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Selected psychological and sociodemographic correlates of the acceptance of one's own infertility in women

Wybrane psychologiczne i socjodemograficzne korelaty akceptacji własnej niepłodności u kobiet

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Abstract

Aim: Acceptance of one's own infertility requires acknowledging the difficulties with biological conception of a child, which imposes certain limitations and changes upon the patient's life, resulting in patient's adaptation to the current health and social situation. The aim of the article is to analyse the variable of acceptance of one's infertility in relation to the emotional state, life satisfaction, self-esteem, perception of social support and sociodemographic variables. **Material and methods:** The study group included 615 women experiencing infertility. The following tools were used: the Acceptance of one's Own Infertility Scale, the Hospital Anxiety and Depression Scale – Modified (HDS-M), the Scale for Assessment of Hope as an Emotional State, the Satisfaction with Life Scale, the Self-Esteem Scale, and the Scale of Perception of Social Support in Infertility. Sociodemographic variables constituted a situational context of events, and included: infertility stage (treatment for infertility, adoption procedures, decision to remain childless), time since diagnosis, infertility factor (female infertility, male infertility, infertility in both partners, undiagnosed infertility), infertility type (primary, secondary), and age. **Results:** Acceptance of one's own infertility is influenced by self-esteem, hope, perception of social support (which increases the acceptance level), and depression (which reduces the acceptance level). Risk factors for low acceptance of one's own infertility include primary infertility, current treatment for infertility, and a decision to forgo treatment and remain childless. **Conclusion:** The presented findings should be taken into account by persons offering professional support for such groups of patients

Keywords: infertility, coping strategy, acceptance

Streszczenie

Cel: Akceptacja własnej niepłodności wymaga uznania trudności w biologicznym poczęciu dziecka, które nakładają pewne ograniczenia i zmiany w życiu pacjenta, skutkujące jego adaptacją do aktualnej sytuacji zdrowotnej i społecznej. Celem artykułu jest analiza zmiennej akceptacji własnej niepłodności w odniesieniu do stanu emocjonalnego, zadowolenia z życia, samooceny, postrzegania wsparcia społecznego i zmiennych socjodemograficznych. **Materiał i metody:** Badaną grupę stanowiło 615 kobiet z niepłodnością. Zastosowano następujące narzędzia: Skala Akceptacji Własnej Niepłodności, Szpitalna Skala Oceny Lęku i Depresji, Skala Oceny Nadziei jako Stanu Emocjonalnego, Skala Zadowolenia z Życia, Skala Samooceny, Skala Percepcji Wsparcia Społecznego w Niepłodności. Zmienne socjodemograficzne stanowiły sytuacyjny kontekst zdarzeń i obejmowały: etap niepłodności (w trakcie leczenia z powodu niepłodności, w trakcie procedur adopcyjnych, decydująca o pozostaniu bezdzietną), czas od diagnozy, czynnik niepłodności (niepłodność żeńska, niepłodność męska, niepłodność u obu partnerów, niepłodność idiopatyczna), rodzaj niepłodności (pierwotny, wtórny) i wiek. **Wyniki:** Na akceptację własnej niepłodności wpływają: samoocena, nadzieja, postrzeganie wsparcia społecznego (które zwiększa poziom akceptacji) oraz depresja (która ją obniża). Czynniki niosące ryzyko zmniejszenia akceptacji własnej niepłodności to pierwotna niepłodność, aktualnie prowadzone leczenie niepłodności oraz podjęcie decyzji o rezygnacji z leczenia i pozostawaniu bezdzietną. **Wniosek:** Wyniki badania powinny zostać uwzględnione przez osoby oferujące profesjonalne wsparcie dla takich grup pacjentów.

Słowa kluczowe: niepłodność, strategia radzenia sobie, akceptacja

INTRODUCTION

One in every four couples in developing countries had been found to be affected by infertility, when an evaluation of responses from women in Demographic and Health Surveys from 1990 was completed in collaboration with World Health Organization (WHO) in 2004 (World Health Organization: Global prevalence of infertility, infecundity and childlessness).

