infertile people to suppress the intense emotions that they experience as a result of the desire to avoid stigma rather than as a consequence of the failure of processing their own emotions, something that has been designated by the term of alexithymia secondary to infertility (Conrad et al., 2001).

Furthermore, internal locus of control was a positive predictor of specific infertility stress level, explaining over 5% of its variance. The result is in line with data reported in other studies (Abbey, Halman and Andrews, 1992; Koropatnick, and Pattinson Daniluk, 1993). Due to the fact that infertility experience is a situation whose possible finalities surpass their own control (Terry Hynes, 1998), partners of a couple who believe they are responsible for the failure of specific medical treatments may feel extra pressure.

The fourth predictor of stress associated with infertility was represented by irrational cognitions related to infertility, which explained 4.62% of the differences between participants regarding stress levels. The result is in line with data reported in other studies (Fekkes et al., 2003; Newton, Sherrard and Glavac, 1999). The data we have obtained suggests that people which tend to exaggerate the drama of experience infertility, considering it as a divine punishment or as an injustice that will turn your life into a useless and worthless experience, are more likely to experience higher levels of stress.

Among the independent variables which were taken into account within the regression model in which the criterion was represented by life satisfaction, only resilience and quality of the relationship with the life partner were positive predictors. But compared with resilience, quality of relationship with the life partner explained a much higher percentage (14.06%, compared to only 1.71%). Also, this interpersonal variable was a predictor of negative affectivity, explaining 4.79% of the variance of this dependent variable. The positive nature of the relationship with the life partner is a protective factor against depreciation of wellbeing indicators in infertile couples, as suggested by study results (Andrews Abbey and Halman, 1991; Gourounti, Lykeridou and Vaslamatzis, 2012). Most often, the negative experience of infertility is experienced by both partners of a couple. When they receive the diagnosis, the relationship face a moment of crisis, which they will overcome based on their own resources, which are deeply rooted in the legacy that each partner brings, as well as on the experiences that have marked the life of the couple.

Besides the quality of the relationship with the life partner, alexithymia, irrational beliefs associated with infertility and stress levels were positive predictors of negative affectivity, as an indicator of wellbeing. Among these three variables, alexithymia had a more modest contribution (1.14%) to explaining the variance of the score related to negative affectivity. Significant relationship between the level of irrational beliefs associated with infertility and negative affectivity confirmed data reported in other studies (Farzad and Ghasemzadeh, 2008).

As for the success of MAR procedures, which was operationalized, among women who were involved in the study, by the  $\beta$ -HCG value, age, level of resilience and of stress caused by infertility were significant predictors. Among the three independent variables, age had a more consistent contribution (8.76%) in explaining differences regarding the  $\beta$ -HCG indicator. Furthermore, according to data resulted from testing the model of predictive factors for successful MAR procedures, stress caused by infertility partially mediated the relationship between women's age and the  $\beta$ -HCG indicator. Age of female partners of infertile couples performing MAR procedures is particularly important because with age, chances of getting pregnant diminishes, due to physiological changes that lead to difficulty in achieving and maintaining a healthy pregnancy (Covington and Hammer-Burns, 2006; Romero Ramos Gutiérrez Romero, Abortes and Medina Sánchez Monroy, 2008). While an infertile woman gets older, she realizes that her chances of becoming a mother significantly decrease and she is exposed to high levels of stress. In turn, the psychological stress is recognized as a risk factor for the failure of efforts that a couple undergo in order to achieve pregnancy (Hjollund et al., 1999; Smeenk et al., 2001).

### **STUDY III:** *Benefits of experiential therapeutic approach in assisting infertile couples*

**Theoretical premises.** Group psychotherapeutic interventions which focused on developing skills involved in psychologically adjustment to infertility experience have proven

more effective in producing positive changes compared to both counseling interventions which focused on expressing emotions, as well as support groups, in which emphasis is on thoughts and feelings concerning infertility. Terapia experiențială nu își propune modificarea clientului, ci oportunitatea de a explora propriile resurse cu ajutorul unor tehnici creative de sondare a universului interior, prin intermediul exercițiilor de relaxare și imagerie ghidată, lucrului corporal, poveștilor și a scenariilor metaforice (Mitrofan, 2000; Mitrofan și Vasile, 2001). Experiential therapy is a way of regaining and maintaining mental health through its positive valences, which provide a basis for understanding, exploring and assisting the human being (Mitrofan, 2000). Experiential therapy does not aim the change of the client, but the opportunity to explore his/her own resources using creative techniques for exploring the interior universe through relaxation and guided imagery exercises, physical exercises, stories and metaphorical scenarios (Mitrofan, 2000 Mitrofan Basil, 2001).

