UNIVERSITY OF NIŠ

ISSN 1820-8495 (Print)
ISSN 1820-8509 (Online)
COBISS.SR-ID 155246604
UDC 1+316+159.9+93/94

FACTA UNIVERSITATIS

Series
PHILOSOPHY, SOCIOLOGY, PSYCHOLOGY AND HISTORY
Vol. 20, N° 2, 2021

Scientific Journal **FACTA UNIVERSITATIS**
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SERIES **PHILOSOPHY, SOCIOLOGY, PSYCHOLOGY AND HISTORY**

Publication frequency – one volume, three issues per year.
Published by the University of Niš, Serbia

Financial support: Ministry of Education, Science and Technological Development of the Republic of Serbia
Printed by "UNIGRAF-X-COPY" – Niš, Serbia
Circulation 70

ISSN 1820 – 8495 (Print)
ISSN 1820 – 8509 (Online)
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FACTA UNIVERSITATIS

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Philosophy, Sociology, Psychology and History

Vol. 20, Nº 2, 2021

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https://doi.org/10.22190/FUPSPH210200iO

Editorial

THE PSYCHOSOCIAL ASPECTS OF INFERTILITY

Two basic domains, fundamental for the formation of one's identity on the very eve of adulthood, are love and work (Arnett & Tanner 2006; Erikson 1968; Schwartz, Côté & Arnett 2005). It is in these domains that young adults establish, adopt and clarify their life goals, along with completing another important task which originated in modern societies: finding a meaningful life (Mayseless & Keren 2013). Most people have a sense of active inclusion in choosing the direction the course of their life will take. They follow the developmental paths which lead in a certain direction, in the sense of realizing long-term goals, and, when necessary, giving up on non-attainable goals (Hechhausen, Wrosch & Schulz 2010). The goals that people aspire to are mental representations of desired outcomes of life-course transitions and developmental processes. Often these desired outcomes are strongly influenced by what society has come to identify as a developmental task for a given age or life-course transition, as noted early on by Havighurst (1952). One of the values which society supports strongly is pronatalism: the idea is that parenthood and raising children are the central focus points of adult life. This concept could be seriously criticized (Carroll 2012), but for the purpose of this editorial and the articles which follow it is important to point out that having and raising children is viewed by most people as a desired outcome, an important developmental or life goal. Not fulfilling the norm of pronatalism, from the point of view of society, represents deviant behavior and could lead to the marginalization of an individual and the formation of a stigmatized identity (Mård 2020; Park 2002).

The motivational theory regarding the course of one's life makes the claim that even when they are faced with obstacles, disappointments and failures, people have the extraordinary ability to stay on course and to maintain a sense of personal agency (Hechhausen, Wrosch & Schulz 2010). However, infertility and treating infertility can very roughly and over a long period of time disrupt the realization of a significant life goal, and deplete the capacity of an individual to overcome hardships. That is, if we were to revert to life domains, infertility will more or less disrupt the formation of an identity in the domain of love, exhaust the resources for self-realization in the field of work, and bring into question the meaningful life of a young adult.

Today it is clear that infertility is a phenomenon which is much more complex than its medical definition – "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse" (WHO-ICMART revised glossary). Infertility encompasses complex psychological and social aspects, which should as a necessity be taken into consideration when analyzing the life crisis which infertility provokes. We consider it important to discuss such topics, since psycho-social support is not an integral part of the infertility treatment in Serbia, even though it should be. Nowadays couples are left to their own devices to seek support they will fund themselves, if they are able to, if they want to, or if they recognize the need to. At the same time, one should know that the success of the treatment (usually IVF) and later mental health depend on the individual experiences of the individuals taking part in the

treatment (Frederiksen et al. 2015; Rocfkliff et al. 2014). This does not mean that all couples have difficulty overcoming these problems – research indicates that there are significant differences in the emotional reactions to infertility and its (unsuccessful) treatment (An et al. 2013; Rockliff et al. 2014; Verhaak et al. 2005). On the other hand, the fact that not everyone encounters difficulties does not mean that support programs should not exist. The most stressful periods for couples taking part in the IVF treatment are the period of waiting for the results of the pregnancy test and the period after failed cycles (Bolvin & Lancastle 2010; Bringhenti et al. 1997; Verhaak et al. 2005).

At the beginning of this thematic issue, we can read much about delaying childbirth and infertility. Even though deferring parenthood is usually related to the requirements and values of modern society, we should not neglect the physiological limitations of individual choice caused by the age of the individual. They are followed by articles which deal with factors which contribute to the better adaptation to infertility, that is, the IVF procedure. What contributes to more easily overcoming infertility, among other things, is a shared sense of community and intimacy among partners; this kind of partner relationship is more significant than the perception of broader social support, even though both factors are predictors of positive and negative affectivity. It is also possible to read a qualitative study on the perception of stigma attached to women with their own experiences of IVF, as well as an overview of the qualitative studies on the experiences of women with infertility. Qualitative studies are vital for understanding the phenomenon, since the narratives correctly complete the results obtained by a standardized questionnaire. And finally, we encounter a topic which represents an additional specific challenge: the question of preserving fertility among young women treated for cancer – the so-called double trauma.

There are topics which have not been included, even though we had planned to include some of them. For example, are there any specificities in experiencing infertility in the Romani population? How do couples whose treatment was unsuccessful adapt to involuntary childlessness; how frequent is the prolonged grief disorder (PGD)? What are the attitudes towards gamete donation in the general population and among couples dealing with infertility; why has donation not been met with greater success in the Republic of Serbia even though it is legal? What are the attitudes towards surrogate motherhood – what do women of a child-bearing age think of this option?

Still, we believe that this thematic issue has made another step in the direction of promoting awareness about the significance and importance of psychosocial issues in our environment and that the published texts will facilitate the study and discussion of psychosocial aspects of reproductive health. Therefore, we are taking a step in the right direction – towards better conditions for overcoming infertility.

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FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 97 - 111
https://doi.org/10.22190/FUPSPH2102097V

Review Paper

CHILDBIRTH POSTPONEMENT AND AGE-RELATED INFERTILITY IN SERBIA

UDC 314.12(497.11)

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Abstract. *Childbirth postponement has been a widely discussed topic since the 1990s, and was pushed to the top of the demographic agenda with the emergence of the Second Demographic Transition (SDT) paradigm. Mechanisms of childbirth postponement mostly explained by economists or sociologists were understood as rational-based decisions of individuals (or couples) trying to cope with the requirements of modern society. These mechanisms explained by income and consumption rationale (Becker, Modigliani), or by liberal and postmodern values (Van de Kaa, Lestheage), barely mention the physiological limitations of the individual choice. These limitations given by the human species reproductive span, with no exception, affect everyone trying to make an optimal reproductive choice. There are two main effects of fertility postponement on births and fertility rates. The first effect arises when couples postpone childbearing to a later age during a certain period and fewer births take place than in the absence of such postponement – the 'tempo effect'. The second is a negative effect of fertility postponement on completed fertility and increased childlessness attributable to the age-related increase in infertility. This second negative effect in particular is our field of interest. The decline in cohort fertility due to postponement has been mostly studied using data on age at first birth and subsequent fertility, as well as models of fecundity, pregnancy loss and time to conception by age, which we will try to apply to the period data. Using period data, we will try to quantify the potential number of births that would occur in the absence of childbirth postponement in Serbia during the past two decades.*

Key words: *childbirth postponement, fertility tempo, infertility, fetal loss, success rate.*

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1. INTRODUCTION

Childbirth postponement has been a widely discussed topic since the 1990s, and was pushed to the top of the demographic agenda with the emergence of the SDT paradigm. Mechanisms of childbirth postponement mostly explained by economists or sociologists were understood as rational-based decisions of individuals (or couples) trying to cope with the requirements of modern society. Modern contraception, especially the contraceptive pill spreading since the late 1960s, vastly improved women's abilities to plan their pregnancy and postpone childbearing to a later age (Goldin and Katz 2002; Van de Kaa 2011). Women may now enjoy a long period of a sexually active life, little affected by the fear of becoming pregnant (Schmidt et al. 2012). In western, southern and northern Europe as well as Japan the mean age of first-time mothers reached around 28–29 years in 2008, an increase of 4–5 years when compared to the 1970s (Schmidt et al. 2012). These mechanisms explained by income and consumption rationale (Becker, Modigliani), or by liberal and postmodern values (Van de Kaa, Lestheage), barely mention the physiological limitations of the individual choice. These limitations given by the human species reproductive span, with no exception, affect everyone trying to make optimal reproductive choice.

There are two main effects of fertility postponement on births and fertility rates. The first effect arises when couples postpone childbearing to a later age during a certain period and fewer births take place than in the absence of such postponement, the so-called 'tempo effect'. The second is the negative effect of fertility postponement on completed fertility and increased childlessness attributable to the age-related increase in infertility (Schmidt et al. 2012). This second negative effect in particular is our field of interest. Completed/cohort rates of fertility can be measured only after one generation exits the reproductive period. However, there may be a way to measure fertility decrease attributable to age-related increase in infertility due to childbirth postponement using period data. The biggest issue would be to define the benchmark (success probability curve) for measuring the infertility tempo effect (ITE). As the age pattern of fertility is changing, shifting median age at birth (MAB) to later age, and increasing the impact of age-related infertility, the total number of livebirths decreases.

2. THE AIM OF THE PAPER AND METHODOLOGY

The main and final aim of the paper is to quantify the effect of age-related infertility on the total births in Serbia. Regarding the main aim, the specific goals are to identify age-specific patterns of male and female infertility, and fetal loss. These specific goals will enable us to construct an age-specific probability curve as the main restriction to the realization of all fertility (live-birth) attempts. The basic assumption is that success probability decreases with a woman's age. All, male and female infertility, and fetal loss rates have their opposites, i.e. male and female fertility, and livebirth rates. The result of the multiplication of these rates will be the success rate which is highly negatively correlated with a woman's age.

In this paper we will analyze data on fertility in Serbia from 2001 to 2018. The reasons for such a time period are numerous, but two of them are crucial. First, 2001 is the first year to provide all the needed data, and second, 2018 is the latest available year in the Demographic yearbook in Republic of Serbia. Period data are extracted and calculated from the Demographic Yearbook of Republic of Serbia, and the EUROSTAT

database. The demographic method based on period analysis (versus cohort analysis) will be used for the calculation of age-specific fertility rates, and fertility loss based on a woman's age. Since we have no reason to presume that the infertility pattern will differ for particular subpopulations within the Republic of Serbia, the analysis will be conducted on the total (fertile age women) population of Serbia.

3. Fertility Restrictions

3.1. The age pattern of infertility

As we discussed previously, male and female infertility may be considered as the main restriction to their reproductive goals. Yet, regarding different human fertility studies data (Dunson et al. 2004; Liu and Case 2011; Eijkemans et al. 2014), we cannot be sure about which part refers to permanent sterility, and which to infertility (subfertility).[1] Although permanent sterility[2] may be the first and basic restriction to reproductive goals, we cannot dare claim which part of unsuccessful attempts are ascribed to permanent sterility, and which part are ascribed to infertility defined in previous way. On the other hand, some studies developed models of age-related permanent sterility (Leridon 2008; Eijkemans et al. 2014), and their data are well documented and based on historical populations, yet, we can suspect that applying both rates would duplicate the values of permanent sterility rates. In the end, considering other studies conclusions about the inability to separate permanent sterility from infertility data, we will consider infertility data as the sum of permanent sterility and infertility.

The share of infertile women out of fertile women trying to conceive will be expressed by the pregnancy rate – PR, and consider PR as an indicator referring to the share of women able to conceive during one year (12 months) including permanently sterile women too. In other words, we will interpret PR as the share of women who succeeded to get pregnant within 12 months of trying, out of all women trying to conceive. Also, just like the woman's age is relevant, the man's age is relevant too. As we referring to man's ability to impregnate his female partner, we will name the share of men successfully impregnating their females as the impregnation rate – IR.

3.1.1. Female infertility

A woman's age is a strong factor influencing PR. For example, some studies on donor insemination confirm an age-related decline in pregnancy rates. These studies were performed in couples with severe male factor infertility, so can be considered to be a good reflection of female fertility because non-reproductive factors such as coital frequency are removed (Liu and Case 2011). Removing other factors, besides a woman's age, enables us to analyze age-related infertility. Liu and Case (2011) have researched literature on this issue and found that a negative effect on pregnancy rates is seen in women above the age of 30, and is even more pronounced for women above the age of

[1] The usual medical definition of infertility is when couple fails to conceive after 12 months of trying. Some couples may be classified as clinically infertile based on not conceiving after a year or more of unprotected intercourse, but it is relatively unlikely that these couples are truly sterile and will be unable to conceive a pregnancy naturally if attempting for a longer interval. (Dunson et al. 2004).

[2] The real and life-long inability to conceive.

35. They say that one study of almost 3000 cycles showed cumulative pregnancy rates of 62% for women below 30 years of age, and 44% for women aged 30+ years after 12 cycles, and stress out that younger women often conceive quickly, and more cycles of treatment were often needed for women aged 35+ years (Doyle et al. 1993; Virro and Shewchuk 1984; according to Liu and Case 2011). Postponing attempts to achieve parenthood to an advanced reproductive age is associated with increased risk of infertility, prolonged time to pregnancy (TTP) and a range of adverse pregnancy outcomes (Schmidt et al. 2012). Results in studies examining 12 months' conception rates are different, but at the same time very similar. So, some studies reported that within 12 months, almost 90% of 20–28-year-old women, but only 75% of women around the age of 35 had achieved pregnancy (Schmidt et al. 2012), and according to Dunson et al. (2004) women aged 19–26 years achieved 92%, women aged 27–34 years 86–87%, and women aged 35–39 years achieved 88% pregnancy during one year. Women 35 years old were 2,2-fold more likely to be sub-fertile than women 25 years old (Hassan and Killick 2003). At any age over 30, women who have never conceived before have a lower probability of achieving a pregnancy (Steiner and Jukic 2016). On the other hand, Steiner and Jukic (2016) found that the overall conception (pregnancy) rate was 78%, and dropped from 87–88% to 48% with the women's age. Age-associated infertility appears to be primarily related to ovarian aging (Liu and Case 2011, 1169). Other authors also stress that female age is the only realistic information available at present for estimating the magnitude of the reproductive ageing process (Eijkemans et al. 2014; Leridon 2004; Dunson et al. 2004; Wesselink et al. 2017). The steep rise in the number of ART (Artificial Reproductive Treatment) cycles at later reproductive ages clearly illustrates the scale of infertility and unfulfilled pregnancy desires among women who arguably postponed parenthood for too long (Beaujouan and Sobotka 2017). The biological ALB (Age at Last Birth) curve demonstrates that the average chance of involuntarily childlessness slowly increases to 12% at 35 and 20% at age 38. From there this chance sharply rises to 50% at about 41 and reaches almost 90% at age 45 (Eijkemans et al. 2014). In her study, Wesselink et al. (2017) found that cumulative pregnancy proportion at 12 cycles of attempt time ranged from 79.3% (age 25–27 years old) to 55.5% (age 40–45 years old). In other words, women aged 40–45 had approximately 3/4 the probability of conceiving within 12 cycles than did women 21–24 years old. Different data from studies researching noncontraceptive natural fertility populations have shown that marital fertility rates decline with increasing female age, with peak in the early to mid-twenties and a steady decline at older ages (Wesselink et al. 2017; Eijkemans et al. 2014; Leridon 2008).

3.1.2. Male infertility

There is no doubt that pregnancy rate during a 12-month time frame is highly related to the women's age, but the male partner's age has certain influence too. Facts shown in previous texts represent adjusted data, i.e. data when controlled for male partner age, and other factors. Studies were conducted with the aim of explaining the effect of female aging on achieving pregnancy. Other studies show the effect of male age on achieving pregnancy during a 12-month time frame. Although significant focus has been placed on female reproductive aging, there is also an age-related decline in sperm function and male fertility. Although "andropause" is not a clearly defined event for men as menopause is for women, there is a decline in testicular function, which includes declining testosterone

levels each year (McLachlan 2000 according to Liu and Case 2011). Among men the chances of achieving successful conception are less affected by age. However, advanced male age is an independent risk factor of reduced fecundability and prolonged time to conception. When analyzing age-related pregnancy rates during a 12-month time frame, Wesselink et al. (2017) pointed out that similar patterns were observed among male patients, although differences between age groups were smaller. Ford et al. (2000) reported that men 35+ years of age had twice the likelihood of subfecundity than men below 35 years of age. Olsen et al. (1990) found that the risk of subfecundity for men 40+ years of age was 30% higher than that of men 15–19 years of age after adjustment for the female partner's age (according to Kidd et al. 2001). Liu and Case (2011) state that some studies find that sperm parameters including semen volume, motility, and morphology decrease with age, and that the odds of conception decrease 3% per year. An analysis of the impact of male age on their partner becoming pregnant within 12 months showed the decreasing odds ratios even when controlled for the woman's age, when compared to the age group of 24-year-olds. The odds ratio for a conception within 12 months leading to a birth decreased by 3% per year of increasing male age, starting from age 25 (Ford et al. 2000). One cohort study (Pinborg et al. 2011) following couples in ART treatment found that each year of increase in male age reduced the probability of achieving a live birth approximately by 4% (median probability 0,96), when controlled for female age. The age of the man also has a large effect on TTP and the proportion of couples classified as clinically infertile. For men younger than 35, there is no effect, but starting in the late 30s, the impact of male age becomes pronounced. In particular, among 35-year-old women, the proportion of couples failing to conceive within 12 cycles increases from 18% if the male partner is 35 years old to 28% if the male partner is 40 (Dunson et al. 2004). Conception rates within 12 months decline significantly with increasing men's age. A fivefold increase in TTP occurred with men aged 45 compared to men aged 25, independent of the women's age, coital frequency, and life-style effect, as well as the effect of other subfertility risk factors. The odds ratios for men taking less than one year to impregnate their partners fall significantly in older men, whether the age at conception or at the onset of attempting to achieve pregnancy was used in the analysis.

Although male age-related sterility and infertility rates are not our main focus, it must be noticed that the male partner's age has a significant role in forming success rate values, so we have to pay attention to the couple's age difference. It is common in western (Christian) cultures that the male partner is slightly older than the woman. Men and women are delaying marriage and parenting to a similar extent, so the age difference between them remains almost identical. Men have delayed having children to an extent similar to women and remain on average about 3 years older than women when having a child (Schmidt et al. 2012), which stands for Serbia too. That pattern of, on average, 3-year older male partners showed as remarkably persistent behavioral model when speaking about marriage and procreation in Serbia. So, according to the 1900 census, the average age of the husband was 39,5 and the average age of the wife was 35,9 leading to 3,6-year age difference (State Statistics Administration of the Kingdom of Serbia 1905). The social conditions of that time dictated universal marriage and directly affected the level of fertility rates (Jovanović-Batut 1932). It is very indicative that the latest available (2002–2010 average) age difference between men and women when having a child in Serbia is still similar (3,8-year-older men) after more than a century. Also, even the average age difference between partners in non-marital unions is slightly above 3 years (Statistical

Office of the Republic of Serbia 2017). Intending to quantify the effect of male age-related infertility on success rates, we first have to identify age-specific age difference (measured by the woman's age) between men and women when having a child in Serbia. According to data from the Demographic Yearbook of the Republic of Serbia (2002–2010), showing live births by age of mother and father, we can calculate a smoothed average age difference to identify the age pattern of parents in Serbia (Table 1).