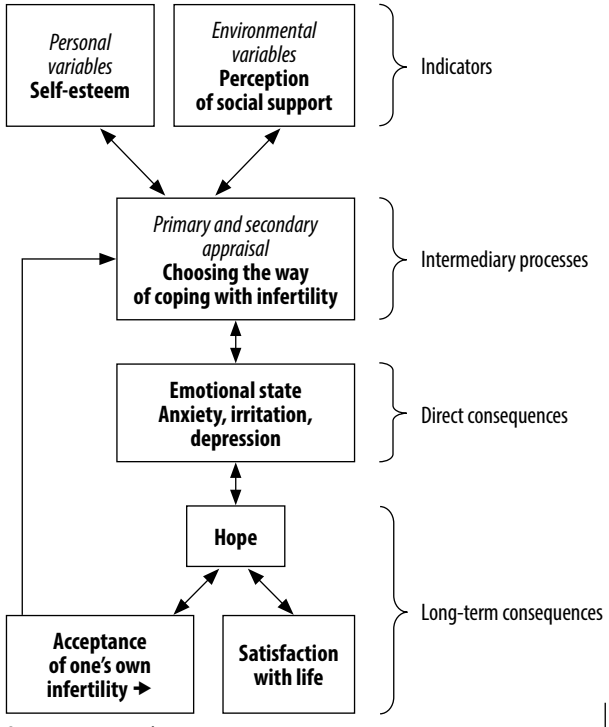
The burden remains high. A WHO study, published at the end of 2012, has shown that the overall burden of infertility in women from 190 countries has remained similar in estimated levels and trends from 1990 to 2010 (Mascarenhas et al., 2012). Infertility is a problem not only for the whole society, but also for an individual experiencing it. Experiencing infertility affects many areas of a couple's life, so it often turns into a life crisis (Dembińska, 2014). Adapting to this state can be a long-term process which is influenced by exterior conditions (attitude of the environment, life situation of patients) and individual features (personality and temperament characteristics, preferred methods of coping with stress, beliefs and expectations). As a result of this process, the patient develops a complex set of beliefs referred to as a clinical picture. This picture includes beliefs concerning the nature of the disease, its causes, and prognoses (Dolińska-Zygmunt, 1996; Heszen-Niejodek, 2000; Heszen, 2014; Heszen and Sęk, 2008; Lazarus, 1997; Sheridan and Radmacher, 1998; Sierakowska et al., 2017). Acceptance of one's own illness plays an important role in this process. It is connected with acknowledging the fact that the illness appeared, which imposes certain limitations and changes upon the patient's life, resulting in patient's adaptation to the current health and social situation (Cieślak and Golusiński, 2017; Juczyński, 2001; Oleś et al., 2002; Staniszewska et al., 2017). Therefore, acceptance of one's own illness is an indicator of the way of functioning as a person afflicted by disease, as the higher the acceptance, the better adaptation, and, consequently, lower intensity of negative emotions. Patients who accept their illness automatically become more optimistic and hopeful, they have more trust in their medical personnel and treatments applied, and they also actively participate in the therapy (Karna-Matyjaszek et al., 2010; Rosińczuk and Kołtuniuk, 2017; Zielazny et al., 2013). A opposed to the term of acceptance of one's own illness, the acceptance of one's own infertility does not appear in literature.

Infertility bears a lot of negative consequences for people who struggle with this condition, but such consequences are often different than in the case of other physical illnesses. If there are no concomitant diseases, most couples do not experience somatic symptoms of fertility impairment outside of the sphere of procreation, and infertility itself is diagnosed only after a certain period during which the couple is trying to conceive. For the above reason, analysis of infertility acceptance requires different diagnostic criteria than the ones used in the Acceptance of Illness Scale developed by Felton et al. (Felton and Revenson, 1984; Felton et al., 1984) – Polish version by Juczyński (2001). Therefore, it was necessary to develop the Acceptance of one's Own Infertility Scale.

