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# ALEXITHYMIA AND PSYCHOLOGICAL DISTRESS AMONG WOMEN UNDERGOING IN VITRO FERTILIZATION

**Dunja Jurić Vukelić[1], Zorana Kuševič[2,3] & Jasminka Horvatić[4]**

*[1]Department of Croatian Studies, University of Zagreb, Zagreb, Croatia*
*[2]University of Zagreb School of Medicine, Zagreb, Croatia*
*[3]Department of Psychiatry and Psychological Medicine, University Hospital Centre Zagreb, Zagreb, Croatia*
*[4]Private Practice „Horvatić Counseling", Zagreb, Croatia*

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## *SUMMARY*

***Background:*** *The aim of the current study was to analyze the relationship between alexithymia, anxiety, physical problems, trauma, and psychological distress in women undergoing in vitro fertilization.*

***Subjects and methods:*** *The study was based on 78 women (mean age = 34.4 ys) who were referred to a fertility treatment with in vitro fertilization. The questionnaires (socio-demographic questionnaire, Toronto Alexithymia Scale, and Clinical Outcomes in Routine Evaluation – Outcome Measure) were administered by the investigators.*

***Results:*** *Our results suggest that alexithymia was significantly correlated to anxiety (r=0.506, p=0.00), depression (r=0.591, p=0.00), physical problems (r=0.477, p=0.00), trauma (r=0.512, p=0.00), and psychological distress (r=0.598, p=0.00). Furthermore, high alexithymia group showed significantly higher levels of anxiety (F=4.65, p=0.00), depression (F=2.30, p=0.00), trauma (F=1.80, p=0.00) and general psychological distress (F=2.85, p=0.04) than the low alexithymia group.*

***Conclusions:*** *Results of the present study point out that alexithymia could be considered a potential risk factor for high levels of anxiety, depression and general psychological distress. It may also be used as an indicator of a need for further psychological support aimed at women undergoing in vitro fertilization.*

***Key words:*** *alexithymia - psychological distress - in vitro fertilization - depression - anxiety*

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## INTRODUCTION

Although previous studies have shown that various sociodemographic and psychosocial factors may influence emotional reactions to infertility and fertility treatment (Rockliff et al. 2014, Schneider & Forthofer 2005), the role of psychological factors in this context has not been adequately explored (Gourounti 2010). In vitro fertilization (IVF) is usually stressful for patients (Rockliff et al. 2014, Haimovici 2018), as infertility is a psychological trauma for most couples (Klonoff-Cohen et al. 2001) and it can even be described as the most stressful event in a couple's life (Freeman 1985) or currently unsolvable problem that hinders important life goals (Covington & Burns 2006). Following stress-coping models on adjustment to a chronic stressor, prior research revealed emotional response to IVF in terms of anxiety, depression and general distress (Kee et al. 2000, Verhaak et al. 2006). One of the most common manifestations of emotional distress, caused by a specific stressful situation, is alexithymia (Parker et al. 1998), which could be considered a coping or adjustment strategy related to physiological or functional changes occurring during disease or trauma (Taylor et al. 2003). Alexithymia has been conceptualized as the inability to identify and describe feelings, as well as the absence of fantasies. Specifically, it encompasses characteristic features: poor imaginary life with associations referring to external events and actions more than to inner attitudes (Lamas et al. 2006), difficulty in identifying and describing subjective feelings to others, difficulty in distinguishing between feelings and physical sensations of emotional arousal, and an externally oriented cognitive style; literally, alexithymia refers to a state of „no words for feelings" (Sifneos 1973, Ogrodniczuk et al. 2019). The capacity for mentalization is significally undermined in individuals who have experienced trauma, which can cause a complete collapse in individuals in whom the capacity for mentalization is already limited, such that traumatic experiences lead to a loss of awareness of the relationship between internal and external reality (Herbert et al. 2011). Alexithymia can also be seen as a tendency to experience psychological distress in the form of somatic symptoms (Kušević & Marušić 2014). Confirmation of this presumption already came from a study in which alexithymia and fertility-related stress, were positively associated (Gourounti et al. 2010). In addition, infertile women showed significantly higher rates of alexithymia than fertile women (Lamas et al. 2006). The aim of the present study was to investigate the association between alexythyimia and psychological distress among women referred to a fertility treatment with in vitro fertilization.

## SUBJECTS AND METHODS

The study was conducted at the Department of Gynaecology and Obstetrics, Petrova Hospital, University Hospital Center Zagreb, Croatia, with women who were referred to a fertility treatment with in vitro fertilization. All the patients involved in this study were previously diagnosed with infertility, and the individual testing was conducted at the beginning of fertility treatment. Ethical approvals were received from the Ethical committee of the University Hospital Centre Zagreb, the Ethical committee of the Department of Gynaecology and Obstetrics, Petrova Hospital, University Hospital Center Zagreb, and the Central Ethics Committee of the University of Zagreb, School of Medicine. Participants were informed about the scope and the purpose of the study, they were assured that the collected data would be used only for the purpose of the study and they signed informed consent. All the questionnaires were administered by the researchers: socio-demographic questionnaire, Toronto Alexithymia Scale, and Clinical Outcomes in Routine Evaluation – Outcome Measure.