Table 1 Average age of father by age of mother at childbirth

Age of mother	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
15-19	25.0	25.0	24.9	25.0	24.9	24.7	24.9	24.8	24.8	24.9
20-24	27.5	27.5	27.5	27.8	27.8	27.8	27.7	27.9	28.0	27.7
25-29	30.8	30.8	30.9	31.0	31.1	31.1	31.1	31.1	31.2	31.0
30-34	34.7	34.5	34.5	34.7	34.7	34.6	34.7	34.8	34.7	34.7
35-39	39.0	39.0	42.4	39.1	38.9	38.9	38.8	38.6	38.5	39.2
40-44	42.5	42.2	43.2	42.7	46.0	43.0	42.6	42.5	42.5	43.0
45-49	43.4	42.2	44.6	40.8	43.2	45.0	44.2	44.9	45.7	43.8
50+	38.6	39.4	40.8	30.3	39.8	34.2	37.3	42.5	41.8	38.3

Source: Authors calculations based on data from the Demographic Yearbook of the Republic of Serbia 2002–2010.

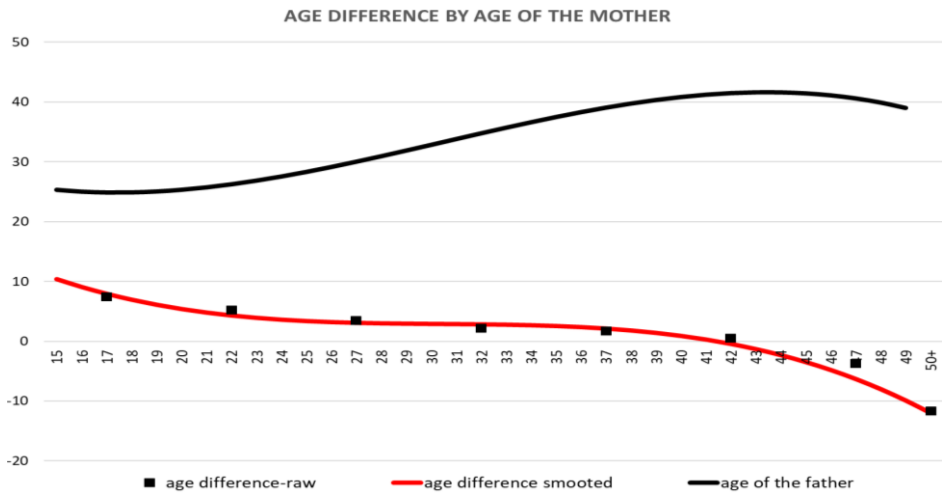

Fig. 1 Age difference between parents when having a child, by the mothers' age

Equation 1 Smoothed age difference – parabolic function

$$AD_x = -0.0019x^3 + 0.0936x^2 - 1.5708x + 11.83$$

Now, when we have identified the common age profile of the male partner in Serbia it would be useful to identify the average age-specific infertility in men. In the same way as we did in the case of female infertility, we will use findings presented above. Some of them say that the odds of conception decrease 3% per year (Liu and Case 2011) from the

age of 25 (Ford et al., 2000; according to Schmidt et al., 2012), and others say each year of increase in male age reduces the probability of achieving a live birth approximately by 4%, when controlled for female age (Pinborg et al. 2011). Dunson et al. (2004) found that male age when the woman is 35-year-old, influenced the proportion of couples failing to conceive within 12 cycles by approximately 2,5% each year from 35 to 40 years of age of the male partner. Based on these findings, between 2,5% and 4% of conception odds decreasing after the age of 24 and onwards, we decided to use median value of a 3% decrease and calculated the age specific male impregnation rates. It is important to stress that IR among men younger than 25 years of age was considered as a maximum when controlled for the woman's age, thus it is set at 100% (Table 2).

As women in general have partners who are several years older than them, it is important to focus more on the combined effect of advanced female and advanced male age on reproductive outcomes in the future (Schmidt et al., 2012). The great importance of the age of the partners at conception time point is supported by fact that ART makes up for only half of the births lost by postponing a first attempt at pregnancy from the age of 30 to 35 years, and <30% after postponing it from 35 to 40 years (Leridon 2004). Postponement of childbearing increases the risk of infertility and the necessity of fertility treatment in order to achieve parenthood which, however, has a limited success rate at older ages (Schmidt et al. 2012). Thus, changes in the age pattern of fertility play a significant role in the explanation of the fertility decline in Serbia.

3.2. The age pattern of fetal loss

Beside the above-mentioned restrictions, fetal loss appears to be the last, but not less important restriction. Out of all the achieved conceptions/pregnancies not all of them will result in live births. Miscarriage rates increase with age. Therefore, age-associated decrease in live-birth rates may be due to both the decline in pregnancy rates and the increase in miscarriage rates with aging (Steiner and Jukic 2016). Also, paternal age > 40 does appear to be associated with risk of spontaneous abortion, even when maternal age is controlled for (Kleinhaus et al. 2006; Maconochie et al. 2007; according to Liu and Case 2011). Advanced maternal age was a significant risk factor for spontaneous abortion irrespective of the number of previous miscarriages, parity, or calendar period. Increasing risk was documented both after natural conception and after assisted conception (Schmidt et al. 2012). Nybo-Andersen et al. (2000) stress that, although maternal age is highly correlated with parity and reproductive history, their data showed a strong and independent effect of maternal age on the risk of spontaneous abortion.

Among women undergoing non-donor ART in 2013, pregnancy rates per cycle reached 46% at ages below 35, 25% at age 40 and only 4% at ages 45+. Because of high rates of miscarriage at higher ages, the fall in the likelihood of live-birth following the ART cycle is even steeper with age: 40% of non-donor ART cycles initiated at ages <35 resulted in live births in 2013, compared to 17% of the cycles initiated at age 40 and 2% at ages 45+ (Beaujouan and Sobotka 2017). Studies on spontaneous conceptions as well as assisted conceptions show that the risk of spontaneous abortions remains relatively stable up to a maternal age of 35 years. From age 35 to age 40 the abortion rate increases from around 15 to 30%, and a rate of 50% is reached at around 42 years of age. Thus, in relation to spontaneous abortion, a delay in the female childbearing age of up to around 35 years of age will have no significant impact, but the rate doubles over the next 5-year

age interval (Schmidt et al. 2012). Some other research found that the share of miscarriages grew from 13.6% at ages 25–29, to 16.0% at ages 30–34, 20.0% at ages 35–39 and 27.0% at ages 40–44 (Leridon 2004). Overall, 13.5% of the pregnancies intended to be carried to term ended with fetal loss. The risk of fetal loss according to maternal age at conception followed a J-shaped curve, with a steep increase after 35 years of age. More than one fifth of all pregnancies in 35-year-old women resulted in fetal loss, and at 42 years of age more than half of the intended pregnancies (54.5%) resulted in fetal loss. Also, the risk of a spontaneous abortion was 8.9% in women aged 20-24 years and 74.7% in those aged 45 years or more (Nybo-Andersen et al. 2000). For calculating livebirth rates (LR), we used data from above mention studies (Table 2).

4. Defining the Success Probability Curve

The success probability curve, should represent the joint age-specific influence of three mentioned fertility restrictions. These three restrictions are permanent sterility, (male and female) infertility, and fetal loss, which are embodied by the fecundity rate, impregnation rate (males) (IR), pregnancy rate (females) (PR), and live-birth rate (LR). Previously we have mentioned that data often show infertility including permanent sterility, so we are going to use infertility data only, to avoid duplication of permanent sterility restriction. When we are observing infertility only, we must stress that infertility restriction is the result of both male and female factors (IR*PR), and that the specific age pattern of partner unions (parents) in Serbia is of noticeable significance. These restrictions act jointly in the following way. Out of, for example, 1000 women 900 of them will get pregnant over 12 months (which may be considered as one calendar year) (1000*IR*PR), and out of these 900 pregnant women, 700 will give birth to a live child (900*LR). All of these rates change during the reproductive life of a woman, so that the age structure of mothers will be the main factor shaping the average success rate in a particular population. The success probability curve shows changes in success rate values during the reproductive life of women (15–49) in the human population, but will differ in different populations only if the age pattern of partner unions is different (age-specific age difference between the mother and father of a child). So, the success probability curve to be shown is for Serbian data only.

Further, we may observe these restrictions in different points of time in which the age of the woman will differ, so we must decide which time point to use. These time points are the age when attempts (to conceive) have started, the age when conception occurred, and age at the time of labor. To know the time when the attempts started we must have a precise time to pregnancy (TTP) interval which we do not know, so this time point is off. The chronological order goes from attempting to start, pregnancy, and childbirth, so the only precise time point that we have is the last one. On the other hand, a woman is aging during mentioned time lapse, so choosing the start of pregnancy (conception point) seems to be the best approximation for measuring the success rate. In that manner, we will adjust all rate values to the conception age (childbirth time point minus 9 months). The general idea for adjusting rates to the conception time point was that only 25% of all live-births in one calendar year are actually conceived in that year due the 9-month duration of pregnancy (Equation 2).

Equation 2 General adjustment formula (R – rate)

$$adjR_x = R_x * 0.25 + R_{x-1} * 0.75$$

Table 2 Age-specific success rate in Serbia

Age	adjPR$_x$	adjIR$_x$Serbia	adjLR$_x$	adjSR$_x$ (Age factor)
15	78.8	95.8	79.7	60.2
16	80.3	96.5	82.0	63.6
17	81.7	97.1	84.1	66.7
18	82.8	97.3	85.9	69.3
19	83.8	97.2	87.6	71.3
20	84.7	96.7	89.0	72.8
21	85.3	96.2	90.1	74.0
22	85.8	95.5	91.1	74.6
23	86.2	94.6	91.8	74.8
24	86.4	93.5	92.3	74.5
25	86.4	92.4	92.5	73.8
26	86.2	91.1	92.6	72.7
27	85.9	89.6	92.4	71.1
28	85.4	88.1	92.0	69.2
29	84.7	86.6	91.3	67.0
30	83.9	85.1	90.4	64.6
31	82.9	83.4	89.3	61.8
32	81.8	81.9	88.0	59.0
33	80.5	80.3	86.5	55.8
34	79.0	78.7	84.7	52.7
35	77.3	77.1	82.7	49.3
36	75.5	75.8	80.4	46.0
37	73.6	74.5	77.9	42.7
38	71.4	73.2	75.3	39.3
39	69.1	72.1	72.3	36.0
40	66.6	71.1	69.2	32.8
41	64.0	70.3	65.8	29.6
42	61.2	69.7	62.2	26.5
43	58.2	69.4	58.4	23.6
44	55.1	69.2	54.3	20.7
45	51.8	69.3	50.0	18.0
46	48.3	69.6	45.5	15.3
47	44.7	70.2	40.8	12.8
48	40.9	71.3	35.8	10.4
49	36.9	72.5	30.6	8.2

Source: Author's calculations based on data from Nybo Andersen et al. 2000; Ford et al. 2000; Dunson et al. 2004; Leridon 2004; Liu and Case 2011; Pinborg et al. 2011; Schmidt et al. 2012; Steiner and Jukic 2016; Wesselink et al. 2017.

The previous table (Table 2) shows adjusted values of age-specific IR, PR, LR, and the success rate (SR) which are calculated as average values of data from various studies, and smoothed to single year ages (original data were often showed as five or larger age

groups) by a quadratic function[3]. Finally, age-specific success rate adjusted to conception point would be the result of the multiplication of three restrictions: adjusted pregnancy rate, adjusted impregnation rate, and adjusted live-birth rate.

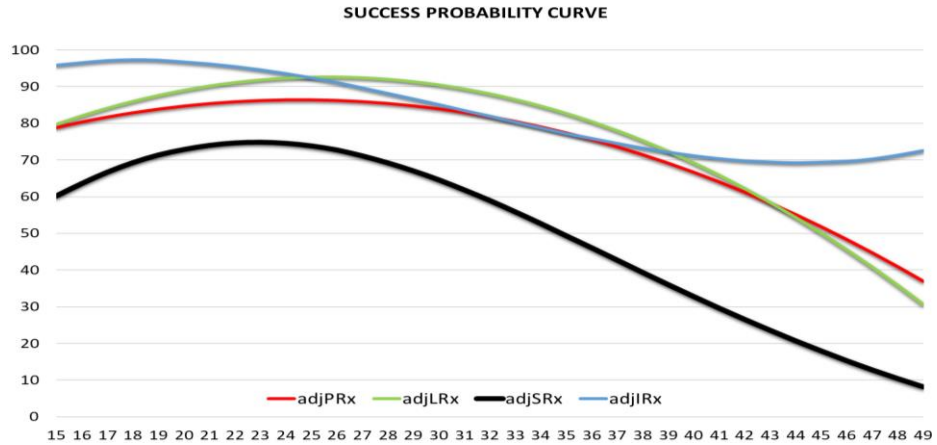

Fig. 2 Age-specific success rate ($adjSR_x$)

Equation 3 Adjusted age-specific success rate

$$adjSR_x = adjPR_x * adjIR_x * adjLR_x$$

5. RESULTS

The period data were extracted and calculated from the Demographic Yearbook of the Republic of Serbia, and the EUROSTAT fertility database. The number of live births by mother's age during the studied time period (Figure 3) shows a very symptomatic age pattern of fertility. During the 18-year time period the number of live births was "rotating" counterclockwise around the age of 30, leading to rapid decrease of births from mothers below the age of 30, followed with much slower increase of births from mothers above that age. This change is so deep that in only 18 years the fertility peak shifted 6 years to the right, and the fertility rates of women aged 35+ more than doubled. If this shift continues, in 12 years the fertility peak may shift to women outside of the optimal fertile group (20–34 years old).

Finally, we come to the main aim of the paper. If we consider live-births by mother's age as the result of the age-specific adjSRx, then we can come to the number of attempts, i.e. the number of women trying to get live-birth using the next equation.

Equation 4 Age-specific number of women trying to get a live-birth

$$ATTEMPTS_x = (N_x / adjSR_x) * 100$$

[3] Parabolic (quadratic) parameters for each smoothing are shown in Appendix 1.

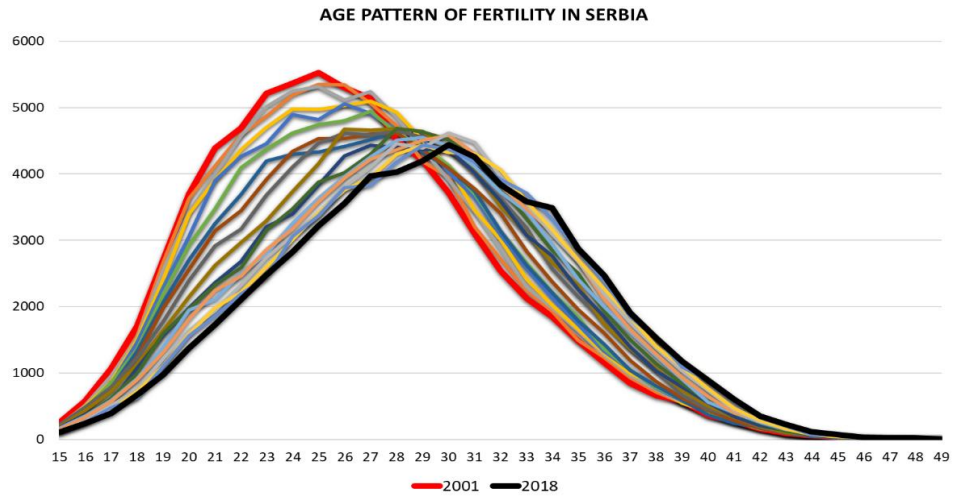

Fig. 3 Number of live births by mother's age in Serbia, 2001-2018

Now, if we compare the first and the last year of the observed period by two indicators (the number of live-births by the mother's age, and the number of women trying to get live-birth, also by age) we can see the whole strength of the age effect on the number of total live-births. The number of live-births decreased by 9574 (-13.1%), but number of attempts decreased only by 2804 (-2.5%), leading us to the conclusion that childbirth postponement decreased the weighted average of the success rate. Practically with a similar number of attempts, women in Serbia gave birth to a much smaller number of children due to decreasing probability of success, and increasing infertility with a woman's age.

During the whole observed time period the total number of women trying to get live-birth during one calendar year remained relatively stable, and ranged between 105915 in 2011 and 113545 in 2003. With an average 109819 attempts during one calendar year, these values varied between +3.4% and -3.6% from the average. On the other hand, the total live-births ranged from 73621 in 2003 to 63778 in 2018, varying from +7.7% to -6.7% relative to the average. The age effect actually doubled the differences between the first and the last year of the period. Actually, if we refer to the average natural adjSRx=0.6002 (60,02%)[4] then we can see that age pattern of fertility in Serbia was more favorable than natural fertility distribution until 2014. Thus, age effect was positive, and turned to negative from 2015 onwards. In other words, the age pattern of fertility affected average adjSRx, decreasing its values as childbirth postponement continued (Appendix 2).

6. DISCUSSION

In demography, the reproductive span of women includes ages between 15 and 49. Obviously, this may not be the case in every individual person, but, based on large numbers we can notice that in modern societies more than 99% off all births occur within that age span. Medical findings say that majority of age-associated infertility problems in

[4] Natural weighted average SR for all ages of women between 15 and 49 in Serbia.

women are related to ovarian aging (Liu and Case 2011). As a woman ages, so do her eggs. In other words, a woman's eggs are as old as herself. At the same time childbirth postponement is constantly widening the sexually active period of life with a high risk of reproductive health damage before realizing reproductive intentions.

If we refer to Serbian data, we can say that prevalence of effective contraception usage is very low, and the number of induced abortions has been very high for decades, even among medical professionals (Rašević and Sedlecki 2008, 2011; Rašević 2006, 2008a, 2008b). Presuming that the age one becomes sexually active is between 17 and 19, childbirth postponement over the last 30 years is so severe that the period of sexual activity before the birth of the first child almost doubled, doubling the risk of sexually transmitted diseases (STD-s), abortions, and other reproductive system complications. Potential fertility is shrinking with age, and it is well known that optimal the fertile age ranges between the ages of 20 and 35. WHO recommendations regarding fertility (WHO 2006; USAID 2007) say that women should not give birth before the age of 18, and not after the age of 35. There are numerous reasons for such a claim. The reproductive system of women under 18 is not fully developed, and pregnancy and childbearing could cause severe complications for the mother, as well as for the child. In addition, early sexual activity, and especially early pregnancy can cause future reproductive system complications (Azevedo et al. 2012). On the other hand, giving birth after the age of 35 (advanced maternal age) is connected with a number of potentially negative biological and medical consequences. There are clear implications of birth delay, both for the mother and for the child (Bianco et al. 1996; Vohr et al. 2009). A higher incidence of spontaneous abortions, stillbirths, complications during pregnancy and preterm delivery, as well as an increased risk of fetal abnormality are just a few of them (Stein and Susser 2000). Due to childbirth postponement, a large number of women under 35 have accepted low family size norms, but most of them will eventually start reproduction. Nevertheless, we can expect that a certain share of these women in Serbia, for different reasons will not be able to realize the wanted norms pertaining to the desired number of children (Rašević 2006, 145). Lutz and Skirbekk in their paper "Policies Addressing the Tempo Effect in Low-Fertility Countries" emphasize that the current fertility-depressing effect of an ongoing increase in the mean childbearing age will have a significant and lasting effect on population dynamics in Europe, played out in a population decline and accelerated population aging, the so-called "tempo effect" (Lutz and Skirbekk 2005). Modern European societies have already been facing sub-replacement fertility for several decades, and that is why the economic consequences are becoming so severe, reaching the point of non-sustainability for welfare states (Vasić and Marinković 2016, 159). Actually, there are two faces (effects) of low fertility in Europe: the tempo effect – women are delaying births to advanced ages, resulting in fewer births in the calendar years during which this delay happens, and the quantum effect – women are not having enough births to achieve replacement level. In fact, not all postponed births will be recuperated, and increases in the mean childbearing age tend to reduce the quantum of the fertility of the cohorts experiencing such increases (tempo-quantum interactions) (Lutz and Skirbekk 2005, 708).

