AFFECTIVE DISORDERS AND THE CLINICAL COURSE, PSYCHOSOCIAL DETERMINANTS, AND NEUROENDOCRINE CORRELATES IN WOMEN EXPERIENCING INFERTILITY

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Abstract. *In contemporary society, infertility has evolved into a global medical and socio-demographic concern. Its high prevalence and broad social resonance extend beyond purely clinical boundaries. The aspiration for motherhood is deeply rooted in female identity, while prevailing social norms often equate femininity with reproductive capacity. As a result, infertility may negatively influence a woman's self-perception, body image, and gender-role realization. The inability to conceive frequently contributes to emotional distress, affective instability, and maladaptive psychological responses.*

Key words: *infertility, women, affective disorders, reproductive function, depression, anxiety*

Introduction

Over the past decades, demographic indicators in many countries have been characterized by declining fertility rates combined with increasing mortality [1], which has intensified public and governmental attention to reproductive health [2]. Pronatalist policies and social programs supporting young families have been widely implemented [3]. Within this sociocultural framework, infertility is often perceived not only as a medical diagnosis but also as a social and personal problem [4].

Pronatalist ideology may contribute to the psychotraumatic perception of childlessness, especially among women [5]. Feelings of hopelessness, decreased self-esteem, and social withdrawal are frequently reported [6]. Infertility often becomes a source of chronic psychological stress [7].

From a medical perspective, female infertility is frequently associated with inflammatory diseases of the pelvic organs, including chronic endometritis and

salpingo-oophoritis [8]. These pathological conditions may result in tubal-peritoneal infertility and are often accompanied by psychogenic reactions [9].

In addition to biomedical factors, spiritual and existential interpretations of infertility influence women's psychological responses [10]. Religious coping strategies may affect emotional resilience in situations involving unfulfilled life expectations [11].

Currently, infertility is examined from multiple perspectives, including medical, demographic, sociological, and psychological models [12]. The psychological model explores infertility as a factor shaping emotional well-being and identity formation [13].

The causal relationship between affective disorders and infertility is considered bidirectional [14]. Chronic anxiety and depressive disorders may disrupt neuroendocrine regulation and reduce the probability of conception [15]. Conversely, prolonged infertility may lead to depressive and anxiety disorders [16].

Infertility significantly influences a woman's self-concept and social functioning, including marital relationships and social interactions [17]. The majority of publications focus on depressive symptoms associated with infertility [18]. Some studies report higher levels of depressive symptoms in women undergoing long-term infertility treatment [19], whereas others do not find significant differences compared to control groups [20]. A history of affective vulnerability may predispose women to more pronounced psychological responses [21]. Qualitative studies describe characteristic psychological patterns such as diminished self-worth, anxiety, social isolation, mood instability, and clinical depressive manifestations [22–24].

The purpose of the study: was to study the readiness of "Affective signs of a depressive circle" to be influenced by spiritually oriented technologies to correct the psychstatus of patients with tubal-peritoneal infertility.

Materials and Methods

The aim of the present study was to evaluate the susceptibility of affective symptoms of the depressive spectrum to spiritually oriented psychotherapeutic interventions in women diagnosed with tubal-peritoneal infertility. Particular attention was paid to the correction of psycho-emotional status and stress-related neuroendocrine indicators.

A total of 44 women aged between 20 and 37 years participated in the study (median age 29.4 ± 2.2 years). All participants had a confirmed diagnosis of tubal-peritoneal infertility associated with inflammatory diseases of the pelvic organs. The

examination was conducted during inpatient treatment at a reproductive medicine clinic.

Psychological assessment included:

A structured clinical interview to evaluate emotional complaints and subjective distress.

The Spielberger State–Trait Anxiety Inventory (STAI) to measure reactive and personal anxiety.

The Beck Depression Inventory (BDI) to assess the severity of depressive symptoms.

The Toronto Alexithymia Scale (TAS-20) to identify alexithymic traits.

The Schmishek Personality Questionnaire to evaluate accentuated personality features.

In addition, a questionnaire was administered to determine the level of religious self-identification and the degree of involvement in spiritual practices.

Biochemical analysis included measurement of plasma cortisol levels on the first day of admission, serving as an indicator of stress-related activation of the hypothalamic-pituitary-adrenal (HPA) axis.

Statistical processing was carried out using correlation analysis and comparison of mean values. Differences were considered statistically significant at $p < 0,05$.