Data were collected from 78 female participants. The mean age was 34.4 years (SD = 4.39 and age range 25-50 years). Seventy-seven percent of participants were college graduates and 23% had a high school degree. Ninety-six percent of participants were employed. Eighty-one percent of women were married, while 19% lived in cohabitation with a partner. The mean duration of infertility among participants was 3.8 years (SD = 3.0), and the average number of treatment cycles they had experienced was 2.0. These parameters are listed in Table 1.

**Table 1.** Basic sociodemographic characteristics of the participants

| Characteristic | N | % |
|---|---|---|
| Education | | |
| Secondary school | 18 | 23.1 |
| College or University degree | 60 | 76.9 |
| Employment status | | |
| Employed | 75 | 96.2 |
| Unemployed | 3 | 3.8 |
| Marital status | | |
| Married | 62 | 79.5 |
| Cohabitation | 16 | 20.5 |

Alexithymia was assessed by the self-report Toronto Alexithymia Scale-20, TAS-20 (Bagby et al. 1994). The scale consists of 20 items to which participants respond on a Likert type scale between 1 (strongly disagree) and 5 (strongly agree). The total theoretical range is 20 - 100. Higher result indicates higher alexithymia levels. Previous research has shown good psychometric properties, particularly considering a relatively low number of items in this instrument (Bagby et al. 1994, Parker et al. 1998, Taylor et al. 2003). Based on the results of the factor analysis, in which the first extracted latent dimension had a significantly greater variance than second dimension, the authors concluded that the TAS-20 represents a measures of the general dimension of alexithymia. Further analyses showed that it can be divided into three interrelated factors that reflect separate facets: 1) difficulties in identifying emotions and differentiating them from physical sensations (7 items), 2) difficulties in verbalizing emotions (5 items), and 3) externally-oriented thinking (8 items). Empirically determined cut-off score (≥61) allows for a distribution of participants on dimension of alexithymia.

Clinical Outcomes in Routine Evaluation – Outcome Measure is a 34-item self-report instrument, a measure of general psychological distress, including more specific domains in which this distress is present: subjective well-being, problem, function, and risk (Evans et al. 2002). The Problem domain comprises items reflecting depression, anxiety, physical problems and trauma (Barkham et al. 2005). This instrument has good internal and test–retest reliability, as well as convergent validity with various other instruments, with large differences between clinical and non-clinical samples and good sensitivity to change (Evans et al. 2002, Jokić-Begić et al. 2014). Participants assess, on a 5-point scale, how they felt during the last two weeks.. Based on the comparison between the representative sample from the general population results and those attending psychological treatment, as well as the range of the total score and individual dimensions (0 to 4), the authors suggest a critical value of 1.0, equally for men and women (Evans et al. 2002).

### Statistical analysis

Data were analyzed with descriptive and analytical statistical methods using SPSS version 25.0 (SPSS Inc, Chicago, USA), with statistical significance set at $p<0.01$. Percentages were reported for categorical variables, while means and standard deviations were used for numerical variables. Pearson's correlation coefficients were determined, and the final stage of the analysis was performed using the analysis of variance (ANOVA), in order to examine the differences in anxiety, depression, trauma and psychological distress between the two groups of high and low levels of alexithymia.

## RESULTS

The mean score for depressive symptoms was 1.07 (SD=0.86), the mean anxiety value was 1.29 (SD=1.28), and the mean score for problems or symptoms was 1.22 (SD=0.92). The mean TAS-20 total score was 53.51 (SD=10.23). Based on the empirically established cut-off score of ≥52 on the TAS-20 (Bagby et al. 1994), 30.8% of the sample scored in the slight impairment alexithymia range, and 20.5% participants scored in the severe impairment alexithymia range.

**Table 2.** Intercorrelations among independent and dependent variables

| Variables | Alexithymia | Anxiety | Depression | Physical problems | Trauma |
|---|---|---|---|---|---|
| Anxiety | 0.506** | | | | |
| Depression | 0.591** | 0.720** | | | |
| Physical problems | 0.477** | 0.400** | 0.551** | | |
| Trauma | 0.512** | 0.694** | 0.746** | 0.513** | |
| Psychological distress | 0.598** | 0.938** | 0.894** | 0.565** | 0.811** |

**p≤0.01

**Table 3.** Anxiety, depression, physical problems, trauma and psychological distress among high and low levels of alexithymia

| | High-alexithymia level M ± SD | Low alexithymia level M ± SD | F | p | Between group comparisons |
|---|---|---|---|---|---|
| Anxiety | 2.36±2.03 | 1.00±0.81 | 4.65 | ≤0.01** | 1>2 |
| Depression | 1.77±0.97 | 0.88±0.72 | 2.30 | ≤0.01** | 1>2 |
| Physical problems | 1.19±0.40 | 0.69±0.61 | 1.27 | 0.23 | |
| Trauma | 1.72±0.84 | 0.84±0.82 | 1.80 | ≤0.04* | 1>2 |
| Psychological distress | 2.07±1.14 | 0.99±0.69 | 2.85 | ≤0.01** | 1>2 |

** p≤0.01, * p ≤0.05

Pearson's correlation coefficients revealed that alexithymia was positively and significantly related to depression (r=0.591, p<0.01), anxiety (r=0.506, p<0.01), physical problems (r=0.477, p<0.01), trauma (r=0.512, p<0.01) and to the general psychological distress (r=0.598, p<0.01) These results are presented in Table 2. Measures of alexithymia, depression, anxiety, problems and general psychological distress were not significantly related to age, marital status, educational level or number of IVF trials (p>0.05).