Regarding childbirth postponement in Serbia, faced with the constant rise of MAB and change in the age pattern of fertility, the average SR was constantly shrinking, leading to an inevitable decrease of total live-births. If, hypothetically, such an age pattern change did not exist (from 2001 to 2018), regarding exact number of attempts during each year, the number of total live-births during this period would be 62746 higher. In other words, almost one whole generation was lost due to childbirth postponement. The

MAB rise from 26,7 years in 2001 to 30,0 in 2018 reduced fertility by 5%, and increased the number of unsuccessful attempts by 48436 due to age-related sterility, infertility and fetal loss.

7. CONCLUSION

Childbirth postponement is the most pronounced characteristic of fertility transition in the low fertility populations. Below replacement fertility[5] phenomenon in Serbia (excluding data for Kosovo and Metohija) is now more than six decades old. Serbia has faced below replacement fertility for a whole decade before other European countries, even without fulfilling any of assumptions from the SDT. Many authors, doubt that Serbia (and other ex-Yugoslav countries) is experiencing shifts predicted by SDT as necessary preconditions for a long-lasting fertility decrease (Kuhar 2009; Bobić and Vukelić 2011; Vasić 2012), but such a long-term decrease is yet happening. In such conditions it is expected for fertility transition to take place at a fast and unpredictable pace. Many demographers called for urgent and systematic policy responses during the 1950s, but, as in many other European countries, the political response came only when the natural increase became negative (during the 1990s). If fertility policy had been introduced earlier, the demographic loss could potentially be smaller. The Birth Promotion Strategy of Republic of Serbia (Government of the Republic of Serbia 2018) points that incentives towards the earlier start of parenthood would be the most beneficial regarding fertility indicators and total live-births. Also, demographers recognized a clear relation between earlier first birth and higher completed fertility in Serbia (Rašević 2015), thus childbirth postponement must be identified as a significant target within fertility policy. Clear health and demographic benefits of an earlier parenting are reflected in age-related growth in infertility, especially after the age of 35 when SR falls below 50%. It would be a matter of common sense striving to place conception attempts at an age that provides real chances for the successful realization of individual reproductive intentions, if those reproductive intentions really are a matter of essential life commitment.

Acknowledgement: *This research is the result of previous work on the project Researching Demographic Phenomena for the Purpose of Public Policies in Serbia (47006) which was closed in 2019. and was financed by the Ministry of Education and Science of the Republic of Serbia.*

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ODLAGANJE RAĐANJA I NEPLODNOST POVEZANA SA STAROŠĆU U SRBIJI

Odlaganje rađanja je tema o kojoj se često raspravljalo još od 1990-ih, a na vrh demografske agende stavljena je pojavom paradigme Druge demografske tranzicije (DDT). Mehanizmi odlaganja rađanja koje su uglavnom objašnjavali ekonomisti ili sociolozi, shvatani su kao racionalne odluke pojedinaca (ili parova) koji pokušavaju da se usklade sa zahtevima modernog društva. Ovi mehanizmi su objašnjavani promenama dohotka i potrošnje (Becker, Modigliani) ili liberalnim i postmodernim vrednostima (Van de Kaa, Lestheage), dok se fiziološka ograničenja individualnog izbora uzrokovana starošću pojedinca gotovo uopšte nisu pominjala. Ova ograničenja koja nameće reproduktivni period ljudske vrste, bez izuzetka, utiču na sve koji pokušavaju da naprave optimalan reproduktivni izbor. Dva su glavna efekta odlaganja rađanja na broj živorođenja i stope fertiliteta. Prvi, kada parovi odlože rađanje deteta za stariju dob tokom određenog perioda, te se ostvari manji ukupan broj rađanja nego u odsustvu takvog odlaganja - takozvani „tempo efekat" i drugi, kao negativan efekat odlaganja rađanja na završni fertilitet i povećan udeo žena bez i jednog živorođenja koji se pripisuje starosnom porastu neplodnosti. Ovaj drugi negativni efekat je upravo u fokusu našeg interesovanja. Pad završnog fertiliteta kohorte usled odlaganja rađanja uglavnom je proučavan na osnovu podataka o starosti majke na rođenju prvog deteta i sukcesivnom rađanju, kao i modela fekunditeta, pobačaja i vremena potrebnog za začeće prema starosti, koje ćemo pokušati da primenimo na podatke transferzalne demografske analize. Koristeći momentne podatke, pokušaćemo da kvantifikujemo potencijalni broj živorođenja koji bi se ostvario u hipotetičkom odsustvu odlaganja rađanja u Srbiji u protekle dve decenije.

Ključne reči: *odlaganje rađanja, tempo fertiliteta, neplodnost, sterilitet, fetalni gubici, stopa uspešnosti.*

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 113 - 121
https://doi.org/10.22190/FUPSPH2102113J

Original Scientific Paper

FACTORS CONTRIBUTING TO BETTER ADAPTATION TO INFERTILITY

UDC 159.9:612.663

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Abstract. *Ever since the importance of the psychological aspects of infertility was recognized, researchers have been trying to define adaptation to this non-developmental crisis. Lately, more popular research has been concerned with the question of which factors contribute to better adaptation, rather than what that adaptation is. The majority of these studies are carried out with women who still face infertility, while the women who became parents after facing this crisis are included in just a few studies. Accordingly, the main aim of this research was to examine the opinion on the factors contributing to better adaptation to infertility, as well as the differences in opinion between women who took on the parental role after coping with infertility and those who did not. For that purpose, the Infertility Adaptation Factors Questionnaire was applied on a sample of 192 respondents. The questionnaire consists of 23 items, with four different factors. In their opinion, among the examined factors, the most important is togetherness and intimacy between partners, which is statistically more important than resources, social support and importance of the parental role, the least important factor in this study. There are no significant differences between those who became parents and those who are still dealing with infertility.*

Key words: *infertility, parents, nonparents, togetherness and intimacy.*

1. INTRODUCTION

Although most people believe that they can become parents whenever they want to, for some of them this belief proves to be wrong. One in six couples faces infertility at some point in their relationship and some of them never become parents. This mismatch between beliefs and that what is happening in reality is the reason why some authors called infertility an "unwelcome interruption to one's planned life course" (Greil, Schmidt

Received September 30, 2020 / Accepted December 28, 2020
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& Peterson 2014). Regardless of the afore-mentioned, only after the first successful treatment of in vitro fertilization have researchers around the world paid more attention to the psychological aspects of infertility. These aspects were neglected for a few decades before that, when the main focus was on the medical aspects and diagnosis (Matthews & Matthews 1986).

The researchers who were interested in this construct tried to understand it from the perspectives of different theoretical approaches. One of them is the transactional theory of stress and coping (Lazarus & Folkman 1984). According to this theory, infertility is an unpredictable, negative and uncontrollable stressor that affects the overall functioning of the individual, but also the marital functioning and the partners' relationships with friends, family members and the wider community (Burns & Covington 2006). Before examining the factors which contribute to better adjustment and adaptation to infertility, it is necessary to answer the question of indicators of successful adaptation. Lazarus and Folkman (1984) suggested grouping these indicators into three main domains: morale, social functioning and somatic health, as to the person's ability to maintain well-being, keep participating in relationships with close ones, and to have good physical health.

The other framework which is commonly used in explaining the factors and the whole process of adaptation to infertility is the family system theory, which postulates that the easiest way to understand someone's behavior is observing interactions and systemic relationships (Bertalanffy 1968). A woman's adaptation to infertility is affected by the systemic nature of the relationship between partners. Based on the system theory framework, not only individual coping, but also the functioning between partners and their dyadic coping are crucial for successful adaptation (Peterson 2003).

In accordance with the above-mentioned, later researchers examined useful coping strategies for dealing with infertility and determined the factors related to individuals' or couples' ability to adapt to this non-developmental crisis. Their results indicate that people who are more likely to use the resource of social support and communicate honestly and openly about emotions with close people are better adapted to infertility (McDaniel, Hepworth & Doherty 1992), with partner support as a special form of social support (Ying, Wu & Loke 2015). Furthermore, partner support was recognized as the most important resource, more important than family and friends support (Martins, Peterson, Almeida, Mesquita-Guimaraes & Costa 2014). Women give special meaning to partner involvement during the treatment (Pasch & Christensen 2000), showing interest for conversation and shared decision-making (Daniluk 2001). Another coping strategy which is useful is the focus on positive sides and the ability to redefine goals and general adaptability. The results indicate that couples who are more willing to use this strategy have better relationships (Peterson, Pirritano & Schmidt 2011). In contrast, the greater the importance of parenting and the more they view it as a task they have to fulfil, the higher the perceived infertility stress and worse marital functioning, which is a sign of poor adaptation to the crisis (Edelmann, Humphrey & Owens 1994).

Among the conducted research, there is a small number of those that included people who became parents after coping with infertility. The results of these studies consistently show that those couples share thoughts and ideas with each other more and have a greater sense of togetherness than couples who became parents spontaneously (e.g. Slade, Emery & Lieberman 1997).

The main aim of this study was to explore the opinion of women who faced or are still facing infertility on factors that contribute to better adaptation to infertility, and to determine whether there are differences in opinion between these two groups.

2. METHOD

2.1. The sample

The total number of respondents was 192 women, with age ranging from 22 to 50 (M=35.61; SD=5.81). After coping with infertility, 103 of them became parents, while 89 still have not. The respondents were all married, and neither they nor the partner had any children from a previous marriage. marriage. More than a half of them live in a big city (53.1%), 27.6% in a town and 19.3% in a village. Most of them estimate their income as average (74.0%), with almost the same number of these with worse (13.5%) or incomes better than average (12.5%). For 51.6% of them religion is important, while 28.1% find it nether important nor unimportant, and 20.3% do not find it important for their life. The educational background of the respondents was composed of 39.1% respondents with a bachelor's degree, 38% graduated from high school and a smaller had a college degree (11.5%), master's or doctoral degree (9.4%), or had just finished elementary school (2.1%).

The measuring instrument

Attitudes about factors that contribute to better adaptation to infertility were measured using the Infertility Adaptation Factors Questionnaire, created for the purpose of this study, based on theoretical approaches and previously conducted research (Daniluk 2001; Edelmann et al. 1994; McDaniel et al. 1992; Peterson et al. 2011; Ying et al. 2015). The respondents were asked to answer the question "What could help couples better adapt to infertility?" by assessing 23 items using a five-point Likert-type scale ranging from 1 (completely unimportant) to 5 (completely important). The scale's overall Cronbach's alpha was excellent (α =.81). The reliability of the extracted factors is presented in the results section.

2.3. Procedure

The study was conducted during 2019 and the beginning of the 2020 using the Google forms platform. The questionnaire was distributed in Facebook groups created so that women facing an infertility crisis could exchange experiences, and on authors' Facebook profiles. The respondents were asked to read the informed consent and then proceeded to complete the questionnaire. It was clearly emphasized that the research is completely anonymous and that the data will be used only for scientific purposes. Also, since for some of them it is a crisis they are currently facing, they were offered psychological support provided by educated family therapists.

3. RESULTS

3.1. Factor analysis of the Infertility Adaptation Factors Questionnaire

As the questionnaire was used for the first time in this study, the first step was a factor analysis, using the principal components method. Applying this method, seven factors with eigenvalues higher than 1 were extracted. Due to similar items that loaded on different factors, the authors decided to consult the Scree plot, which suggested a four-factor solution (Figure 1). After applying the Varimax rotation, the authors decided to keep 4 factors. The significance of the correlation matrix was determined by Bartlett's Test of Sphericity ($\chi^2 = 1601.96$, $p < .001$), and its suitability for factorization was suggested by the Kaiser – Meyer – Olkin Sampling Adequacy Test (KMO = .789).

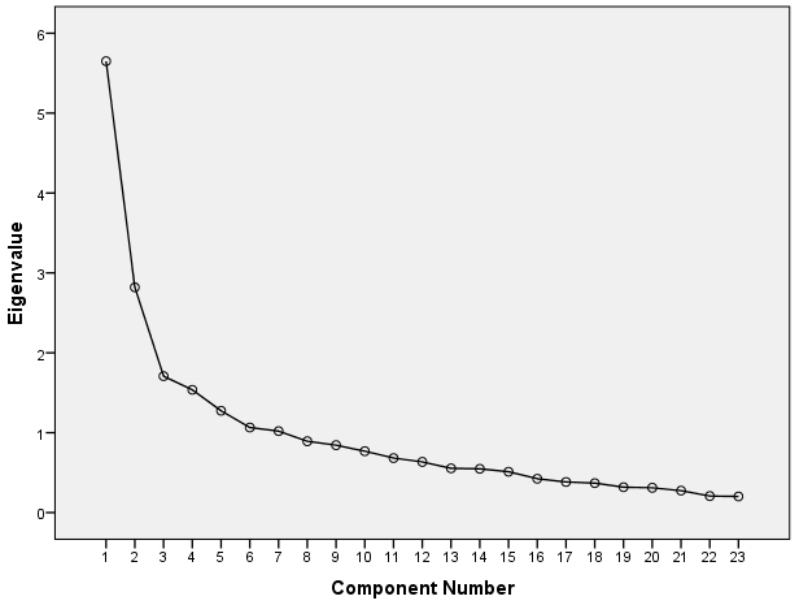

Fig.1 Infertility Adaptation Factors Questionnaire's Scree plot

Based on the values from the component matrix (Table 1), it can be noted that the items are grouped quite meaningfully and correctly around four extracted factors, which are named: Togetherness and intimacy, Importance of the parental role, Resources (personal characteristics, medical resources, and finances) and Social support. The first factor, named Togetherness and intimacy, refers to togetherness during the decision-making process, but also to paying attention to intimacy and all the aspects important for the relationship, regardless of the actual crisis. The second one, named Importance of the parental role, contains items about the importance of parenthood for their marriage and life as a whole. The third factor is more diverse and it refers to all the resources important for facing the infertility problem, like medical support and finances, but also some personal characteristics as adaptability or persistence. This subscale has poor reliability, which could be due to this diversity of items, and the results on this scale should be interpreted with caution. The fourth factor refers to all the aspects of social support - talking about the problem with friends and family, but also to support from colleagues and the whole community.

Table 1 PCA Component matrix

	Component			
	1 α = .82	2 α =.79	3 α =.57	4 α =.70
11) Providing support to each other in all domains of the treatment process (joint scheduling of examinations, visits to doctors, seeking treatment options, discussing the problem ...)	.488			
12) Togetherness in decision-making about the treatment	.640		.318	
4) Participating in activities in which they participated before infertility (e.g. hobbies, socializing, rituals they have as a couple)	.581		.309	
5) Often exchanging intimacy with their partner (giving compliments to each other, hugging, kissing ...)	.786			
15) Engaging in sexual intercourse without the idea that this time it will result in conception	.714			
17) Being committed to the partnership (choosing to stay in it no matter what)	.711			
19) Paying attention to unpleasant emotions (disappointment, sadness, anger, helplessness) that appear as reaction to stress and openly showing them to close people (family members, relatives, friends)	.402		-.336	.346
20) Giving importance to togetherness in a relationship with one's partner (spending time together, having mutual friends, making joint decisions related to the household…)	.764			
21) Talking openly with their partner about how they feel every day	.761			
22) The ability to change goals and expectations from the future related to parenting (adoption, giving up parenthood and setting other goals...)	.511			
2) Believing that parenthood is key to a good marriage		.810		
6) Believing that a person is really fulfilled only when they become a parent		.840		
8) Giving a lot of importance to religion and prayer		.506		
23) Believing that parenthood is a task that every person is obliged to fulfil		.854		
1) Knowing the cause of infertility			.499	
3) Being generally adaptable (both husband and wife)			.450	
4) The support of medical staff during the treatment process (commitment, understanding, providing necessary information...)			.559	
10) Being persistent in achieving their goals			.640	
16) Having a financial situation that allows for medical expenses			.495	
5) Talking openly about one's problem with friends				.735
7) Talking openly about one's problem with family and relatives				.822
9) Having support from superiors and colleagues (e.g. showing understanding for occasional more frequent absence from work)			.394	.641
18) Having the support of the community in dealing with the problem (availability of information, free medical treatment, psychological support...)				.507

Note: Only factor loadings >.30 are presented.

Correlations between the factors are presented in Table 2. It can be noted that all factors correlate positively and significantly, except one unsignificant correlation between Togetherness and intimacy and the Importance of the parental role.

Table 2 Factor correlations for the Infertility Adaptation Factors Questionnaire

	2	3	4
1) Togetherness and intimacy	.060	.423**	.321**
2) Importance of parental role		.266**	.202**
3) Resources			.312*
4) Social support			-

*$p < .05$, **$p < .01$

3.2. Descriptive statistics

The respondents from the two groups consider togetherness and intimacy to be the most important factor for successful adaptation to infertility, while the least important was the importance of the parental role (Figure 2).

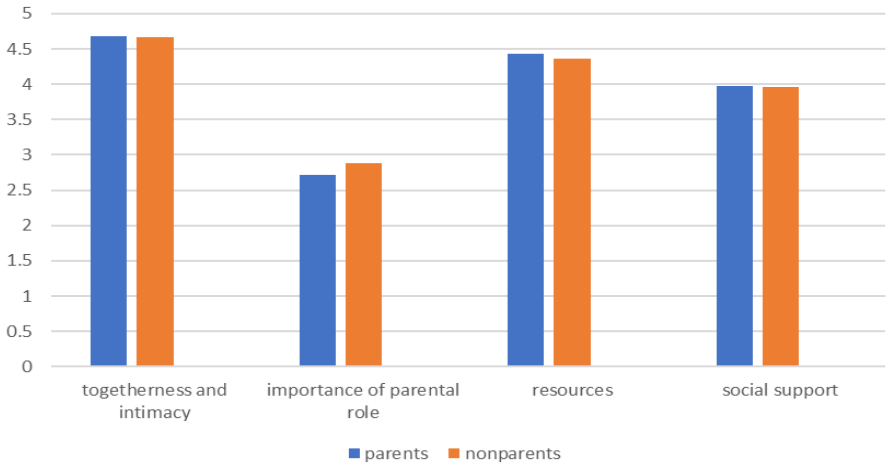

Fig. 2 Importance of different factors among parents and nonparents

The significance of differences in importance of different factors for adaptation was assessed by t-tests for paired samples. The results indicate that togetherness and intimacy among partners is statistically more significant for adaptation to infertility than any other factor (Table 3).