The aim of this study was to assess the acceptance of one's own infertility (AOI) as well as correlations and the cause and effect relationships between the acceptance of one's own infertility and the following variables: self-esteem, perception of social support, emotional state, and satisfaction with life and sociodemografic variables (Fig. 1). Sociodemographic variables used in the study included infertility stage (undergoing treatment for infertility, going through adoption procedures, deciding to remain childless), time since diagnosis, infertility factor (female infertility, male infertility, infertility in both partners, undiagnosed infertility), and infertility type (primary, secondary).

MATERIAL AND METHODS

The research was carried out in 2012–2016. This cross-sectional study included 615 women suffering from infertility. The participation in the study was both anonymous and voluntary; it did not violate patients' dignity and was in compliance with the Declaration of Helsinki and each participant could resign at any time. It was also possible to contact the researcher after answering the study questions to discuss objections and concerns – some participants used this opportunity. Tab. 1 shows the characteristics of the study group according to the sociodemographic variables.



Source: own research.

Fig. 1. Research model

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The sociodemographic variables constituted a situational context of events, and included infertility stage (undergoing treatment for infertility, undergoing adoption procedures, deciding to remain childless), time since diagnosis, infertility factor (female infertility, male infertility, infertility in both partners, undiagnosed infertility), infertility type (primary, secondary), and age. The study group was recruited by the Infertility Treatment and Adoption Support Society "Nasz Bocian" [Our Stork]. Women participating in the study were treated for infertility in different clinics and by different doctors. They also contacted different adoption centres in various Polish cities.

The following study tools were used:

1. Acceptance of one's Own Infertility Scale (AOIS) – an original tool based on the Acceptance of Illness Scale (AIS). Reliability of AOIS measured by Cronbach's alpha is 0.844. Due to the peculiarity of infertility as an illness, i.e. in most cases it is hardly experienced outside of procreation activities, some of the AIS items were removed and replaced with questions related to experiencing infertility. Items were based on the results of studies on the psychological costs of infertility (Dembińska, 2014). It included the following negative consequences of experiencing procreation problems:
   - a sense of limitation: *It limits my life*;
   - a sense of being inadequate: *It makes me feel deficient as a woman*;
   - a sense of guilt: *I feel guilty about my loved ones*;
   - shame: *I feel ashamed*;
   - problems with adhering to doctor's orders: *I have a problem with compliance of medical instructions*;
   - a sense of loneliness: *I reluctantly tell others about my problem*;
   - a sense of being blocked/unable to pursue life goals: *My problem prevents me from realisation of my most important life goals and dreams*;
   - obsessive thinking about having a child: *I cannot stop thinking about wanting to have a child*.

   Each study subject assesses each of 9 statements on a 5-point scale. The final result may fall in the range of 0 to 36. High scores on the AOIS scale represent worse acceptance of one's own infertility, while low scores are achieved by those who are better at dealing with their condition (Dembińska, 2018).
2. Hospital Anxiety and Depression Scale – Modified (HADS-M) (Zigmond and Snaith, 1983; Polish version by: Majkowicz et al., 1994 – see: Majkowicz and Chojnacka-Szawłowska, 1994). Zigmond and Snaith developed a method adjusted to patients suffering from various somatic diseases. The goal of this scale was to measure negative emotions, namely anxiety, depression and aggression/irritation, in the population of nonpsychiatric patients. The authors aimed to create a screening method for identifying mental disorders in a population of patients from nonpsychiatric wards. The method is short and easy to use, calculate and interpret. It comprises 7 items measuring the level of anxiety, 7 items related to depression, and 2 items measuring irritation and aggression. Each item is assessed by the subject using a 4-point scale. The higher the score, the stronger intensity of negative emotional states experienced by the subject. In the Polish version of the anxiety subscale, Cronbach's alpha was 0.77–0.80, and 0.84–0.85 for the depression subscales (Majkowicz and Chojnacka-Szawłowska, 1994).
3. Scale for Assessment of Hope as an Emotional State (an original tool). Hope as an emotional state encompasses both the fear that things are going to get worse and the yearning for improvement (Lazarus, 1994). It is a bimodal characteristic spanning from joy to sadness. When the yearning to achieve a desirable goal becomes a certainty, the hope turns into joy, but when this target moves away, the hope becomes despair. Hope is measured here by means of an original questionnaire allowing to determine the level of hope – described on a 10-point scale and related to the current state and the state from the previous month. The higher the score, the higher the level of hope as an emotional state. Both the current level of hope as an emotional state, and its change (increase or decrease) in comparison to the score from the previous month, have a diagnostic value. An exemplary question: „Check the appropriate box to indicate feelings concerning your own infertility, using a scale from 0 to 10, where zero means *fear that it will be worse than it is today* and 10 means that *it will be better than it is now*" (cf. Dembińska, 2013).
4. The Satisfaction with Life Scale (SWLS) prepared by Diener et al. (1985; Polish version by Juczyński, 2001). The satisfaction with life is defined as a general assessment of the quality of life in relation to the criteria set by oneself (Shin and Johnson, 1978). The subjective well-being comprises three elements: satisfaction