**Objective.** The study has aimed to conduct an experiential therapeutic program with a group of infertile couples and evaluate its benefits on participants. A second purpose of the study was monitoring satisfaction with their own experiences (both inside and outside the therapeutic context) among infertile persons / couples who have benefited from therapy.

**Methodology.** Statistical analyzes are based on answers: a) 18 participants gave to the questionnaires administered both prior to therapy and twice after completion; b) other 18 participants from the control group gave to the same questionnaire which were administered on them twice.

The two groups which were formed for the conduct of experiential therapy activities joined ten weekly. Each session lasted 120 minutes. The content of the sessions was structured according to the experiential group therapy purposes, each meeting having a specific theme related to which individual or group tasks were performed.

**Results.** Infertile people/couples with whom we worked had the opportunity to experience changes that were reflected in both their wellbeing and guidance to clarify the meaning of their own existence, and in terms of availability and ability to express without fear their own negative emotions related to the life problems they faced, but also their positive ones which they tended to minimize. Significant decrease of the means of the scores on alexithymia and negative affectivity, as well as the increase of the mean of the score on guidance towards searching for life meaning represent the evidence for the therapeutic outcome. For these dependent variables higher sizes of the therapeutic intervention effects were recorded, compared with the results for specific infertility stress and satisfaction related to life partner. The consistent progress was registered in alexithymia, five months after therapy, the mean of the scores the participants in the therapeutic group obtained on this variable was significantly lower as compared to the mean obtained before therapy and that obtained on the measurement performed after completion of the program.

The therapeutic program also had an impact on the participants' guidance in searching for meaning of their own life. Thus, compared with the mean obtained before therapy, the one obtained immediately after completion of the program was

significantly higher, therapeutic intervention effect size also being higher. Moreover, five months after therapy, the mean was significantly higher than the mean obtained before therapy. In a therapeutic context, purpose centered on clarifying and enriching assisted people with meanings of their own existence requires better awareness of the role of the people, situations or events that marked their existence and which can be regarded as resources for facing future challenges and for personal development.

Another area that was sensitive to the performed psychotherapeutic intervention was satisfaction of participants related to their life partner. Thus, immediately after completing therapy program, a significantly higher mean was obtained, the effect size of the intervention being high. Also, five months after therapy, the mean regarding satisfaction with romantic relationship remained relatively constant. Since infertility is a life experience that most often is lived inside the couple and may represent a vulnerability factor for their relationship, psychotherapeutic support should also consider the objective of maintaining emotional closeness and intimacy between partners, trust and mutual acceptance, sharing an optimistic outlook on the future as well as partners' cohesion, for their joint efforts in order to achieve pregnancy to be successful.

## **THEORETICAL AND PRACTICAL IMPLICATIONS**

The current survey provides one of the first psychosocial and psychotherapeutical approaches concerning infertility problem.

In the first study, the paper proposes and psychometrically validates a short instrument for evaluation of four factors that contribute to resilience in infertile couples in relation to stresses arising from specific medical treatments as well as related to failures in partners' wish to have a child (or one more). The instrument can be used in the context of other studies whose designs include a large number of variables, the researcher aims to measure an expanded sample of infertile couples.

By the second study, the paper outlined a map of the factors (and of the relationships between them) that may help to differentiate responses in the context couples faced with infertility stress. Compared to studies that focused on either the intraindividual characteristics role (Arden, Campari, Agazzi and La Sala, 1999; Donarelli et al., 2012; Eugster, Vingerhoets, van Heck and Merkus, 2004; Farzad and Ghasemzadeh, 2008; Herrmann et al., 2011) or the interpersonal characteristics contribution (Amir, Horesh and Lin-Stein, 1999; Martins et al., 2014; Matsubayashi et al., 2004), the study that I conducted took into account both fields of characteristics.

Through the third study of interventional nature, the paper provides the first evidence for the benefits that experiential therapeutic approach can have on assisted infertile couples. The effectiveness of this approach was tested on individuals, couples or families accusing various issues such as psychosomatic disorders, anxiety, depression, post-traumatic stress disorder, severe difficulties in interpersonal relations, sexual addiction etc. (Elliot Greenberg and Lietar, 2004; Klontz, Garos and Klontz 2005), but, to our knowledge, experiential therapy has not been used so far in working with infertile people / couples.