Table 3 Differences in importance of different factors

	df	*t*
Togetherness - Importance of parental role	191	21.01**
Togetherness - Resources	191	6.55**
Togetherness - Social support	191	11.08**

**$p < .01$

3.3. Differences between parents and non-parents

A set of t-tests for independent samples was used to examine the differences in importance of different factors between the two groups. The results show that there are no significant differences between the groups (togetherness and intimacy $t(190) = .272$, $p = .786$; importance of the parental role $t(190) = -.980$, $p = .328$; resources $t(190) = .824$, $p = .411$; social support $t(190) = .175$, $p = .861$), which means that women who have still not become parents and those who became mothers after facing infertility have similar attitudes and ideas about what is most important for adaptation to infertility.

4. Discussion

There are numerous quantitative, but also qualitative studies that aimed to explore the adaptation to infertility and factors that contribute to successful adaptation. Since they are difficult to reach, very few of these studies included women or couples who became parents after facing infertility and none examined the differences between parents and nonparents. The current research was carried out with the aim of examining the factors perceived as important for adaptation to the infertility crisis by women who faced or are still facing infertility.

The respondents from both groups consider the most important factor to be togetherness and intimacy, with a pattern of open communication and sharing among partners, trying to live the life they did before the infertility problem and setting the relationship between them a priority. These results are in accordance with the previous studies that indicated the importance of partnership and involvement of both partners in the treatment (Daniluk 2001), but also with those that refer to their partner's support as vital for adaptation, more important than other forms of social support (Martins et al. 2014). Nevertheless, these findings could also be due to the samples in the studies and maybe it would be different if their partners were included, not only women. This assumption is based on the findings of previous studies that indicated that women are the ones who give special meaning to the partner's involvement during the treatment (Pasch & Christensen 2000). The next is the factor referring to a different type of resource that could be helpful in the process of facing infertility, such as support from the medical staff, financial resources or some personal characteristics. These results are in accordance with previous studies that demonstrate the importance of medical support (Malin, Hemminki, Räikkönen, Sihvo & Perälä 2001) and the couples' income (Becker, Castrillo, Jackson & Nachtigall 2006) for the adaptation and the process of dealing with the crisis. Also, one of important factors is general adaptability, and the ability to redefine goals, which is correlated with better adaptation and a better relationship between partners (Peterson et al. 2011). The respondents find perceived social support to be an important factor for adaptation to crisis, which was also found to be important in previous studies – especially sharing experiences with close ones, which gives them a sense of connection (Jenkins 2019). The importance of the parental role is shown to be the least important factor for adaptation to infertility in both groups, and the potential explanation could lie in the characteristics of the sample, with most than half of the respondents living in a big city and having a high level of education. Furthermore, the item which refers to the importance of religion in the process of facing infertility loads on this factor, which could indicate that this factor reflects more traditional beliefs in general. These beliefs were found to be least important in our sample.

Although some authors reported that, as early as 6 months after giving birth, women who faced infertility believe that they have left this crisis behind them (Hjelmstedt et al. 2004). Testing the differences between the two groups indicates that there are no differences in any of the measured factors. Women who became and who still have not become parents find the same factors more or less important for the adaptation to the current or the crisis which they faced successfully in the past. A potential explanation could be that they really left that experience behind them, but asked about the adaptation experiences, they can recall them. This absence of differences is an obvious indicator that no matter if they faced or are still facing it, they nevertheless give key importance to the quality of their relationship and the possibility of relying on their partner (Daniluk 2001). These findings support the system theory and highlight the importance of dyadic coping (Peterson 2003).

However, when interpreting the results, it is important to mention that the exact moment of when they became parents was not collected in the demographic questionnaire, and the differences in recalling the experience from memory may be possible between those who became mothers lately and those who became mothers years ago. This is also demonstrated as a result of some previous studies that show that there is a tendency to "forget" the whole process a few years later, with a similar level of parental stress to parents who conceived naturally (Hjelmstedt, Widström, Wramsby & Collins 2004). In any case, a recommendation for future studies is to take this into account, as well as include male respondents in the study.

5. Conclusion and Clinical Implications

Perhaps the main result of this study is the one regarding recognition of the importance of partner support and dealing with this topic on the dyadic level, observing the problem as a common one - a crisis which affects them as a couple, not as a problem of a person who has a medical diagnosis. These results add to the guidelines for creating support programs for facing infertility, which could be oriented towards the couple and improving partnership skills, in contrast to the individual approach, which is in line with global trends when it comes to the topic of infertility (Burns & Covington 2006). At the very end, the partner is actually the only person who is constantly with the woman during the process of dealing with infertility and from whom the expectations are usually the highest.

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FAKTORI KOJI DOPRINOSE BOLJOJ ADAPTACIJI NA NEPLODNOST

Sa prepoznavanjem značaja bavljenja psihološkim aspektom neplodnosti istraživači su pokušavali da definišu adaptiranost na ovu nerazvojnu krizu. U poslednje vreme popularnija istraživanja su ona koja se bave pitanjem koji su to faktori koji doprinose boljoj adaptiranosti, namesto bavljenja time šta ona jeste. Najveći broj ovih istraživanja sprovodi se na ženama koje se i dalje suočavaju sa krizom neplodnosti, dok su ona koja ove faktore ispituju na onima koje su se nakon suočavanja sa neplodnošću ostvarile u roditeljskoj ulozi malobrojna. U skladu sa navedenim, osnovni cilj sprovedenog istraživanja bio je ispitati mišljenje koji faktori doprinose boljoj adaptiranosti na neplodnost, kao i razliku u mišljenju između žena koje su se ostvarile u roditeljskoj ulozi nakon suočavanja sa neplodnošću i onih koje nisu. U tu svrhu na 192 ispitanice primenjen je upitnik Faktori adaptacije na neplodnost. Upitnik se sastoji od 23 stavke i obuhvata 4 različita faktora. Prema mišljenju ispitanica, među merenim faktorima, najvažniju ulogu ima zajedništvo i intimnost među partnerima, koji se izdvojio statistički značajnijim od resursa, socijalne podrške i značajnosti roditeljske uloge, kao najmanje značajnog faktora u ovom istraživanju. Rezultati ukazuju na odsustvo razlika među ispitanicama koje su postale majke i onih koje se još uvek suočavaju sa ovim problemom.

Ključne reči: *neplodnost, roditelji, neroditelji, zajedništvo i intimnost*.

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 123 - 136
https://doi.org/10.22190/FUPSPH2102123M

Original Scientific Paper

SOCIAL SUPPORT AND RELATIONSHIP SATISFACTION AS PREDICTORS OF POSITIVE AND NEGATIVE AFFECT IN INFERTILE WOMAN DURING IVF TREATMENT

UDC 159.942:612.663

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Abstract. *Infertility is a medical problem, but it can have significant consequences for mental health. Emotional problems caused by infertility are very common, so infertility can be called a life crisis. Therefore, it is very important to identify protective and risk factors that would determine the psychological adjustment to infertility. The aim of this study was to examine the differences in perceived social support, relationship satisfaction, and positive and negative affect between women undergoing IVF treatment and women who do not have fertility problems. The research also aims to examine whether perceived social support and relationship satisfaction were significant predictors of positive and negative affect in both groups. The study included 292 women – 163 who were undergoing the IVF treatment at the time of assessment and 129 without fertility problems who made up the control group. The following instruments were applied: the Multidimensional Scale of Perceived Social Support, the Relationship Satisfaction Scale, and the Serbian Inventory of Affect based on PANAS. The results show statistically significant differences between the examined groups in the level of negative affect, which is more pronounced in the group of women undergoing IVF treatment. Regarding positive affect, there is a trend of a more frequent experience of positive emotions in the women from the control group. Perceived social support and relationship satisfaction are significant predictors of both positive and negative affect for the women undergoing IVF treatment. As for the control group, the results of the regression analysis show that perceived social support and relationship satisfaction are significant predictors of negative affect, while in the case of positive affect, relationship satisfaction stands out as a significant predictor. The results indicate that perceived social support and relationship satisfaction can be important protective factors when it comes to psychological adjustment to infertility, which can serve as a guideline for mental health professionals who work with infertile couples.*

Key words: *infertility, IVF treatment, social support, relationship satisfaction, positive and negative affect.*

Received November 14, 2020 / January June 11, 2021
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1. INTRODUCTION

Infertility is a common problem, which, according to the available data, affects around 48.5 million people worldwide (Verkuijlen et al. 2016). It is defined as the absence of conception after 12 months of regular unprotected sexual intercourse (Zegers-Hochschild et al. 2009). The life plans of most young adults include children because parenting is one of the most important needs and goals of adulthood. However, a certain number of couples, due to the inability to conceive, will need medical help to solve the problem of infertility (Boivin et al. 2007). Infertility is primarily a medical problem, but the psychological aspects are not negligible - infertility treatment can have significant consequences for both physical and mental health. In most infertile couples, in vitro fertilization (IVF) is seen as the last chance for pregnancy. Physical stress as a response to these treatments is related to the use of therapy, i.e., hormonal injections administered daily for several weeks, egg retrieval, and embryo transfer (Verhaak et al. 2004). Regarding the psychological aspect of this issue, attention is increasingly drawn both through practice and through scientific research to the psychological aspects of infertility and treatment of infertility. Thus, the emotional problems arising from infertility have been described as a crisis (Berghuis and Stanton 2002). Studies show that the stress experienced by infertile women is more intense than in men who have the same problem (Epstein and Rosenberg 2005; Wichman et al. 2011). In a study by Sundby et al. (2007), two in three women describe infertility as the worst and most stressful experience in life, while men approach this problem differently by describing it as something disappointing but not devastating (Greil et al. 1988). These results are not surprising given that infertility in women affects their experience of self and gender identity, i.e., it is accompanied by a feeling of inadequacy and emptiness because motherhood is an important part of a woman's identity and her social role (Greil et al. 2011). Compared to the control group, infertile women are more likely to experience higher levels of distress (Fekkes et al. 2003; Monga et al. 2004). The most common reactions to this type of distress are anger, guilt, low self–esteem, sexual dysfunction, shock (Burns 2007). After the review of research results and literature, De Berardis et al. (2014) concluded that 25 to 60% of people with infertility problems report psychiatric symptoms, with anxiety and depression being significantly higher in this group compared to fertile controls.

When considering psychological reactions to infertility, it should be kept in mind that infertility diagnosis and treatment is not a short–term process, i.e., there are many infertility treatment phases. Each of these phases has its specifics. Denial, sadness, fear, mistrust, and even hostility are common reactions to the infertility diagnosis (Pasch et al., 2002). Before starting the IVF treatment, most couples struggle with infertility for years (Mazure and Greenfeld 1989), which means that they are under chronic stress (Verhaak et al. 2004), in a highly uncontrollable situation. That is the reason why some authors (e.g., Domar et al. 1993) equate this stress with stress associated with other serious medical conditions like cancer. Research results show that most couples who start the IVF procedure are psychologically well adjusted (Anderheim et al. 2005; Edelmann et al. 1994; Newton et al. 1990). Moreover, it was determined that before the start of the IVF procedure, there is no difference in the level of negative emotions – anxiety and depression, between women who have and do not have this problem (Domar et al. 1993; Stanton et al. 1992). This may be due to the enthusiasm and high expectations of the treatment (Malina and Pooley 2017). However, immediately after starting the IVF

procedure, emotional problems appear in a certain number of people (Edelmann and Connolly 2000). Compared to men, women show a higher level of negative emotions during the entire course of the IVF treatment (Eugster and Vingerhoets 1999; Salvatore et al. 2001). Most couples claim that the phase of waiting for results after embryo transfer is the most stressful phase, one which usually lasts 14 days (Boivin and Lancastle 2010; Edelmann and Connolly 2000; Ying et al. 2015).

1.1. Protective factors in IVF treatment

The psychological response and adjustment to the IVF procedure are determined by both risk and protective factors (Rockliff et al. 2014). Some of the established protective factors are acceptance of the situation and optimism (Verhaak et al. 2005), social support (Martins et al. 2012; Verhaak et al. 2005), problem-focused coping (Hynes et al. 1992; Verhaak et al. 2004), secure attachment style (Lowyck et al. 2009). Social support is associated with lower levels of anxiety and depression (Lechner et al. 2007; Slade et al. 2007; Verhaak et al. 2005), as well as lower levels of infertility stress (Schmidt et al. 2005; Slade et al. 2007). The results of the study by Martins et al. (2011) indicate the importance of social support in helping women deal with infertility treatment. The authors investigated the importance of partner, family, and friend support, and each proved to be important for better adaptation to treatment. Examining social support in infertile women, Jestrović and Mihić (2020) pointed out that women who participated in this research singled out the received social support from their closest ones as very prominent. The most prominent is the support of a significant other, then family, and finally friends. A regression analysis singled out family and friends' support as significant predictors of reduced infertility stress, while the support of a significant other does not make a significant unique contribution to the prediction of infertility stress, regardless of the highest prevalence of this type of support.

One of the most important social support roles is to provide a "safe environment" that would allow a person to speak openly about their feelings and concerns (Zakowski et al. 2004), so it is clear why this factor is very important for psychological adjustment to infertility treatment. However, in their research, Mindes et al. (2003) found that it often happens that people who deal with an infertility problem receive infertility–specific unsupportive responses from their social environment, which are in a positive correlation with poor psychological adjustment at the time. Rooney and Domar (2018) claim that although the infertility problem is very common, many women who experience it do not share their stories with family members or friends, thus increasing their psychological vulnerability. The results of a qualitative study conducted by Ying et al. (2015) show that infertile couples receive social support, but that some of them are ambivalent about it. Namely, some respondents claim that they feel guilty about the support provided by their parents. Moreover, some respondents hide their problems from their friends and relatives to avoid unintentionally useless comments and the additional stress caused by them. Some even feel regret that they shared some information about the treatment with others. Schmidt et al. (2005) did not find a connection between stress and keeping infertility a secret in either women or men. Regarding social support, these authors distinguish two types of sharing information with others – sharing only formal information and opening up to others in terms of talking about both formal information and emotional reactions to infertility. The first strategy was shown to be associated with higher infertility stress

compared to the second strategy. Based on the results of their research, Wong et al. (2015) conclude that assessing perceived social support of people during infertility assessment and treatment is very important because it can help identify people who are at an increased risk of psychological distress.

Partnership and marriage can be considered another protective factor when it comes to psychological reaction and adjustment to the IVF treatment (Schmidt 2009). Studies show that the quality of marital relationships is important for happiness and well-being, as well as for frequent family and communication problems (Kohler 2005; Ren 1997; Bradbury et al. 2000). When it comes to infertile couples, it has been observed that there is significant variability in how they are affected by this problem and how it affects their relationship (Dunkel-Schetter and Lobel 1991, as cited in Pasch et al. 2002). Qualitative studies show that the infertility problem can strengthen a marriage and bring partners closer (Greil et al. 1988; Schmidt 1996, as cited in Schmidt 2006). According to the results of their study, Ying et al. (2015) conclude that infertile women emphasize the importance of sharing feelings with a partner and being supported by their partner for the subjective well-being and quality of the relationship. The results of the study by Holter et al. (2006) also show that couples undergoing IVF or ICSI report that treatment has had a positive effect on their relationship. Moreover, the divorce rate is lower in this group of respondents (17%) compared to the general population (around 25-30%) (Wischmann et al. 2012). However, the authors of some studies obtained to the opposite results. For example, some infertile couples experience sexual dysfunction, dissatisfaction in marriage, and social withdrawal (Lee and Sun 2000). It was found that these couples believe that both their marriage quality and marital satisfaction are at a lower level compared to couples who do not have infertility problems (Wright et al. 1991). It has also been shown that women, after being diagnosed with infertility and during treatment, rate their marital and sexual relationships more negatively than men (Newton et al. 1999; Monga et al. 2004). Wang et al. (2007) compared three groups of respondents – respondents undergoing the IVF treatment, respondents in the process of ICSI procedure, and fertile controls. The results show that the first two groups have a less stable marriage compared to the third. Šakotić-Kurbalija et al. (2018) came to results that indicate a lower degree of marital satisfaction and a lower degree of marital stability in infertile women compare to the control group (women who do not have fertility problems). However, the authors emphasize that both groups of women perceive their marital relationship as having good quality and as stable, so that when considering the differences obtained, there is no mention of dissatisfaction and instability. The impact of an infertility problem on a relationship is determined by certain factors. Thus, if partners differ from each other in terms of the desire to become parents, or it is a case of only male or only female sterility, this situation can lead to frequent conflicts and misunderstandings between partners (Kuivasaari-Pirinen 2013). Given that most studies emphasize the importance and contribution of social support and marital satisfaction for psychological adjustment to infertility and treatment of infertility, we wanted to examine the existence of possible differences in perceived social support, relationship satisfaction, and positive and negative affect between women who are undergoing IVF treatment and women who do not have fertility problems. Moreover, this research aims to examine whether perceived social support and relationship satisfaction are significant predictors of positive and negative affect in both groups of women.

2. METHOD

2.1. Sample

This study involved 163 women (mean age = 35.58; SD = 5.04) who were undergoing IVF treatment at the time of testing and 129 women (mean age = 34.37; SD = 4.94) who were in the control group (292 in total). The criteria for inclusion in the control group were as follows: that the woman has a child or children conceived naturally and that in the last six months she has not been exposed to a stress of greater intensity (e.g., loss of a loved one, diagnosis of a severe, chronic or fatal disease, job loss, etc.). The average duration of infertility treatment for the group of women undergoing the IVF procedure is 5.46 years (SD = 3.65). As for the reason for starting the IVF treatment, 15.9% of them state male infertility, 27.6% female infertility, 17.2% mentioned both male and female infertility, and 39.3% state that there is no medical reason or it is unknown. The average relationship duration in the (current) relationship for the group undergoing the IVF procedure is 9.26 years (SD = 4.61), while the average duration of the current relationships in the control group is 10.98 years (SD = 5.47).

2.2. Instruments

The Relationship Satisfaction Scale (RS Scale; Røysamb et al., 2014) is used to assess general (partner) relationship satisfaction. The scale consists of ten items, and the respondents are supposed to state the level of agreement with the statement on the six-point Likert scale. A higher score on the scale indicates a higher level of relationship satisfaction. Some of these items are: "I have a close relationship with my spouse/partner", "My partner is generally understanding", "I have been lucky in my choice of a partner". Cronbach's alpha coefficient of this scale in a subsample of women undergoing the IVF treatment is $\alpha = .82$, while for the control group it is $\alpha = .92$.

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al. 1988) is intended to assess perceived social support. It consists of 12 items divided into three subscales: family support, friend support, and significant other support, but the total score on the scale is also used. The respondent gives answers on a seven-point Likert scale expressing the level of agreement with an item. In this study, we used only the total score on the scale. The reliability of the scale for the group of women undergoing the IVF treatment is $\alpha = .93$, while the reliability of the scale in the control group is $\alpha = .91$.