Variables		*N* = 615	Percentage
Stage of infertility	I am being treated for infertility	470	76.4
	I am going through adoption procedures	37	6
	I decided to remain childless	89	14.5
	I am being treated and I am going through adoption procedures	19	3.1
Time since diagnosis	Less than a year	102	16.58
	2–5 years	336	54.63
	Over 5 years	177	28.78
Infertility factors	Female infertility	196	30.9
	Male infertility	121	19.7
	Infertility in both partners	133	21.6
	Undiagnosed infertility	165	26.8
Type of infertility	Primary	548	89.3
	Secondary	66	10.7
Source: Own research.			

Tab. 1. Characteristics of the subject group

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with life level, positive feelings and lack of negative feelings (Diener, 1984). The assessment of satisfaction with life is the result of comparison of one's situation with the standards set by oneself. If the result of the comparison is satisfactory, the feeling of satisfaction ensues. In the case of the American version, the results achieved using this scale show average or strong correlations with other measures of subjective well-being and selected personality features. Satisfaction with life positively correlated with self-esteem, and negatively with measures of neuroticism and emotionality. Similar statistical values were also achieved for the Polish version of this scale. The questionnaire includes 5 questions to be answered by picking 1 of 7 options. Option 1 means full disagreement with a given item, while option 7 indicates full agreement. The answers are then summed up, and the result is converted into a standardised 10-point sten scale. The final score may fall in the range of 5 to 35, and the higher is the score, the higher is the subject's satisfaction with life. Reliability of SWLS measured by Cronbach's alpha was 0.81.

5. Self-Esteem Scale (SES) by Rosenberg (Polish version by Dzwonkowska et al., 2008). Self-esteem is a relatively constant predisposition understood as a conscious (positive or negative) attitude toward oneself. It comprises 10 statements, all of which have a diagnostic character. The subject is asked to indicate his or her level of agreement with each of these statements. The answers are given on a 4-point scale, and the final score is within a range from 10 to 40. Reliability of SES measured by Cronbach's alpha was 0.83.
6. The original Scale of Perception of Social Support in Infertility takes into account emotional, informational and instrumental support from one's family and friends and medical personnel. Perception of Social Support is the individual's ability to perceive the supportive, i.e. desired, nature of other people's behaviours. The individual compares the desired support with the support received. It is a type of interaction or exchange taken up by one or two parties, and resulting in an exchange of emotions, information, action tools and material goods (Kahn, 1979; Sęk, 1986, 1993). The scale consists of six statements: two are related to emotional support from family and friends, and from institutions; the other two are related to informational support from family and friends, and from institutions, while the last two are related to instrumental support from family and friends, and from institutions. The subjects assess the statements using a 5-point scale. The results fall into the range from 0 to 24 – the higher the score, the stronger the perception of social support. The range of possible results for subscales connected with individual types of support is from 0 to 8. Reliability of this scale measured by Cronbach's alpha is 0.81 (Dembińska, 2018).

Statistical analysis of the results was performed using Spearman's rank correlation coefficient, Kruskal–Wallis test and regression analysis. The significance level of $p < 0.05$ was assumed to determine statistically significant differences or correlations. The SPSS 21 program was used for statistical analyses.