Results and Discussion

Statistical analysis demonstrated a moderate positive correlation between tubal-peritoneal infertility and the severity of affective disturbances ($r = 0,45$; $p < 0,01$). Anxiety symptoms predominated in the clinical picture (21,8% of cases), while iatrogenic and sorrogenic factors related to prolonged treatment stress were identified in 56,3% of participants.

The level of reactive anxiety in the main group ($52,7 \pm 5,22$ points according to the Spielberger scale) significantly exceeded that of the control group ($20,0 \pm 0,72$ points, $p < 0,05$). Personal anxiety scores in infertile women were on average 12-14 points higher than those in fertile controls.

Depressive symptoms were identified in 26,9% of patients. Moderate depression was characterized by pronounced self-blame, self-deprecating cognitions, decreased working capacity, impaired concentration, sleep disturbances, appetite reduction, and diminished interest in personal appearance. These manifestations occurred two to three times more frequently compared with women without infertility.

Neurotic and neurosis-like manifestations-including irritability, emotional instability, asthenia, and heightened sensitivity-were observed in 15,3% of cases.

Results of the Toronto Alexithymia Scale revealed a significantly higher risk of alexithymia in women of reproductive age with infertility compared to controls ($p \leq 0,01$), suggesting difficulties in emotional awareness and expression. According to the Schmishek questionnaire, hyperthymic accentuation was more frequently observed in the normative group, whereas women with infertility demonstrated greater emotional instability.

Regarding religious self-identification, 90% of respondents considered themselves believers; 61% identified as Orthodox Christians, 31% as Christians without specific denomination, 10% as Muslims, and 2% as Catholics. These findings indicate a high level of spiritual orientation among participants, supporting the rationale for spiritually integrated interventions.

Participants underwent a structured cognitive-behavioral psychotherapy (CBT) program consisting of six sessions over a three-week period. Therapy was conducted by a licensed psychotherapist and focused on:

Cognitive restructuring of maladaptive beliefs related to infertility

Stress-management techniques

Emotional regulation skills

Psychoeducation regarding medical procedures

Facilitation of emotional expression (anger, guilt, frustration, helplessness)

Couples often demonstrated unrealistic expectations shaped by media information about assisted reproductive technologies (ART). Therapeutic work addressed these misconceptions and promoted adaptive coping strategies.

At baseline, plasma cortisol levels were significantly elevated in the main group, indicating chronic stress activation of the HPA axis. Following completion of CBT, a statistically significant reduction in cortisol levels was observed ($p = 0,018$). No comparable reduction was noted in patients who declined psychotherapeutic correction.

Interpretation of Findings

The elevated cortisol concentration at the beginning of treatment reflects a chronic nonspecific stress state associated with infertility. This neuroendocrine dysregulation may negatively influence implantation processes and reproductive outcomes.

Importantly, the relatively low prevalence of severe depressive states suggests that repeated unsuccessful ART attempts do not inevitably lead to major depression.

Instead, adaptive coping mechanisms may gradually develop, particularly when psychotherapeutic support is provided.

The absence of significant positive outcomes in patients receiving only ART without psychological intervention suggests that medical treatment alone may not sufficiently address the stress-related component of infertility.

Psychotherapeutic correction improved emotional flexibility, reduced anxiety, enhanced stress tolerance, and facilitated greater emotional maturity within partnerships. Patients reported improved communication, increased social engagement, and better management of treatment-related distress.

Conclusions

Compared with fertile controls, women with tubal-peritoneal infertility demonstrated a significantly higher prevalence of affective disturbances, including comorbid anxiety and depressive symptoms, neurotic reactions, and stress-related iatrogenic phenomena.

The duration of infertility was directly associated with deterioration in psychological and social functioning. Elevated anxiety and depression levels were inversely related to the likelihood of successful conception.

Psychotherapeutic intervention, particularly cognitive-behavioral therapy integrated with spiritually oriented approaches, contributed to:

Reduction of plasma cortisol levels

Decreased stress reactivity

Improved emotional regulation

Enhanced social adaptation

Increased probability of successful pregnancy

The effectiveness of psychological correction depends on a multidisciplinary approach involving collaboration between reproductive specialists, mental health professionals, and, where appropriate, spiritual counselors.

Comprehensive biopsychosocial management of infertility not only improves mental health outcomes but may also positively influence reproductive success by reducing stress-related neuroendocrine imbalance.

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