The Serbian Inventory of Affect based on PANAS (SIAB–PANAS; Mihić et al., 2014) is a translation and adaptation of the Positive and Negative Affect Schedule – PANAS (Watson et al. 1988). This inventory is intended to assess positive and negative affectivity. It consists of 20 adjectives, which make up two subscales – one subscale measures positive and the other negative emotions. The respondents were asked to use the five-point Likert scale in order to describe how often they have experienced the described feeling in the last month. The reliability of the subscale of positive affectivity in a group of women undergoing the IVF treatment is $\alpha = .92$, while Cronbach's alpha coefficient of the subscale of negative affectivity on this subsample is $\alpha = .89$. The reliability of the positive affectivity subscale in the control group is $\alpha = .85$, while the reliability of the negative affectivity subscale is $\alpha = .90$.

2.3. Procedure and Statistical Data Analysis

Before assigning tests and questionnaires, all of the respondents signed informed consent, i.e., they were informed about the objectives of the research, the way the data are going to be used, data confidentiality, as well as their rights during the testing process (e.g., the possibility of withdrawing from the study), and agreed to participate in the research.

Women undergoing IVF treatment filled in the questionnaires at the "Spebo Medical" Special Hospital for Infertility Treatment in Leskovac (N = 68) and online (N = 95) using the website of the Chance for Parenthood association [Šansa za roditeljstvo]. The control group also filled out questionnaires online on the Facebook page Chat for Moms from Nis [Ćaskalište za mame iz Niša].

This research study was approved by the Ethics Committee of the Department of Psychology at the Faculty of Philosophy in Nis.

The SPSS package was used for data analysis. In order to examine differences between the groups in the level of perceived social support, relationship satisfaction and positive and negative affect, the Student's t-test was used. Pearson's correlation coefficient was used to identify the correlation between the variables. A linear regression analysis (Enter method) was used to examine the contribution of predictors (Perceived social support and Relationship satisfaction) in the prediction of criteria (Positive and Negative Affect).

3. RESULTS

3.1. Descriptive statistics

Table 1 Descriptive measures

Variables		*M*	*SD*	*Min*	*Max*	*Sk*	*Ku*
Perceived social support	IVF group	66.63	14.01	20	80	-.90	.53
	Control group	69.12	12.41	23	84	-1.27	2.11
Relationship satisfaction	IVF group	50.79	9.02	18	60	-1.18	1.15
	Control group	49.22	10.61	10	60	-1.64	2.77
Positive affect	IVF group	34.86	7.75	11	50	-.30	-.33
	Control group	36.47	6.01	16	49	-.72	.73
Negative affect	IVF group	25.90	7.71	12	49	.49	-.15
	Control group	22.16	7.75	10	46	.85	.52

Note: M = mean value, *SD* = standard deviation,
Min = minimum, *Max* = maximum, *Sk* = Skewness, *Ku* = Kurtosis

3.2. Differences between groups in the examined variables

After studying the differences in the examined variables between the groups, the results have shown statistically significant differences in Negative affect, which is more pronounced in women undergoing IVF treatment. When it comes to Positive affect, women in the control group have higher scores, but the identified difference is near the level of statistical significance ($p = .053$). Thus, the results show that Negative affect is more pronounced in women undergoing IVF treatment, while there is a trend of more frequent experience of Positive affect in the control group. Differences in Perceived social support and Relationship satisfaction between the surveyed groups were not found.

Table 2 Differences in the examined variables between the women undergoing the IVF treatment and the control group (Student t test)

Variables		*N*	*M*	*SD*	*df*	*t*	*p*	*d*
Perceived social support	IVF group	163	66.63	14.01	290	-1.59	.114	
	Control group	129	69.12	12.41				
Relationship satisfaction	IVF group	163	50.79	9.02	290	1.36	.175	
	Control group	129	49.22	10.61				
Positive affect	IVF group	163	34.86	7.75	290	-1.94	.053	.23
	Control group	129	36.47	6.01				
Negative affect	IVF group	163	25.90	7.71	289	4.09	.000	.48
	Control group	129	22.16	7.75				

Note: N = number of subjects, *M* = mean value, *SD* = standard deviation, *t* = Student's t test, *p* = statistical significance, *d* = effect size

3.3. Regression analysis

Before performing the regression analysis, the correlation between the variables was examined. The results of the correlation analysis are shown in Table 3.

Table 3 Correlation between variables in both groups of women (Pearson's correlation coefficient)

	IVF group				Control group			
Variables	1	2	3	4	1	2	3	4
1. Perceived social support	–				–			
2. Relationship satisfaction	.28**	–			.48**	–		
3. Positive affect	.34**	.27**	–		.26**	.23**	–	
4. Negative affect	-.26**	-.28**	-.44**	–	-.33**	-.33**	-.51**	–

Note: ** The mean difference is significant at the .01 level.

The results shown in Table 3 indicate that there are statistically significant correlations between all examined variables for both groups.

Table 4 Multiple regression analysis: Perceived social support and Relationship satisfaction as predictors of Positive affect (Enter procedure)

	IVF group			Control group		
Predictors	β	*p*	Model summary	β	*p*	Model summary
Perceived social support	.308	.000	R = .402	.194	.152	R = .288
			R^2= .162			R^2 = .083
Relationship satisfaction	.188	.016	$F(2, 161)$ = 14.776	.140	.047	$F(2, 128)$= 5.719
			p = .000			p = .004

Note: R = multiple correlation coefficient, R^2 = multiple correlation coefficient of determination, F = F statistic, p = statistical significance, β = regression coefficient.

The results of the regression analysis shown in Table 4 indicate that in the group of women undergoing the IVF treatment, both Perceived social support and Relationship

satisfaction represent statistically significant predictors of Positive affect, with Perceived social support making a greater partial contribution to criterion prediction. The results show that the model explains 16% of the variance of the criteria. In regards to the control group, in this case Relationship satisfaction stands out as a significant predictor of Positive affect, with the model explaining only 8% of the variance of the criteria.

Table 5 Multiple regression analysis: Perceived social support and Relationship satisfaction as predictors of Negative affect (Enter procedure)

	IVF group			Control group		
Predictors	β	*p*	Model summary	β	*p*	Model summary
Perceived social support	-.211	.008	R = .350	-.219	.020	R = .386
			R^2 = .122			R^2 = .149
Relationship satisfaction	-.226	.005	F(2, 161) = 10.718	-.230	.015	F(2, 128)= 11.050
			p = .000			p = .000

Note: R = multiple correlation coefficient, R^2 = multiple correlation coefficient of determination, F = F statistic, p = statistical significance, β = regression coefficient.

As seen from Table 5, in the subsample of women undergoing the IVF treatment, Perceived social support and Relationship satisfaction are significant predictors of Negative affect. The model explains 12% of the variance of the criteria. Similar results were obtained in the control group as well. Perceived social support and Relationship satisfaction have been shown to be significant predictors of Negative affect here as well, with the model explaining 14.9% of the variance of the criteria. The individual contributions of the predictors (β) are similar in both subsamples and are in a negative correlation with the criterion.

4. DISCUSSION

Infertility is primarily a medical problem, which in some cases has considerable psychological consequences with the characteristics of a life crisis (Berghuis and Stanton, 2002). For that reason, it is very important to identify factors that would to some extent "determine" psychological adjustment to infertility. With this in mind, in this study, we examined the differences in perceived social support, relationship satisfaction, positive and negative affect between women who were undergoing IVF treatment at the time of testing, and women who did not have fertility problems. Moreover, the contribution of perceived social support and relationship satisfaction in predicting positive and negative affect in both groups included in this research was examined.

Comparing the group of women undergoing the IVF treatment and the control group, no differences were found in the level of perceived social support and relationship satisfaction. There is a statistically significant difference regarding Negative affect, which is more pronounces in the group of women undergoing the IVF treatment. The result obtained was expected given the results of previous studies. When considering the difference obtained, it should be borne in mind that women who participated in this study and who have an infertility problem were treated for infertility for 5.46 years on average, which is a fairly long period of exposure to stress. Moreover, it is important to point out that all women at the time of testing were undergoing the IVF treatment. Before

beginning the IVF procedure, most couples treat infertility for years, with IVF being their last chance to have children (Mazure and Greenfeld 1989; Verhaak et al. 2004). Infertility stress is therefore compared to the long-term stress that accompanies a chronic illness (Domar et al. 1993). Furthermore, the results of research by Edelmann and Connelly (2000) show that emotional problems occur immediately after starting the IVF procedure. Given all the above, it is not surprising that the difference was observed between the studied groups. Finally, if we look at the SIAB–PANAS items and scores (Mihić et al. 2014), we can say that women undergoing the IVF treatment compared to the control group more often feel upset, afraid, hostile, ashamed, nervous, distressed, etc. which is also congruent with previous studies (Burns 2007; Fekkes et al. 2003; Monga et al. 2004). Therefore, it could be said that the obtained results suggest that the IVF treatment may be the reason for the more frequent occurrence of negative emotions.

When it comes to positive affect, the results obtained indicate that there is a difference between these two groups. However, from the aspect of the findings that are near the level of statistical significance ($p = .053$), and due to the small difference in effect size ($d = .23$) in relation to positive affectivity, we can talk about the trend of more frequent experience of positive emotions (enthusiasm, pride, focus, interest, etc.) in the control group. Given that more pronounced differences were expected between the examined groups, this result is encouraging because it supports the fact that the IVF treatment does not necessarily lead to a predominant negative affect and that women who undergo this procedure do manage to find a source of positive emotions in other areas of life. Studies show that during intensely stressful experiences, both positive and negative emotions occur at the same time, i.e., that stressful events can also be associated with positive emotions. Positive and negative emotions are independent, that is, they do not exclude one another (Folkman 2008; Larsen and McGraw 2011). Moreover, it has been shown that in the case of patients suffering from chronic diseases (HIV, cancer, heart failure) that involve a constant threat to health and life, positive emotions can play a significant adaptive role (according to Kroemeke 2016). In this regard, we reiterate the statement made by Domar et al. (1993) that the stress caused by infertility diagnosis and treatment can be equated with the stress that accompanies a chronic disease. Thus, it can be said that the results obtained are consistent with the results of previous studies, which indicate that when experiencing a stressful event people can experience both positive and negative emotions. These results are also encouraging given the adaptive role of positive emotions in highly stressful situations.

Guided by the idea of the importance of identifying some protective factors, from the aspect of psychological adjustment to infertility, we examined the contribution of perceived social support and relationship satisfaction in predicting positive and negative affect in both groups of women included in this study. The results show that in the group of women undergoing the IVF treatment, perceived social support and relationship satisfaction are significant predictors of positive affect and that the model explains 16% of the criteria variance. Perceived social support makes a slightly larger independent contribution to the prediction of the criteria. The results are congruent with the results of previous studies on the importance of these factors for psychological adjustment to infertility (e.g., Martins et al. 2012; Verhaak et al. 2005; Ying et al. 2015). However, it is more important to compare these results with the results obtained for the control group. Namely, the results show that perceived social support is not a significant predictor of positive affect. However, relationship satisfaction is a significant predictor, but at the very borderline of statistical significance. The model explains only 8% of the variance. In this group, perceived social support and

relationship satisfaction are not particularly important for experiencing positive emotions. This group of women may find sources of positive affect in some other areas of life. It should be kept in mind that the control group has a more pronounced positive affect and that the criterion for being in the control group is the absence of higher levels of stress in the last six months (while respondents undergoing the IVF treatment are currently exposed to intense stress). This indicates that the result obtained was expected, but more importantly, it indicates the importance of social support and relationship satisfaction for the emotional status of infertile women during the IVF procedure.

When it comes to negative affect, perceived social support and relationship satisfaction are significant predictors of negative affect in women undergoing IVF. The model explains 12% of the criteria variance, with the predictors negatively correlating with the criterion. The obtained results are congruent with the results of previous studies (Lechner et al. 2007; Slade et al. 2007; Varhaak et al. 2005). Similar results were obtained in the control group as well. Here, too, perceived social support and relationship satisfaction are significant predictors of negative affect, which make a negative correlation with the criterion. The model explains 14.9% of the variance of the criteria. The results obtained suggest that social support and satisfaction with partner relationship in women are seen as protective factors, which play a role in reducing negative affect regardless of the situation.

After reviewing the results obtained in connection with the partner relationship, we can say that the findings are in line with the results of previous studies on the importance of the quality of marital relations for happiness and well-being (Kohler et al. 2005; Ren 1997; Bradbury et al. 2000). Social support has proven to be very important for the emotional status of women undergoing IVF treatment. The importance of social support is noted by Wong et al. (2015) in the sense that a perceived level of social support can be a significant indicator of the increased risk of psychological distress during infertility assessment and treatment. In the control group, social support does not contribute to positive affect but contributes to the reduction of negative affect, which may indicate a specific effect of social support in this group of women.

5. Conclusion and Limitations

It is necessary to verify these results on a larger sample, which would include respondents of both genders, with the analysis of a larger number of variables that could represent significant factors for psychological adjustment to infertility and infertility treatment. The low number of predictors of the emotional status of the respondents included in this research represents its greatest limitation.

The results obtained represent important guidelines for experts whose field of expertise is psychological counseling and psychotherapy for people with infertility problems. Efforts on improving a relationship and social support networks could be one of the goals of psychological treatment, with the purpose of preserving mental health in situations highly challenging for the adaptive capacities of most people.

Acknowledgement: *We would like to thank the Special Hospital for the Treatment of Infertility in Leskovac "Spebo Medical" and the Association "Chance for Parenthood" for their help in conducting this research.*

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SOCIJALNA PODRŠKA I ZADOVOLJSTVO PARTNERSKIM ODNOSOM KAO PREDIKTORI POZITIVNOG I NEGATIVNOG AFEKTA KOD ŽENA TOKOM VTO TRETMANA

Neplodnost predstavlja medicinski problem, koji može imati značajne posledice po mentalno zdravlje. Emocionalni problemi nastali kao posledica neplodnosti su veoma česta pojava, pa se neplodnost može nazvati životnom krizom. Iz tog razloga veoma je značajno identifikovati zaštitne faktore i faktore rizika koji bi odredili psihološko prilagođavanje na neplodnost. Cilj ovog istraživanja jeste ispitati postojanje razlika u percipiranoj socijalnoj podršci, zadovoljstvu partnerskim odnosom i pozitivnom i negativnom afektu između žena koje su u VTO postupku i žena koje nemaju ovu vrstu problema. Takođe, istraživanje je imalo za cilj da ispita da li su percipirana socijalna podrška i zadovoljstvo partnerskim odnosom značajni prediktori pozitivnog i negativnog afekta u obe grupe ispitanica. U istraživanju su učestvovale 292 žene – 163 žene koje su u trenutku testiranja bile uključene u VTO tretman i 129 žena bez problema sa plodnošću, koje su činile kontrolnu grupu. Korišćeni su sledeći instrumenti: Multidimenzionalna skala percipirane socijalne podrške, Skala zadovoljstva partnerskim odnosom i Srpski inventar afekta baziran na PANAS. Rezultati pokazuju da statistički značajne razlike između ispitivanih grupa postoje u izraženosti negativnog afekta, koji je izraženiji u grupi žena u VTO postupku. Kada je reč o pozitivnom afektu uočava se postojanje trenda učestalijeg prisustva pozitivnih emocija kod ispitanica iz kontrolne grupe. U grupi žena u VTO postupku percipirana socijalna podrška i zadovoljstvo partnerskim

odnosom predstavljaju značajne prediktore kako pozitivnog tako i negativnog afekta. U kontrolnoj grupi rezultati regresione analize pokazuju da su percipirana socijalna podrška i zadovoljstvo partnerskim odnosom značajni prediktori negativnog afekta, dok se u slučaju pozitivnog afekta kao značajan prediktor izdvaja zadovoljstvo partnerskim odnosom. Rezultati ukazuju da percipirana socijalna podrška i zadovoljstvo partnerskim odnosom mogu biti značajni zaštitni faktori kada je u pitanju psihološka adaptacija na neplodnost, što može poslužiti kao smernica u radu stručnjaka u oblasti mentalnog zdravlja, koji rade sa parovima sa ovim problemom.

Ključne reči: *neplodnost, VTO tretman, socijalna podrška, zadovoljstvo partnerskim odnosom, pozitivni i negativni afekt.*

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 137 - 148
https://doi.org/10.22190/FUPSPH2102137J

Review Paper

LIVED EXPERIENCES OF WOMAN IN RELATION TO INFERTILITY – A REVIEW OF THE QUALITATIVE RESEARCH

UDC 159.942:612.663

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Abstract. *In this article, we have analyzed the experiences of women with infertility. We were interested in what we can learn about their feelings, thoughts and problems by analyzing the results obtained in qualitative research. We analyzed 10 qualitative studies dealing with infertile women. Using the thematic analysis, we identified seven core themes: Motherhood, Stories of Infertility, All Colors of Feelings, Changes in Identity, Complexity of Partnership, Social Environment (Social Support), Coping Strategies. Each selected core theme includes a number of subthemes. The article explains in detail each selected theme, and their justification is supported by appropriate quotations.*

Key words: *experience, infertility, qualitative research, women.*

1. INTRODUCTION

Infertility is most often defined from the domain of medical discourse. The definition defined by World Health Organization is that infertility is the inability of a sexually active, non-contracepting couple to achieve pregnancy in one year (WHO 2020). Medical reasons that are often associated with female infertility include problems with ovulation, obstruction of the fallopian tubes, or abnormal physical characteristics of the uterus (CDC 2020). Hence, the treatment of infertility problems is primarily associated with medical intervention, the use of drugs, or assisted reproductive technologies (ART) such as in vitro fertilization (IVF). From the domain biopsychosocial theory, infertility is determined as both an acute life crisis and a nonevent with long-term complications for the individual, his or her partner, their relationship, and family and friends. The stressors of infertility occur in existential, physical, emotional, and interpersonal realms and may be beyond the average person's usual coping abilities (Gerrity 2001). Regardless of how infertility is defined and whatever the underlying assumptions of the definition are, there

Received September 29, 2020 / Accepted November 30, 2020
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is a consensus in the literature that infertility is stigmatizing (Blyth & Moore 2001) and that it is one of the most distressing life crises for most people who experience it (Fekkes et al. 2003). For an infertile woman, infertility is inextricably bound with feelings of loss, dysfunction, and shame, and infertile women note the social insensitivity of people who pry, question, and assume biological reproduction is a natural, normative, and even necessary adulthood transition (Abbey, Andrews, & Halman 1991; Mindes, Ingram, Kliewer, & James 2003).

Traditionally, in the social sciences, infertility is studied by a quantitative approach. This approach relies on standard instruments and designs and the first studies were conducted at IVF clinics among clinical patients 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). Although such quantification significantly contributes to the understanding of the problem of infertility, it does not access the subjective experience of a woman's infertility. Qualitative work does offer us a way in to understanding the "lived experience" of infertility. Qualitative research can offer "broader and deeper understandings of how men as well as women experience and live with infertility over both the short- and long-term" (Culley, Hudson, & Hohan 2013, 225). The article takes qualitative research as the focus, shifting away from the quantitative focused work. In the subsequent sections of this article, we will explore the current (limited) knowledge about what we do know about women's experiences of infertility based on qualitative research.