RESULTS

Analysis of correlations between acceptance of one's own infertility and other variables showed that all the correlations were statistically significant ($p < 0.01$) – as presented below in Tab. 2.

Negative correlations were found between AOI and the perception of social support and its types, self-esteem, hope as an emotional state, satisfaction with life, and age. Considering the reversed scoring of the AOI scale, this means that higher acceptance of one's own infertility translates into better perception of social support, higher satisfaction with life, higher level of hope as an emotional state, and that it is also correlated with older age. Positive correlations were found between AOI and anxiety and depression, which means that higher levels of depression and anxiety are connected with lower acceptance of one's own infertility.

Another analysis focused on differences between study subgroups defined on the basis of sociodemographic variables: infertility stage, time since diagnosis, infertility factor and infertility type.

The analyses indicate statistically significant differences regarding acceptance of one's own infertility in all subgroups defined on the basis of sociodemographic variables. When it comes to infertility stage, the group least likely to accept the illness comprises women undergoing treatment, with adoptive mothers being on the other end of this spectrum. Acceptance of infertility is correlated with the type of infertility: lower acceptance was observed in women with primary infertility (Tab. 3).

	Acceptance of one's own infertility	
Variables	**Spearman's Rho**	***p* level**
Perception of social support	−0.187	***p* < 0.01**
Perception of support from friends and family	−0.229	***p* < 0.01**
Perception of support from medical personnel/adoption centres	−0.082	$p < 0.05$
Perception of emotional support	−0.170	***p* < 0.01**
Perception of informational support	−0.188	***p* < 0.01**
Perception of material support	−0.135	***p* < 0.01**
Self-esteem	−0.577	***p* < 0.01**
Hope as an emotional state	−0.434	***p* < 0.01**
Satisfaction with life	−0.409	***p* < 0.01**
Irritation	−0.072	$p > 0.05$
Anxiety	0.452	***p* < 0.01**
Depression	0.577	***p* < 0.01**
Age	−0.122	***p* < 0.01**
Source: own research.		

Tab. 2. Correlations between acceptance of one's own infertility and other variables

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Variables		*N* = 615	Mean range	Chi-square	*df*	Asymptotic significance
Stage of infertility	I am being treated for infertility	470	325.99	25.838	3	***p* < 0.01**
	I am going through adoption procedures	37	216.73			
	I decided to remain childless	89	245.88			
	I am being treated and I am going through adoption procedures	19	331.58			
Time since diagnosis	Less than a year	102	285.15	2.980	2	$p > 0.05$
	2–5 years	336	318.10			
	Over 5 years	177	302.00			
Infertility factor	Female infertility	196	318.14	3.849	3	$p > 0.05$
	Male infertility	121	285.70			
	Infertility in both partners	133	323.18			
	Undiagnosed infertility	165	300.08			
Type of infertility	Primary	548	315.82	11.243	1	***p* < 0.01**
	Secondary	67	238.39			
Source: own research.						

Tab. 3. Relationships between acceptance of one's own infertility and sociodemographic variables: infertility stage, infertility type, infertility factor and time since diagnosis (Kruskal–Wallis test)

The method of forward stepwise regression was used to assess statistically significant predictors on the dependent variable, i.e. acceptance of one's own infertility (Tab. 4). The regression model was found to be statistically significant and explained approximately 40% of the dependent variable. The following predictors were included in the model: self-esteem, perception of social support, depression, and hope. High levels of perception of social support, hope and self-esteem increase the acceptance of one's own infertility, whereas high levels of depression decrease it. The following variables were not included in the model: satisfaction with life, anxiety and irritation.

DISCUSSION

The analyses conducted made it possible to identify both subjective and sociodemographic factors, coexisting with or contributing to lower acceptance of one's own infertility, which results in worse functioning of an individual afflicted by the illness. Sociodemographic risk factors for low acceptance of one's own infertility include primary infertility, treatment for infertility, and a decision to forgo treatment and remain childless. Women who are more willing to accept infertility are the ones with secondary infertility, and women going through adoption procedures.