Furthermore, we performed ANOVA and revealed that the level of alexithymia, expressed in two categories, significantly differs participants in terms of anxiety, depression, trauma and general psychological distress (Table 3). More specifically, high alexithymia group showed elevated levels of anxiety, depression, trauma and general psychological distress compared to the low alexithymia group. There were no significant differences between the described groups in terms of physical problems.

## DISCUSSION

The results of the present study suggest that alexithymia could be considered a risk factor for high levels of anxiety, depression, physical symptoms, trauma and general psychological distress. These findings confirmed some previous attempts to understand the role of alexithymia in coping with infertility (Gourounti et al. 2010, Lamas et al. 2006), while further studies seem warranted in order to recognize alexithymia as a relevant risk factor in everyday clinical practice. Just like in the previous studies (Kušević et al. 2015, Le Donne et al. 2012), alexithymia may also be used as an indicator of worsening psychological state, but this idea needs to be further investigated. Numerous prior studies have pointed out a significant relationship between alexithymia and somatic illness, and high levels of alexithymia among physically ill persons, related to both physical symptoms and/or impaired subjective health status. High levels of alexithymia were associated with rheumatoid arthritis, inflammatory bowel disease, heart disease, diabetes, eating disorders, renal disease, stroke, and unfavourable course of asthma (Kušević & Marušić 2014). It also seems that alexithymia affects frequency of health care use (Taylor et al. 1997). According to a leading theory, disrupted regulation of negative emotions can result with altered autonomic, endocrine and immune activity, and leads to the development of somatic disease (Kušević & Marušić 2014).

The relationship between infertility and psychological factors is rather complex: infertility can affect psychological states, whereas psychological distress can also assert its effect on infertility. Infertility treatment is a source of additional frustration that can lead to negative emotional states of the couples in treatment. Empirical studies of psychological aspects of IVF have not yet provided unambiguous answer to the question pertaining possible emotional consequences of the treatment. Most women seem to be able to cope effectively with the procedure itself, but problems occur with unsuccessful treatments where a considerable number of these women develop clinically significant emotional problems (Verhaak et al. 2006). Therefore, psychological support should target those women who are at an increased risk of developing adjustment issues following failed cycles, particularly given the fact that negative emotional responses seem to to be strongly related to the treatment outcome (Verhaak et al., 2005). Accordingly, psychological support should be specifically developed to enable women adjust to the possibility of treatment failure and potential childlessness, rather than to help them cope with the impact of the treatment itself (Verhaak et al. 2006).

The present study suffers from several significant methodological limitations. The sample size was relatively small, thus raising the possibility of random error. Further larger studies should be performed in order to clearly establish the relationship between alexithymia and psychological distress. Nevertheless, it seems that within this sample alexithymia was associated with psychological distress and all of its dimensions: anxiety, depression, physical problems and trauma, suggesting a potentially useful clinical indicator of a need for psychosocial support. Opinions about the management of acute and chronic stress prior to the infertility treatment are increasingly common (Friščić & Kušević 2013). Some of the studies showed that psychological support was not effective in decreasing infertility rates (de Klerk et al. 2007, Bringhenti et al. 1997, Boivin 1997), whereas other studies have pointed out the opposite (Boivin 1997, de Liz & Strauss 2005). Given that stress, which in most cases occurs with infertility, is one of the main etiological factors in the development of depression and anxiety (Friščić & Kušević 2013), psychological support is a logical choice for couples undergoing fertility treatment. Further studies should investigate the role of alexithymia and psychological distress in the outcomes of IVF.

## CONCLUSIONS

According to the results of this study, alexithymia should be considered a potential risk factor for high levels of anxiety, depression, physical symptoms, trauma, and general psychological distress in women undergoing in vitro fertilization. Further studies should be undertaken in order to better recognize alexithymia as a risk factor in everyday clinical practice.

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***Contribution of individual authors:***

Dunja Jurić Vukelić: literature search, data collection, statistical analysis, manuscript writing.

Zorana Kušević: study design, literature search, manuscript writing, approval of the final manuscript version.

Jasminka Horvatić: statistical analysis, manuscript writing, approval of the final manuscript version.

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*Correspondence:*
*Dunja Jurić Vukelić, Mpsych*
*Department of Croatian Studies, University of Zagreb*
*Borongajska cesta 83d, 10 000 Zagreb, Croatia*
*E-mail: djuric@hrstud.hr*