2. METHOD

To achieve the goals presented in this article, the researchers had to make a decision on the selection of qualitative studies to analyze, given that it is impossible (and unnecessary) to analyze all qualitative studies on the experiences of women with infertility. The authors chose to analyze the studies from the Saga database, since it includes many relevant journals in the field of social sciences. In order to find the appropriate studies, the following keywords were used to search the database: woman, infertility, experience, qualitative research. With such a search, we came to 10 qualitative studies whose contents can contribute to answering the question of this review article[1]. An overview of the studies is given in Table 1.

All of the studies are in English and have been published in the last 20 years. Studies have been conducted in the USA, Canada, Turkey, Australia, New Zealand, New England, South Africa and Cameroon. In eight studies, the method of data collection was an interview with women who struggled with infertility. The number of interviews ranged from 5 to 50. In two studies, material was collected by searching an online forum on infertility, where posts were left by women, or women and men. The number of analyzed posts was 26 in one study and 438 in another.

[1]The authors are aware that the Sage database contains more studies with the same topic, but they limited themselves to the analysis of 10 studies.

Table 1 Study characteristics

Reference	Sample size, data collection	Method of analysis, and country of research
McBain, D. T & P. Reeves. "Women's Experience of Infertility and Disenfranchised Grief". *The Family Journal: Counseling and Therapy for Couples and Families* 27, 2 (2019): 156–66.	n= 8, interview	Interpretative phenomenology analysis, USA
Mete, S., S. Fata, & M. AluşTokat. "Feelings, Opinions and Experiences of Turkish Women with Infertility: A Qualitative Study". *Health Informatics Journal* 26, 1 (2020): 528–538	The writings of 26 women on Internet forums	Content analysis, Turkey
Ceballo, R., T. E. Graham, & J. Hart. "Silent and Infertile: An Intersectional Analysis of the Experiences of Socioeconomically Diverse African American Women with Infertility". *Psychology of Women Quarterly* 39, 4 (2015): 497–511.	n=50, interview	Grounded theory, USA
Parry, C. D. "Understanding Women's Lived Experiences with Infertility: Five Short Stories". *Qualitative Inquiry* 10, 6 (2004): 909–922.	n=32, interview	A collaborative approach, North America, Canada
Bell, K. "Constructions of 'Infertility' and Some Lived Experiences of Involuntary Childlessness". *Affilia: Journal of Women and Social Work* 28, 3 (2013): 284–295.	n=28, in-depth interview	Phenomenological, feminist, grounded theory approach, Australia
Ferland, P., & L. S. Caron. "Exploring the Long-term Impact of Female Infertility: A Qualitative Analysis of Interviews with Postmenopausal Women who Remained Childless". *The Family Journal: Counseling and Therapy for Couples and Families* 21, 2 (2013): 180–188.	n=12, interview	Exploratory study including coding and categorizing processes, New England
Ulrich, M., & A. Weatherall. "Motherhood and Infertility: Viewing Motherhood through the Lens of Infertility". *Feminism & Psychology* 10, 3 (2000): 323–336.	n=19, interview	Feminist discourse analysis, New Zealand
Weinger, S. "'Infertile' Cameroonian Women Social Marginalization and Coping Strategies". *Qualitative Social Work* 8, 1(2009): 45–64.	n=5, interview	Inductive analysis of the data (search for themes), Cameroon
Steuber, R. K. & H. D. Solomon. "Relational Uncertainty, Partner Interference, and Infertility: A Qualitative Study of Discourse within Online Forums". *Journal of Social and Personal Relationships* 25, 5(2008): 831–855.	Online discu-ssion board strings and blogs (N = 438), each entry on a string or blog was considered one unit of analysis	Thematic analysis, USA
Fernandes, P., M. Papaikonomou, & J. M. Nieuwoudt. "Women suffering through their Bodies". *South African Journal of Psychology* 36, 4 (2006): 851–879.	n=6, interview	Process of inductive analysis was used to 'make sense' of the data in order to uncover and make explicit 'embedded information', South Africa

Interpretative phenomenology analysis, feminist discourse analysis, thematic analysis, content analysis, collaborative approach and grounded theory were used as method of analysis. Three of the studies provided limited methodological details but it is clear that the authors conducted inductive analysis of the data in order to identify themes and categories.

The method of analysis of selected studies was thematic analysis (Braun,& Clarke 2006; Wilig 2013). The included studies were closely reviewed with the goal of identifying core themes and subthemes. The thematic approach was focused on drawing out what the articles reported about a woman's experiences of infertility. The first author carried out inductive coding of data using the MAXQDA program. By analyzing the selected codes, connecting them, core themes and subthemes are formed. The initial set of themes were then checked by the second author − following a discussion, the authors agreed on the final themes to be presented.

3. RESULTS

The core themes and subthemes will be presented in the results overview. The core themes that were generated during the review of the literature include: Motherhood, Stories of infertility, All the colors of feeling, Identity changes, The complexity of the partnership, The social environment (social support), and Coping strategies. Each of these seven core themes also contains a number of subthemes.

3.1. Motherhood

The story of motherhood is an inseparable part of the story of infertility. In the analyzed studies, the participants spoke about motherhood from different angles and several themes related to motherhood could be identified: Explanations of the desire for children, To be a woman is to be a mother, and The obsession with motherhood.

Explanations of the desire for children − Participants understand the desire for a child and the desire to be realized in the role of a mother in different ways. Some of them see motherhood as a 'natural instinct'. They believe that the desire for a child is biologically determined and that it is the very essence of every woman. There is also an understanding that motherhood is a stage in the development of a relationship. In fact, the birth of a child is perceived as an expression of love between two people who are in a partnership and represents the final phase in its development − the symbolic coronation of the partnership. Also, the desire for a child is associated with a social expectation. It has often been argued that the socialization of girls contributed to women's expectation of motherhood (Ulrich & Weatherall 2000). In addition to the above-mentioned, there is an understanding that motherhood and the desire for a child is the result of a conscious choice that a woman makes at a certain stage of her life. When making a decision to have a child, women also assess their age, financial position and relationship stability and based on that decide when the right time for having a child would be (Bell 2013; Ulrich & Weatherall 2000).

To be a woman is to be a mother – The message that womanhood equals motherhood is pervasive in modern societies and is internalized by many women. The understanding that motherhood is an indispensable part of a woman's identity is highly present in women's narratives. Many women identified that becoming a mother isvery important to them, fora social, psychological and physical sense of adequacy and completeness (Ferland & Caron

2013; Ulrich & Weatherall 2000). With such an understanding, women who struggle with infertility identified themselves as incomplete women, they subsequently viewed themselves as flawed and deficient in fundamental ways. *Emotionally, I felt that I was not complete, because I had not had a child. I didn't feel like I was a complete woman* (Ceballo, Graham & Hart 2015, 502). The data show that the motherhood mandate appeared to operate independently from women's educational attainment, from their decisions to pursue medical treatments, and from their current status as someone trying or not trying to get pregnant (Ceballo et al. 2015).

The obsession with motherhood – having in mind the high positioning of the social expectation that a woman should be realized in the role of a mother and that infertility deeply affects a woman's experience of herself, it is not surprising that they have a great commitment to the goal of having a child. Many women noted that infertility treatment felt like a second "job" for them – it required changes in their daily routine to accommodate the appointments, it involved physical changes due to medicine, it required planning for treatments, and it caused absences from work (Steuber & Solomon 2008). Women spend hours searching the Internet, buying books in search of useful tips and alternatives available to them. *Making babies — it's the first thing I think of every morning* (Parry 2004, 909). In addition to this, the focus on getting pregnant also leads to a kind of control over one's own body. In order to increase the chances of getting pregnant, women look for fertility signs (e.g. the appearance of certain vaginal secretions, body temperature) and thus keep their body under constant surveillance.

3.2. Stories of infertility

Knowing that she cannot get pregnant is a kind of loss for every woman. The specificity of this loss is that it is invisible to other people and often the environment is not aware of how many people suffer due to this problem. Women who struggle with infertility feel sad and regret all the things they will not experience: getting pregnant, giving birth, raising children, being a grandmother... (McBain & Reeves 2019). The theme Stories of infertility includes the most direct stories about women experiencing infertility, their reactions to the knowledge of their infertility, their understanding of the reasons for the infertility.

Reaction to the knowledge of infertility – Confirmed infertility destroys any hope of becoming parents. It is like having a door close on their dream of becoming pregnant or a parent. Along with hopelessness, the question arises – Why me? Women try to understand why this happened to them, what they deserved, what they did wrong, so they are deprived of having children (Ferland & Caron 2013). They perceive infertility as a punishment, and they do not know how they deserved it.

Constructions of infertility – words, metaphors, stylistic figures that women use to describe infertility say a lot about the very experience of infertility. In the analyzed studies, we found several constructions of infertility that significantly contribute to our understanding of the experience of infertility.

Infertility as an unanticipated disruption in the expected course of their lives. Women who wanted to have children planned to dedicate a part of their lives to children, their upbringing and they were looking forward to the changes that the birth of a child can bring. Infertility prevents this expected sequence of events, forcing them to follow a different path and go in a direction which some women described as 'scary' and 'uncertain' (Ulrich & Weatherall 2000).

Infertility as an experience of death. Coping with infertility is described by women as coping with the knowledge of the death of a close person, or even the death of an unborn child (Ferland & Caron 2013; Ulrich & Weatherall 2000). *Finding out I was infertile was almost as difficult as when my brother got killed in a car accident, For me it was like experiencing the death of a child I never had"* (Ferland & Caron 2013, 186). Comparing infertility with death emphasizes the pain and sorrow that the knowledge of one's infertility brings to a woman.

Infertility as pain that never went away. Women said that being infertile and never having the opportunity to raise their own child was a pain that never went away. This is evidenced by the comment of a woman who is in menopause. She experiences feelings of loss again. *I thought I had gotten over it years ago, but when I went through menopause, it was like all those feelings came back – it signaled the end of hope… I did not realize how in the back of my mind I still had hope – after all these years* (Ferland & Caron 2013, 186).

Reasons for infertility – on the way to accepting infertility, women inevitably think about the possible reasons that led to that. As possible reasons, women cite biological problems (e.g.their uterus was small, a low sperm count, the infrequency of menses at a young age), intake of alcohol, negating the drug's possible effectiveness, or uncooperative partners: *My husband was insensitive and didn't take me to the hospital. I didn't go to the hospital myself because I was under his rule* (Weinger 2009, 53). Also, there are women who perceive infertility as God's Plan and have no choice but to accept such a fate (Weinger 2009; Ferland & Caron 2013).

3.3. All the colors of feelings

The struggle for offspring is a personal and often traumatic experience for women. It can be colored by different emotions. The term found in the literature to describe the feelings associated with the experience of infertility, and which fully corresponds to the data analyzed in this study, is an emotional roller coaster.

The emotional roller coaster is associated with feelings that change during the menstrual cycle. At the beginning of the cycle, there is hope that conception will occur. It is accompanied by anxiety while waiting for the first signs of conception or menstruation. The onset of menstruation is experienced as a failure followed by pain, sadness, anger. With entry into the new cycle, hope reappears (Bell 2013; Mete, Fata & AluşTokat 2020; Parry 2004*). I felt like I was on an emotional roller coaster. I started out each month full of hope, then I would crash down and then start all over again* (Parry 2004, 913). In the analyzed studies, women spoke separately about certain emotions.

Anger can be directed towards oneself, close relatives, friends who are pregnant, partners who are fertile, the world, and even God (Fernandes, Papaikonomou & Nieuwoudt 2006; Mete et al. 2020). Many described feeling angry and upset if they witnessed negative behavior toward children, such as verbal abuse, physical punishment, or perceived neglect, and at women who chose abortion (Bell 2013; Fernandes et al. 2006).

Hypersensitivity. Because of this negative experience women can become hypersensitive and tend to cry more often. Crying can be triggered by countless situations, starting with a movie, a sad story they heard until they found out that a woman they know has become pregnant. *If I hear about someone conceiving, it upsets me for days – even if I'm at work, if I hear about someone who is pregnant, I have to try really hard not to cry* (Parry 2004, 918).

Jealousy. Women who struggle with infertility talk about jealousy towards women who are pregnant or have children. Jealousy is accompanied by a feeling of injustice

because some women have more children, and they have none. *I found out today my friend Heidi is pregnant. I wanted to be happy for her, and normally I would be, but today I felt a little uncomfortable. Actually, I think I was secretly a little jealous because David and I have been trying with no luck* (Parry 2004, 916).

Blame. Because pregnancy is visibly located in women's bodies, women may be more likely than men to feel ashamed and to blame themselves for infertility (Ceballo, Graham & Hart 2015; Ferland & Caron 2013). Also, blame was more likely to be experienced by people who had been coping with infertility for a long time. Some individuals cast blame on their partner, especially if it was perceived that the reason for the infertility was something within their control (e.g., a previous vasectomy, poor health habits), whereas others who were medically responsible for the infertility felt guilt or self-blame when they witnessed their partners suffering due to their inability to reproduction (Steuber & Solomon 2008).

The *grief* that women feel is specific because of its cyclical nature. It follows every failed attempt to conceive, of which the symbolic expression is the onset of menstruation. The ongoing grief and ambiguity that the women experienced made it difficult for them to find a sense of peace and heal while they were actively trying to conceive. Another specificity of grief is reflected in the fact that it is related outwardly to the invisible loss for which there are no social rituals or customs that will help in the grieving process. The grief of an infertile woman does not fit within the traditional societal norms of grieving, thus inhibiting their ability to publicly mourn their loss (McBain & Reeves 2019).

3.4. Identity changes

The experience of infertility deeply affects and changes every woman. Her world, thoughts, beliefs, desires change in such a way that the individual is unable to remain the same. Under the influence of intense and negative emotions that occur in the process of grief, a woman may see herself as worthless, 'defective', and unable to control her life in terms of her physical and emotional capabilities (Fernandes et al. 2006). Also, she may feel worthless and perceive others as pitying or even mocking her (Mete et al. 2020). Belief that infertility is a woman's problem can often be heard in women's narratives. No matter what the cause of infertility, a woman may feel that it is her fault and that it was not "natural" for a woman not to be able to become pregnant naturally (Bell 2013; Mete et al. 2020). Both partners may have difficulty accepting the identity of the biological non-parent and acceptance of infertility marks an important point in this couple's relationship. On the infertility forums, a collectivist orientation is a frequent occurrence and some people use it when discussing their infertility journey. Many bloggers adopted a "we" approach to narrating their stories. The We approach or Our history emphasizes the connection of partners and their closeness in the fight against infertility (Steuber & Solomon 2008). In addition to the negative experience of themselves, there are women who point out that they do not want to be identified with an infertile woman, whose meaning often implies a negative connotation (e.g. a 'poor woman' who can't have children, somehow faulty, deviant, or pitiable). They show agency and resistance to the notion that womanhood – or femininity – hinges on motherhood (Bell 2013).

3.5. The complexity of the partnership

No matter what leads to problems in conception, it becomes a problem for both partners. The changes that occur in the partnership are complex and in the analysis of selected articles

they are grouped into three subtopics: Emotional relationship and partner support, Relational uncertainty, and The change in the partners' sex lives.

Emotional relationship and partner support. The experience of infertility affects the partnership and can contribute to both distance and grater connection of the partner. Some women imposed hiding feelings and distance in their relationships with their spouses and partners, because they feel that the experience of infertility is not equally painful for them (Ceballo et al. 2015; Mete et al. 2020). Also, some woman describe that the experience of infertility only strengthened their partnership. *My husband and I are closer now and actually closer than most couples we know – we only have each other* (Ferland & Caron 2013, 186). Women emphasize the importance of spousal support (McBain & Reeves 2019) but often do not receive it. Instrumental support issues were often coupled with emotional support deficiencies, such that partners felt that compassion, empathy, or companionship were lacking (Steuber & Solomon 2008). *It was a cycle of peaks and valleys, and I felt like I was going through it alone* (Parry 2004, 913).

Relational uncertainty. The dynamics and stability of a partnership can often be disrupted when partners struggle with infertility. The reasons for partner instability can be numerous. Doubts about the relationship emerge when partners are differently invested in infertility treatments. Some women can feel the frustration when their partners did too little of the work involved in the fertility treatment. Also, relational uncertainty was especially prevalent among those partners who were the source of infertility and blaming themselves for the infertility they brought into the partnership. When partners reach the decision to stop trying to conceive independently or at different times, those differences might seriously undermine the relationship (Steuber & Solomon 2008)

The change in the partners' sex lives – because there is high focus on achieving conception, sex between partners becomes more of an obligation and a means to an end, rather than an expression of love and intimacy. Many women found that sex became "routine", "mechanical" or "almost like a scheduled event" (Steuber & Solomon 2008, 844). Because sexual intercourse is often task-oriented and under pressure, their desire and ability to enjoy sex also decreases (Ferland & Caron 2013).

3.6. Social environment (social support)

Social support that comes from family members, closest relatives, and friends can significantly help women cope with the feelings that accompany the experience of infertility. However, the experiences of women with social support are different. There are women who talk about positive reactions from friends and family members (Bell 2013), but also those who have distanced themselves from close friends due to a lack of adequate support. They felt like no one really understood what they were going through (Fernandes et al. 2006; McBain & Reeves 2019). Many women state that they find the most support and understanding in people who are struggling with the same problem, whether it is other couples who are struggling with infertility or support groups for infertile women. *We met another couple (Lola and Brian) struggling with the exact same problems. It was just so wonderful to be able to talk for hours about the problems without people getting tired of hearing about it* (Parry 2004, 918). This core themes include two subthemes − Negative reactions of the environment and Reaction to the environment.

Negative reactions of the environment include those behaviors that come from family members and friends, and that were in some way hurtful to women.

Hurtful comments or solutions refer to inappropriate and insensitive comments and suggestions that made women feel bad (Bell 2013; Ferland & Caron 2013; McBain, Reeves 2019; Parry 2004). *My family hasn't been so great − some of their comments (just relax and have fun trying or it takes everyone a little while, don't worry, you'll conceive) have really hurt my feelings* (Parry 2004, 916).

Being excluded or ignored. Many women felt isolated and separated from the world, their community, family, and friends at a time when they most needed to be supported (Ferland & Caron 2013; McBain & Reeves 2019; Weinger 2009; Fernandes et al. 2006). *No one ever included me in things because I didn't have kids* (Ferland & Caron 2013, 185). Some of them talk about friends who invited only those with biological children to their child's birthday party (Weinger 2009).

Different status at work. The experience of some women was that they were treated differently at work because they did not have children. They did not have the same privileges as women with children or stayed at work longer than them. *It is as if they can use me at any time of day* (Weinger 2009, 56).

Reaction to the environment refers to the ways in which women have reacted to inappropriate comments or behavior from people in their environment.

Silence and isolation. The majority of women described silence and isolation as the defining features of their relationships with other people (Ceballo et al. 2015; Mete et al. 2020; Parry 2004; Weinger 2009). They described experiencing extreme loneliness and identified few, if any, people with whom they felt comfortable talking about their experiences with infertility (Mete et al. 2020). *The pain is severe; you are kept at a distance by some friends and husband's relations.* (Weinger 2009, 55).