When it comes to psychological variables, women accepting their infertility are characterised by:

a. better perception of social support from institutions, friends and family as well as of emotional, informational, and instrumental support;
b. higher self-esteem;
c. higher level of hope as an emotional state;
d. higher satisfaction with life;
e. lower anxiety level;
f. lower depression level.

The regression analyses showed that the level of infertility acceptance in the study group was influenced by self-esteem, perception of social support, depression, and hope. Therefore, we should consider including activities influencing patients' self-esteem in therapeutic programs. What seems to be especially valuable is the idea of self-compassion interpreted as forbearance and kindness towards oneself and a capability for compassionate and reflective understanding of one's suffering, limitations, ineptitude and negative experiences in the context of the whole humanity (Dembińska, 2016; Neff, 2003; Warren et al., 2016).

$R = 0.666$; $R^2 = 0.444$; *Adjusted* $R^2 = 0.436$ $F = 5.444$, $p < 0.05$					
	Unstandardised coefficients		**Standardised coefficients**		***p* level**
	B	**Standard error**	***Beta***	***t***	
Self-esteem	**–0.521**	**0.065**	**–0.322**	**–7.978**	***p* < 0.01**
Perception of social support	0.099	0.045	0.073	2.218	$p > 0.01$
Depression	**0.434**	**0.089**	**–0.240**	**4.868**	***p* < 0.01**
Hope	–0.323	0.081	–0.145	–4.008	***p* < 0.01**
Source: own research.					

Tab. 4. Summary of the stepwise regression model for the dependent variable: acceptance of one's own infertility

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Compassion towards oneself is an important factor protecting from depression and negative affectivity (Dzwonkowska, 2011; Galhardo et al., 2013b). Moreover, it is possible to offer help for depression, which underlies the of acceptance, by using other mindfulness techniques (Abedi Shargh et al., 2015; Dembińska, 2016; Galhardo et al., 2013a; Li et al., 2016; Sherratt and Lunn, 2013), and by providing information about health condition, treatment perspectives and other possible choices in a given life situation (Maeda et al., 2016). The role of hope is also important. Studies of other authors (Dembińska, 2014, 2013) suggest that women struggling with infertility often experience large fluctuations of hope: from unrealistic joy bordering on certainty that the dream child will be conceived, to despair (cf. definition of hope – Lazarus, 1994). Thus, it is crucial to work towards achieving an optimal level of hope, which increases motivation, but at the same time does not obscure the real assessment of the situation and chances of having a child. In the case of women deciding to remain childless (Su and Chen, 2006) the suggested solution is "transforming hope." This theme includes three categories: (1) accepting the reality of infertility, (2) acknowledging the limitations of treatment involving high technology, and (3) re-identifying one's future. In the case of women experiencing infertility, acceptance of one's own infertility, together with satisfaction with life, seems to be an important factor in adapting to a difficult life situation. These two variables are correlated: the higher the infertility acceptance, the higher the satisfaction with life; however, no influence of satisfaction on acceptance was identified. Therefore, based on broader analyses not included in the results quoted here (cf. Dembińska, 2018), it was shown that satisfaction with life, measured with the SWLS tool, reflects general assessment of the individual's life in selected dimensions, whereas acceptance of one's own infertility, measured with the original tool, reflects satisfaction with one particular aspect of life, that is experiencing infertility. For this reason, acceptance of one's own infertility should be included in psychoeducation and psychotherapeutic programmes for those struggling with procreative problems. The results of this study allowed to identify groups of women experiencing infertility that face a high risk of not accepting their condition, which leads to difficulties in their functioning and coping with the illness. This conclusion should be taken into account by persons offering professional support for such groups of patients. There is a need for further analysis of the acceptance of one's own infertility construct. The potential limitation of this study is that almost all participants had a uniform background, because they were mostly from Poland, whereas the cultural background, including spiritual convictions, plays an important role in supporting people who seek consolation and hope. Future research should investigate the potential link between spiritual fulfilment, beliefs about parenthood related to the country of origin and acceptance of one's own infertility. In the future, it is also worth taking gender differences into account.

Conflicts of interest

The author declare no potential conflict of interest with respect to the research, authorship or publication of this article.

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