Denial. The analysis shows that some women were contradictory in their responses about environmental reactions. They would first say that they did not experience any discomfort or inappropriate comments and would only later describe a situation in which other women moved away from them and did not want to befriend them. Perhaps some women moved between reality and denial as a method of coping with a condition of great loss that is severely stigmatizing (Weinger 2009).

Conformity. Some childless women are careful to conform to societal norms in order not to incur societal disapproval, blame, wrath, and exclusion. Being childless almost necessitates exuding a good mood, being pleasant to everyone, and taking care not to ruffle anybody's feathers (Weinger 2009).

A direct approach involves direct answers to inappropriate questions or comments. After such answers inappropriate questions are not repeated. *My husband starting saying we are actually having trouble falling pregnant, and it would really shut people up* (Bell 2013, 290). Related to this is a strategy of having a reserve of responses to pull out when struck by potentially wounding comments (Weinger 2009).

Humor. Some women had tried to dismiss these types of questions using humor to defuse the lines of inquiry about childlessness. *They'd ask, 'When are you going to have a baby?' And I'd just say practice makes perfect*. (Bell 2013, 290).

3.7. Coping strategies

Ways of dealing with the problem of infertility can be different. Women can use different strategies depending on their emotional and cognitive state, life philosophy, current life circumstances, and number of years spent trying to conceive.

Insufficient coping most often occurs as a reaction to becoming aware of one's infertility. It includes crying, indecisiveness, crying out, rebelling, the inability to concentrate, intolerance (Bell 2013; Mete et al. 2020)

Rationalization includes the life philosophy that although a woman does not have a child, she has things that others do not have, such as a college degree, a job, and a committed companion (Weinger 2009).

Hope that they will still have a child helped women. *If there is no man − fine; if no children − OK. I try and make myself happy* (Weinger 2009, 59).

Religion. Some women turn to God and praying to accept loss (Mete et al. 2020; Parry 2004). *It's God's plan' so she just has to accept it.* (Weinger 2009, 58).

I have had enough! After numerous failed attempts, medical interventions, medications, some women reached a point where they knew they had to stop trying to get pregnant (Ferland & Caron 2013). It is a kind of coping that requires a lot of strength − to stop fighting for offspring.

A mother in the other ways. Some women who could not have their biological children found different ways to experience motherhood. Some raised non-biological children (Weinger 2009), some were dedicated to the children of their relatives. *I am the special aunt to my brother's daughters. They know they can talk to me like a mother if they can't talk to their parents. We are very, very close.* (Ferland & Caron 2013, 186).

4. CONCLUSION

In this article, we dealt with the subjective experience of infertility, the feelings, thoughts and problems faced by infertile women. Thus, the analysis of selected qualitative studies aimed to understand the lived experience of infertile women. The results of the applied thematic analysis show that the experience of infertility is traumatic and painful for women in many ways. Because of the social expectation that a woman should fulfill the role of mother, women may feel incomplete or experience their body as damaged and dysfunctional (Caballo et al. 2015; Ferland & Caron 2013; Urlih & Weatherall 2000). They are highly focused on getting pregnant and committed to achieving that goal so much so that they perceive it as their second job (Parry 2004; Steuber & Solomon 2008). During the struggle for offspring, they think about why this is happening to them, what the reasons for their infertility are (Ferland & Caron 2013; Weinger 2009). The struggle for offspring is often long and exhausting and changes women in many ways. They may feel worthless, defective, they may notice that others are mocking or pitying them (Fernandes et al. 2006; Mete et al. 2020), they may blame themselves for the infertility even when they are not the cause of the problem (Bell 2013; Mete et al. 2020). They can also show agency and resist identification with an infertile woman, as the meaning often implies a negative connotation (Bell 2013). Their feelings are varied and aligned with the phases of the menstrual cycle. Hope appears first, then anxiety, patience, disappointment, anger, rage. With a new cycle, hope awakens again (Bell 2013; Mete et al. 2020; Parry 2004). Every unsuccessful attempt to conceive represents a specific form of loss that is not outwardly visible, and which is extremely painful (McBain & Reeves 2019). Proof of this is the comparison of infertility with the death of a close person or with the death of an unborn child (Ferland & Caron 2013; Ulrich & Weatherall 2000). Infertility affects and changes the partnership in several ways. It can lead to the alienation of partners (Ceballo et al. 2015; Mete et al. 2020) or to their greater intimacy (Ferland & Caron 2013). Partner support is very important to women

(McBain & Reeves 2019) but they often do not have it (Parry 2004; Steuber & Solomon 2008). Partnership problems can arise because of a difference in commitment to problem solving, different expectations, disagreements about treatment choices, or decisions about when to stop trying and accept infertility (Steuber & Solomon 2008). Infertility significantly affects the partners'sex life and makes it "routine", "mechanical" or "almost like a scheduled event" (Ferland & Caron 2013; Steuber & Solomon 2008). Relationships with family members and friends can be significantly changed. The reactions of close people can be unsupportive and insensitive, most often due to inappropriate comments or advice (Bell 2013; Ferland & Caron 2013; McBain & Reeves 2019; Parry 2004). Also, many women say they have felt excluded and rejected by their friends or relatives (Ferland & Caron 2013; Fernandes et al. 2006; McBain & Reeves 2019; Weinger 2009). Their reactions to inappropriate advice and behavior may be different. They can respond with silence and isolation (Ceballo et al. 2015; Mete et al. 2020; Parry 2004; Weinger 2009), but also with direct response and humor (Bell 2013; Weinger 2009).In the fight against infertility, they rely on different coping strategies. Insufficient coping refers to crying, and non-acceptance, and is associated with the knowledge of one's infertility (Bell 2013; Mete et al. 2020). Some women try to deal with the problem by rationalizing it (Weinger 2009), while others find relief in religion and understanding that infertility is God's plan (Mete et al. 2020; Parry 2004; Weinger 2009). Hope helps them persevere in their struggle for offspring (Weinger 2009). After numerous failed attempts, they come to the point where they realize and accept that further efforts and attempts are in vain and that they must accept their infertility (Ferland & Caron 2013). They can then expand their understanding of motherhood and focus on caring for the children of their relatives or friends (Ferland & Caron 2013; Weinger 2009).

Dominant discursive constructions of infertility have a negative connotation. Examples of this are everyday terms such as "barren" and "sterile", "unfruitful", which convey a sense of emptiness and inadequacy. For this reason, some authors point out that it is necessary to adopt new constructions that do not have a negative connotation and that are more supportive for women. One such construction is "women who want but who are unable to have children". Finally, far from being mad, bad and desperate, involuntarily infertile women can be construed as survivors. They are people who have had to confront loss, grief and feelings of failure (Ulrich & Weatherall 2000).

The results of this review of qualitative research reveal different aspects of the lived experiences of an infertile woman. This review provides an insight into the diversity of thoughts, feelings, ideas, behaviors and problems that can be found in women's narratives about experiences with infertility. As such, we believe that the insights gained in this study could have practical implications for support and provision of services to women with infertility.

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ŽIVOTNA ISKUSTVA ŽENA SA NEPLODNOŠĆU – PREGLED KVALITATIVNIH ISTRAŽIVANJA

U ovom radu bavili smo se analizom iskustva i doživljajem žena koje se suočavaju sa neplodnošću. Interesovalo nas je šta se o njihovim osećanjima, razmišljanjima, problemima može saznati analizom rezultata dobijenih u kvalitativnim istraživanjima. Analizirali smo 10 kvalitatvnih studija koje se bave iskustvom žena sa neplodnošću. Tematskom analizom izabrnih studija izdvojili smo sedam glavnih tema: Materinsvo, Priče o neplodnosti, Sve boje osećanja, Promene identiteta, Kompleksnost partnerskog odnosa, Socijalno okruženje (socijalna podrška), Strategije suočavanja. Svaka izdvojen aglavna tema obuhvata I određenji broj podtema. U radu se detaljno obrazlaže svaka izdvojena tema, a njihovo utemeljenje se potkrepljuje odgovarajućim citatima.

Ključne reči: *neplodnost, žene, iskustvo, kvalitativna istraživanja*.

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 149 - 162
https://doi.org/10.22190/FUPSPH2102149S

Review Paper

STIGMA AND IN VITRO FERTILIZATION: PERCEPTION OF WOMEN WITH IVF EXPERIENCE

UDC 305-055.2:618.177-089.888.11

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Abstract. *Couples and individuals involved in the IVF process are faced with numerous challenges. One of the challenges is coping with stigma, which is especially prevalent in those societies in which the significance of procreation is emphasized. This paper will present the results of qualitative research on stigma perception – how women with IVF experience perceive and interpret the stigma related to IVF. 11 women were interviewed and the sample was provided in collaboration with the "Šansa za roditeljstvo" Association. The data were processed using thematic analysis.*
The respondents recognize that there is a stigma related to IVF, as well as a possible risk for their children who were conceived in this way being exposed to stigmatization. All the respondents live in big cities, which probably contributes to less exposure to stigma and a greater willingness to talk about this topic, while the respondents emphasized that stigmatization is much greater in smaller communities. Education and being well informed about IVF are recognized as possible ways of crossing the path from stigmatization to 'normalization' and greater acceptance of IVF.
The research has provided initial insights into stigma perception and experience of individuals and couples involved in the IVF process. The results indicate that it is necessary to introduce systematic and continuous support in this field.

Key words: *infertility, stigma, IVF, women with IVF experience.*

Received October 23, 2020 / Accepted January 11, 2021
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1. INTRODUCTION

> "Countless analyzes, questions, awakenings and going to sleep with that are already hard enough. Scars on both your body and your soul… I have recently seen a skinned lamb being roasted on a skewer and some people watching it. I partly felt that way. Despite all the pain and scars, exposed to the sights and rumors of the surroundings."
>
> (Ana, 36)

Infertility occurs in 10-15% of couples in the world population, and it is estimated that 15-17% of couples in Serbia are faced with this problem (Kopitović et al. 2011). The methods of assisted reproduction, which have been significantly advanced since the 1980s, represent, for some couples, the solution to the conception issue. The most commonly used method of assisted reproductive technologies is in vitro fertilization (hereinafter referred to as IVF) and it implies taking an ovum from a woman's body, fertilizing it in laboratory conditions (in vitro), and implanting the fertilized egg or embryo in the uterus a few days after fertilization (Kričković Pele and Zotović Kostić 2018).

At the national level, there is no consolidated data on the number of procedures performed and the number of children born after successful procedures. Couples who independently finance these procedures also contribute to inaccurate statistics most often originating from abroad. According to the Health Insurance Fund, the number of couples referred to biomedical assisted fertilization (hereinafter referred to as BAF) at the expense of the Fund is increasing from year to year; however, the Fund does not have data on how many babies have been born so far with the help of IFV. Although the practice of assisted reproductive technology is seen as a significant contribution to birth rates, according to the available data, the share of births resulting from successful in vitro fertilization is negligible in the total birth rate - about 1.5% of babies compared to the total average number of births in Serbia (about 65,000), while in some European countries this share reaches 6% (Kričković Pele and Zotović Kostić 2018).

Unfavourable demographic trends in Serbia such as low fertility, population aging and unfavourable demographic projections have conditioned the development of the program and measures of a pronatalistically oriented population policy. Currently, in addition to financial measures, one of the population policy measures is financing BAF (Population Policy Measures 2020). In 2006, the Republic Health Insurance Fund started financing the National Infertility Treatment Program with the Procedures of BAF. The number of attempts and the conditions for exercising this right changed over time, and the last changes and the extension of the right occurred on June 15,2020. (RHIF 2020). Consequently, the number of BAF attempts at the expense of the Fund became unlimited for women aged up to 43.

There are many unconventional, so-called new family forms (Opsenica Kostić 2017), and the Serbian legislature supports IVF with the gametes of the intended parents and IVF with donated gametes. However, the second option has as yet not come to life in practice. The donation of reproductive eggs and sperm was made possible in 2017 with the passing of the Law on Biomedically Assisted Fertilization. The preparation of the Civil Code, which is still ongoing, predicts surrogate parenting as well. However, there are questions to what extent and in what ways society accepts the already existing traditional use of assisted reproductive technologies (IVF which involves heterosexual couples). To what extent is the IVF process

'normalized' in society, to what extent are the people involved in this process stigmatized and are we, as a society, ready for innovations in this field?

Although IFV is primarily a significant medical issue, it is also important to consider other aspects when it comes to the infertility phenomenon and treatments. Individuals and couples involved in the IVF process are exposed to numerous challenges, and one of them is coping with stigma that is socially constructed.

In most cultures, the inability to have children is regarded as a female problem and the responsibility as well as the blame for reproductive failure lies with the woman (Remennick 2000). Women undergo demanding medical procedures even when the cause of treatment is not female but male infertility. This topic is particularly significant in patriarchal societies, such as Serbian society, where the significance of procreation is emphasized, and alternatives, such as infertility or making a personal choice not to give birth, cause pity and/or condemnation of society (Kričković Pele 2018). In Serbian society, maternity is a highly valued ideal as well (Kričković Pele 2018), and the pronatalist discourse actualized in Serbia since the end of the 1980s implies the "natural" role or social responsibility (duty) of women to be mothers (Đorić and Gavrilović 2006, 75). Women's identification with the (gender) role of the mother has been confirmed by research on motivation for parenthood which involves women undergoing the IVF process (Kričković Pele 2014). Moreover, the influence of the Serbian Orthodox Church, which promotes the revival of the Serbian nation and emphasizes the role of women in contribution to the birth rate, cannot be overlooked (Đorić and Gavrilović 2006). Based on all of the above, it can be said that the requirements and expectations placed on women in the reproductive context are numerous. Taking into consideration the unfavourable demographic situation, in the same context, giving birth is not only a matter of personal choice and a way of 'self-realization', but it can be viewed through the prism of contribution to the preservation of the nation.

This paper will present the results of research in which the respondents were women with IVF experience. In relation to the social construction of reproduction, procreation and parenthood and women's roles in it (Whitford and Gonzalez 1995; Remennick 2000; Đorić and Gavrilović 2006; Yeshua-Katz 2017; Kričković Pele 2018; Faccio et al. 2019) we explored the stigma of perceiving those that 'do not fit in the existing pattern' - How women with IVF experience perceive and interpret the stigma related to IVF? In order to reduce stigma exposure, the participants in the IVF procedure can decide whether and to what extent they will reveal about it to others and potentially expose themselves to stigma. Accordingly, we explored the extent to stigma avoidance and "selective disclosure" are applied as a means of coping.

2. Stigma and IVF

The most often quoted definition of stigma is the one given by Goffman in 1963 and it says: 'stigma is such an attribute which deeply discredits and devalues a person and it seems to degrade an ordinary person so that they feel rejected' (Goffman 1963, 3). Goffman points out that individuals exposed to stigma are observed in the context of non-compliance with particular social expectations. That kind of social inferiority can further lead to the person's feeling of discomfort, guilt and shame (Goffman 1963). Likewise, other authors also emphasize that through stigma, people are given a particular 'attribute' and in that way they become labeled, i.e. they are attributed with certain stereotypes which can be confirmed

through prejudice, and all of that could be the reason or justification for discrimination and their exclusion from society in different ways (Jovanović et al. 2007; Phelan 2001; Link & Phelan 1999; Jones et al. 1984). Stigma classification also has numerous variations, but most authors apply Goffman's conception of stigma which is based on visibility (discrediting) or concealment (discreditable) (Goffman 1963).

When it comes to the stigma which women and couples involved in the IVF process are exposed to, the preceding stigma, i.e., the stigma that the woman was exposed to due to her infertility, cannot be omitted. According to the given classification, infertility is a kind of discreditable stigma since it is concealed and there are no visible features which would lead the person to stigma exposure. However, if the woman is married or in a relationship at a certain age and does not have any children, she can be discredited or exposed to a visible stigma (Becker 2000).

In their paper, Whitford and Gonzalez (1995) recognized that stigma represents the 'invisible burden' of infertility and concluded that the burden might be invisible, but the consequences are more than visible. The participants' experiences confirmed that the consequence of the socially defined role of women and its deviations is the feeling of inadequacy, and some other negative consequences as well. Women undergo different medical interventions so that they would fit in the 'normal' role, not being aware of the emotional, physical and financial costs it implies.

Being involved in the IVF process includes the possibility of being exposed to a new kind of stigma, the so-called "spillover" stigma from one context to another. In their research, Kaur and Ricciardelli (2017) endeavored to show how women who were first labeled as 'infertile' and later 'artificially fertile' experience the stigma. This situation has also confirmed that these women often feel disgraced and are often condemned by their surroundings. As a consequence of this stigma, women can be exposed to different stressors such as existential, emotional, physical and relationship stressors. They can lose self-confidence, or be humiliated, discredited, discriminated and they can even lose their status or position (Kaur and Ricciardelli 2017). Other research has also confirmed that women and couples involved in the IVF process recognize that they are exposed to stigma (Ranjbar et al. 2015; Faccio et al. 2019). The results of the research done by Kričković Pele (2014) showed that women who have no children are exposed to discrimination mostly at work, by their in-laws, and in their neighbourhoods as well.

It is important to note that despite the parents being exposed to stigma, they recognize there is a risk that their children, who were conceived this way, could also be exposed to stigmatization or labeled as different or 'test tube babies' due to lack of information (Faccio et al. 2019; Ranjbar et al. 2015). The risk is present despite the fact that the children's only uniqueness is the way they were conceived, whereas all the other elements related to genetic material, pregnancy and parenthood are identical to those of children conceived through sexual intercourse (Opsenica Kostić 2017).

Reactions, or strategies of coping with the stigma related to infertility and IVF, are different: stigma internalization, stigma avoidance, avoidance of exposing their "hidden disability," group identification, stigma challenging, selective disclosure, and other information management techniques (Remennick 2000; Yeshua- Katz 2017).

In the literature, special attention is paid to stigma avoidance strategies because, as some authors state, individuals who both internalize stigma and accept it as part of their identity continue to develop a stigma avoidance strategy that may come from society. Also, another reason why this strategy is given special attention is that studies conducted

in some patriarchal societies show that passive strategies are more frequent than active coping strategies (Remennick 2000).

Stigma avoidance is a strategy in which the person does not want to get in touch with people who have certain prejudice or who are prone to discriminating others due to some peculiarities. They often 'strive' for concealment or secrets as the mechanism to avoid stigma. In the context of people involved in the IVF process, another form of this strategy is 'selective disclosure' (King and Botsford 2009). The results of the research show that women often use this mechanism to avoid stigma and its consequences, that is, they talk about this topic only with a few close friends who are considered to be trustworthy people and who will not expose them to the stigma. (Remennick 2000; Kaur and Ricciardelli 2017; Facio et al. 2019; Ranjbar et al. 2015). Parents, siblings and friends are usually the people whom they talk to and with whom they share information related to the IVF process (Facio et al. 2019; Kričković Pele, Zotović Kostić 2018). Other women or couples who share the same experience and are willing to talk about it stand out in particular (Remennick 2000). Research shows that most women are not ready to talk to people at work about this topic, so coming up with excuses to justify their absence from work is an additional source of stress for them. The authors of this research point out that the woman's experience in such circumstances is greatly affected by 'socially constructed gender roles, socio-economic status, partner support and the support of the surroundings and society as a whole' (Kričković Pele, Zotović Kostić 2018). The most common reasons for non-disclosure or selective disclosure of the facts about infertility, as well as the treatments they undergo, are the feeling of disgrace and fear of stigmatization (Faccio et al. 2019; Kaur, Ricciardelli 2017; Ranjbar et al. 2015). Non-disclosure and selective disclosure may have different negative consequences, although they are commonly applied strategies. High perception of stigma is related to reduced disclosure to others and it leads to less social support (Slade et al. 2007; Ranjbar et al. 2015; Zaake et al. 2019). Moreover, it can be noticed that not revealing the way of conception could be a reflection of an existing stigma at the same time, but it also contributes to maintaining the stigma (Faccio et al. 2019).

3. The Method

3.1. Rresearch questions

The central questions of this paper are: How women with IVF experience perceive and interpret the stigma related to IVF, and Whether and how women IVF experience apply stigma avoidance and "selective disclosure" as a means of coping?

3.2. The research sample

11 women took part in the research. The criterion for participation was that the woman had had at least one experience with the complete IVF cycle. The research sample was a convenience sample and it was provided in collaboration with the *Šansa za roditeljstvo Association.* The members of the Association were invited to participate by the representatives of the Association. An email was sent to more than 300 addresses. Furthermore, the invitation to participate was posted on their website.

All the respondents live in the three biggest cities in Serbia (Belgrade, Niš, Novi Sad). Their ages range from 34 to 46, and they are 38.3 years old on average. Ten of the participants

are highly educated, whereas one of them only finished primary school. The participants had had from 1 to 12 IVF attempts, and 4 on average. One of the participants is pregnant, two of them already have children conceived by IVF, while the others are currently undergoing the IVF process.

3.3. Methods of collecting and analyzing data

The research used a semi-structured interview. In addition to that, the respondents were first asked questions related to the chosen socio-demographic variables (age, education, place of residence), the number of previously completed IVF procedures, and the phase of the current IVF procedure).

The interviews were conducted in June 2020. Since the research was done during the COVID-19 pandemic, the interviews were realized on the phone. The interviews lasted between 25-40 minutes.

Oral informed consent was obtained from each of the respondents on the basis of full information about the aim of the research, means of collecting data, and presenting results. With the respondents' consent, the conversations were recorded and transcribed. Two researchers independently analyzed the transcribed material. The data was processed through thematic analysis (Braun and Clarke 2006). In order to preserve the respondents' identity, pseudonyms are used in the paper.

4. RESULTS

The presentation of the results is organized into four thematic units. Three topics are related to the research questions of the research "Willingness to share the information about IVF with others - disclosure dilemma", "Assessment of the society's attitude towards IVF" and "Personal negative experiences related to the fact that couple is in the IVF process". The topic "Recommendations: what does our society need to accept it to a greater extent?" was singled out during the interview. Within the topic "Willingness to share the information about IVF with others - disclosure dilemma" in the analysis of the results, the following subtopics were singled out: *To whom is it said, from whom is it hidden?, Reasons for speaking and not speaking, Topics discussed.* Within the "Assessment of society's attitude towards IVF", the following subtopics were singled out: *Assessment of society's attitude towards participation in IVF, and Assessment of society's attitude towards children conceived in the IVF process.*

4.1. Willingness to share information about IVF with others – The disclosure dilemma

4.1.1. To whom is it said, from whom is it hidden?

The greatest number of the respondents (10 out of 11) shared the information about starting the IVF process with a few people (not counting their partners). It was mostly with their parents and siblings and then with friends. In this research, the people were relatives in two cases, and they were colleagues in two cases, as well. Only one of the respondents and her partner did not share the information with anybody. As the primary reason she states that they considered it was going to be 'easier' that way, but she also adds that stigmatization could be the reason they might not have been aware of at that moment.

"Honestly, now, three years after we underwent this process, I think we might have felt ashamed as well. I have no idea what the reason could be. You might think you are the only person experiencing this. Maybe that's why we decided not to tell anybody. Although you suppress it, it could be the reason. I also think that personally, I was afraid of people telling me 'you should have done it earlier', 'why didn't you', 'time flies." (Gordana, 34)

Later, for the duration of the process, siblings are still the people to whom they speak on this topic most often. Parents are less spoken to on this topic than in the beginning. The reasons are their age, their (mis)understanding of this topic, or their great concern, that is, trying to protect them from excessive worry. In accordance with that, the respondents recognize that it is easier to talk to people who are of a similar age.

A few of the respondents (6 out of 11) discussed this topic with their friends and colleagues. Two of the respondents admit that they talk to other couples involved in the IVF process whom they know personally, or via internet forums. Expectedly, people who share the same or similar experience could be better interlocutors. The respondent who did not share her IVF experience with anybody later spoke to her sister, but only when her sister also started the IVF procedure.

Two of the participants say that there are no people who they avoid talking to when it comes to this topic. Since almost all of the participants are highly educated and they live in one of the three largest cities in Serbia, it cannot be said with certainty why the behaviour of these two participants is different from the others. The others, however, clearly or with recollection state the persons, as well as the reasons why they are not preferred interlocutors when it comes to the IVF process. The people they avoid talking to are their colleagues, their superiors at work, older family members (*'my aunts, because of their constant interrogation'*), people who became parents in the 'usual' way, religious people. As they say, the reasons to avoid talking to these people on this topic are potential condemnation, misconception and the feeling that they are supposed to justify themselves.

4.1.2. Reasons for speaking and not speaking

The reasons restraining them from speaking openly about their IVF experience can be singled out from the participants' narratives:

1. The feeling of shame and disgrace, the fear of their environment's reaction and the fear of stigmatization are the most frequently mentioned reasons. (*'It characterizes me as barren'* (Emilija, 42). *'When we started it, I kept it all to myself, I didn't want to reveal the things so that people wouldn't give us dirty looks and that they wouldn't say it could not happen naturally'* (Irena, 34);

2. The burden that goes with disclosure and expectations facing them (*'I don't think people have bad intentions, but they raise tensions with those questions. There are also some additional expectations, and you already have great expectations so you don't need your parents' or your neighbours' expectations.')* (Gordana, 34);

3. Questions and comments of people from their environment ('*How is it going?', 'What is happening?', 'Why isn't it happening?', 'Why didn't it succeed?', 'Are you O.K.*?')

4. Negative feelings related to it: (*'I don't feel comfortable to talk about that'* (Ljubica, 37)*, 'I feel bad when someone feels sorry for me'*) (Gordana, 34).

In addition to these, there are also reasons that encourage them to talk to others on this topic:

1. Conversation helps them feel better and it brings relief: *'It encourages you to talk because there are so many things accumulated inside and you need someone to share your feelings with them…Encouragement is a sort of relief. That's why it is important to talk to people from your surroundings and exchange experiences'* (Lidija, 37);

2. It is a way of getting information and exchanging experience: *'I've met a lot of women who went through the IVF procedure. Talking to them helped me understand better what I'm taking part in.'* (Ivana, 34), and

3. It is a way of both getting support and giving it to others: *'We talk to everybody about it and I think it is really important so that they would realize they're not alone in that. I also heard about it from some other people, they encouraged me and gave me energy'* (Petra, 41).

One of the respondents had an interesting observation claiming that the feelings of shame and disgrace, which are closely related to stigma, could be both incentives and obstacles to talking about this topic.

> *"Most people around you get a child through sexual intercourse. But you have a different story, and the story labels you and you find it uncomfortable to talk about it. But it also encourages you to tell someone since there are so many things accumulating and you need to share your feelings with someone. So, there is the feeling of disgrace which motivates you to tell someone and doesn't let you tell anybody at the same time"* (Lidija, 37).

4.1.3. Topics discussed

When speaking on the topics present in their conversations, they usually talk to people close to them and inform them about technical and administrative matters related to the procedure, whereas they talk in more detail to people who share the same IVF experience (about the results, findings). Details of the procedure, interventions, feelings, unsuccessful IVF outcomes are topics that are less talked about, or the respondents do not share these with anybody else except their partners.

4.2. Personal Negative Experiences Associated with Social Attitudes towards IVF

When they speak about negative experiences related to the fact that they are involved in the IVF process, the respondents in the research name different experiences which they consider to be negative, and they most often name discrimination, labeling, inadequate comments, questions, advice, pressure from their surroundings. However, some of them do not consider this kind of behaviour to be negative. Although it upsets and hurts them, they experience it as something that goes without saying and it cannot be avoided when one is 'marked' by the problem of infertility and participation in IVF.

When it comes to discrimination, most of the respondents point out that they did not have personal experience, but based on the experience of others, they describe different forms of direct and indirect discrimination, most often in the work environment. Some of them are: inappropriate questions and comments in job interviews, and even getting fired due to frequent absences from work because of IVF.

Comments and questions from close ones, but other people as well, are emphasized as something they often face and the respondnets describe them in detail (*'Why didn't it succeed?', 'Is there anything new?', 'I can see your belly', 'What kind of people are they*

since God doesn't bless them with children'). Although they realize that some of the questions and comments do not necessarily have a 'bad' intention and that they could be a product of ignorance, misconception or curiosity, such comments are experienced as an additional burden. In addition to the physical and mental complexity that the IVF process itself involves, they can also arouse suspicions that 'something is wrong with them' and they can boost the feeling of being inferior due to their inability to conceive. As it has already been stated, the comments and questions are one of the reasons that prevent people from talking about their IVF experience.

> *"Or the stupid story that it doesn't matter, you'll succeed another time, it makes me want to strangle the person. Maybe it's just my reaction, I have no tolerance anymore, I just turn round and leave however close the person might be, because they don't understand how hard it is to go through all of that… There is an article 'what not to say to a couple involved in the IVF process' and everybody should read it"* (Snežana, 46).

Experiencing expectations and pressure from the surroundings is something they often have to face and one of the participants Lidija (37) points out: 'S*ometimes you are not aware whether it is your great desire to have a child or the pressure from the people around you forces you to have one and it burdens you even more'.* In the context of negative experiences, some of the respondents also talk about the feeling of pity and being 'labeled' by others since you are different, you are not able to do something, and you 'deviate' from what is expected from you and your role.

> *"That's why you don't fit into the mold of society. You are expected to be the woman who is going to give birth to a child after getting married and now you are not the same as others… Stigmatization by the environment and society occurs because there is such an image. An ideal image of a family is a husband, wife and child"* (Lidija, 37).

> *"Everyone in the neighbourhood knew I was a childless woman. When the Association was founded, they used to call it the* Barren Women's Association*…"* (Emilija, 42).

Some of the respondents find the experience of other people giving them advice quite unpleasant. Some of the advice is related to the process of infertility treatment (teas, methods, recommending clinics), but it can also be related to other ways of becoming parents (*'Why don't you adopt a child?*').

4.3. Assessment of the Society's Attitude towards IVF

4.3.1. Assessment of society's attitude towards participation in IVF

Some of the respondents believe that IVF is not a taboo topic in Serbia anymore, it is being spoken about more and there has been a significant improvement in recent years. They claim that the process is viewed as a positive one since the state allocates financial means for IVF, which gives it legitimacy. However, the majority (9 out of 11) point out the negative attitude of society, claiming that these people are viewed with pity, or labeled different, blamed for the situation they are in ('*God's punishment*', '*ancestral sins*', '*who knows what they did when they were young and that's why it is happening now*'), as well as '*a terrible culture shock, you are interfering in the work of God',* and the process is '*artificial*'.

It is emphasized that a great number of people are not adequately informed or informed at all about what IVF is, so it is often 'confused' or associated with cell donation. Some of the respondents think that in our society, IVF is not something normalized.

All the respondents live in big cities, but based on the indirect experience of the couples they met in this process they draw a 'parallel' with people living in smaller communities where the problem of infertility is even more labelling, where people try to conceal their infertility and visits to IVF clinics ('*so that nobody would see them*'), and whenever they get an opportunity, they go to clinics abroad since it reduces the chance of revealing the information. One of them shared her personal experience of moving from a smaller community as an example that such communities certainly need changes in order not to create an additional stigma to people involved in the IVF process.

'Changing cities led to partial relief, at least when it comes to the neighbourhood. In the capital city, they are involvedin their own lives. It led to peaceful walks, without anybody staring at your belly and similar experiences I had in a small town' (Ana, 36).

6.3.2. Assessment of society's attitude towards children conceived in the ivf process

Four of the respondents believe that children who were born or those who are going to be born out of IVF will not be viewed differently or have any inconveniences during growing up compared to children conceived through sexual intercourse. One of them thinks the reason is that the state supports this way of conception, which gives legitimacy to everything, so people perceive it as something usual. With regard to this topic, the respondents distinguish between smaller and larger communities, supposing that the children might have particular difficulties in smaller communities, and 'non-disclosure' of the fact is a way of preventing their potential stigmatization.

Other respondents recognize that there is a possibility of passing on the stigma related to infertility and IVF from the parents to the children. Given that the whole IVF process is still viewed as something different, 'artificial', there is a possibility that the society will view a child conceived this way as a 'different child', 'a test tube baby, 'an artificial child'. They point out both personal and other women's experiences of coping with questions during their pregnancy, but also after the delivery 'if the baby is sensitive', 'how it is going to develop', 'if they are going to be different from other children when they grow up'. Some of the respondents believe that such attitudes are common among elderly people who are not informed enough, whereas two of them show concern since these or similar attitudes could also be heard among medical workers.

"Even a pediatrician says that children born via IVF will get ill more often and they are not like ordinary children. I was personally told that by a pediatrician in the center of Belgrade, she said she could recognize such children at first glance. She actually says that IVF children are smaller and that, for example, my child doesn't talk because of IVF, but my child is only 16 months old" (Emilija, 42).

4.4. Recommendations: What Does Our Society Need to Accept it to a Greater Extent?

Most of the respondents agree that when it comes to IVF in Serbia, many things have changed in recent years (*'A few years ago there was complete darkness when it comes to this topic'*). Furthermore, they notice that medicine is progressing rapidly in this field and

these changes should be followed by changes in the society's attitudes, in informing and giving support to people being treated for infertility.

When they spoke about what is required for IVF to be an accepted way of conception in our society, all the respondents mentioned being informed about this process (*'we should talk much more about* it'). They consider it to be significant for both the people being treated for infertility and medical workers, but also for the public in general. The respondents recognize that people thinking of starting the IVF process have numerous questions and doubts, but there are not enough appropriate places where they would get informed. They point out that the practice of treating infertility with inadequate, quackery and harmful methods is still present in Serbia ('*they go to a village to see an old lady who would make them lie down at a crossroads', 'or pour out their fear, or her friend should count fertile days in relation to the full moon'*) and it is connected with the lack of education and the stigma accompanying infertility and IVF. One of the respondents, based on her negative experience, points out the significance of training medical workers as well, especially those in the primary health care system, since they constitute the 'first line' of informing people of this process.

Most of the respondents (7 out of 11) think that education about alternative ways of conception should be a part of school programs. As an additional reason for that, they state that infertility is a problem faced by an increasing number of people and the alternatives that medicine offers, and will offer in the future, should be something usual for today's children.

As additional ways of changing this, they stated more frequent media coverage of the topic, organizing debates, workshops, theatre plays, films. They consider this research to be a step forward and their participation is a personal contribution to the struggle for acceptance and less stigmatization of infertility and people with this issue.

When they spoke about the desired changes, almost all of the respondents pointed out that it could not be a matter of enthusiastic individuals, but something that everybody had to take part in. All of them mentioned the positive example of the *Šansa za roditeljstvo Association* which supported each of them in numerous ways. They also point out that the activists of this association are usually those who initiate conversations on the topic and they also advocate for changes in the field of legislation, procedures and support to people involved in the IVF process.

5. Discussion and Conclusion

The respondents recognize the existence of stigma related to IFV and its different components and manifestations (labelling, stereotyping, discrimination), which corresponds to the results of previous research dealing with stigma in the context of infertility and IVF (Whitford and Gonzalez 1995; Ranjbar et al. 2015; Kaur and Ricciardelli 2017; Faccio et al. 2019). The respondents spokea bout experiences of discrimination based on the experiences of other women who are involved in IVF until they themselves have encountered discrimination, but are with other manifestations of stigma. Additionally, some of the respondents recognize that there is a risk that their children who were conceived in this way could be exposed to stigmatization, which can also be found in previous research (Faccio et al. 2019; Ranjbar et al. 2015).

Most of the respondents apply "selective disclosure" as a means of coping. They talk to some people from their surroundings about their own IVF experience. There are differences

related to the reasons that motivate them to talk about it, the people they talk to, what kind of information they share, that is, what topics are present in their conversations. Also, the respondents in this research mostly apply active commitment to fight the stigma, primarily through their engagement and participation in the activities of the *Šansa za roditeljstvo' Association.* Also, they consider their participation in this research a personal contribution to the struggle for acceptance and less stigmatization of infertility and people struggling with this issue. All the respondents live in big cities, which contributes to less exposure to stigma and a greater willingness to talk about this topic, recognizing from their indirect experiences that the stigma is of a much greater extent in smaller communities.

The results of the research indicate that there are needs to improve policies and practices related to the IVF process. Adequately informing the public in general and education at different levels about this topic are some of the possible ways to cross the path from stigmatization to IVF 'normalization'. Furthermore, it is recognized that there is a need for systematic and continuous support during infertility treatment, in which one of the topics would be the topic of stigmatization. This is particularly important given that all the respondents emphasized the lack of any psycho-social support in this process. When it comes to support, other authors also point out that persons who can perceive that they are stigmatized could tend to avoid social interactions, thus asking for support as well, which could diminish their chance of being encouraged to cope with the potential stigma (Malina and Pooley 2017; Ranjbar et al. 2015; Whitford and Gonzalez 1995).

In the national context, this is the first qualitative stigma research which has been done on this topic and it has enabled us to gain the initial insight into the perception and experience of stigmatization of individuals and couples involved in the IVF process. Although the initial plan was to have a sample of 15 women, and even though the invitation was sent to over 300 email addresses and posted on the *Šansa za roditeljstvo' Association*'s website, the invitation was accepted by only 11 women. The women from the sample are probably those who feel less stigmatized, cope with it more successfully and are willing to share their experience with others. Given that the sample of this research included women of similar socio-demographic characteristics, in order to acquire additional knowledge on this topic, further research should include a bigger and more heterogeneous sample (with regard to gender, place of residence, education). Moreover, this research has indicated the need to examine some other topics, such as the need for support in the IVF process, which could be the subject of further research.

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STIGMA I VANTELESNA OPLODNJA: PERCEPCIJA ŽENA SA ISKUSTVOM VANTELESNE OPLODNJE

Parovi i pojedinci uključeni u process VTO suočavaju se sa mnogobrojnim izazovima. Jedan od izazova je suočavanje sa stigmom, što je posebno izraženo u društvima u kojima se naglašava značaj prokreacije. U ovom radu će biti predstavljeni rezultati kvalitativnog istraživanja percepcije stigma – kako žene koje u iskustvu imaju VTO percipiraju i interpretiraju stigma koja je povezana sa VTO. Intervjui su obavljeni sa 11 žena i uzorak je obezbeđen u saradnji sa udruženjem "Šansa za roditeljstvo". Podaci su obrađivani putem tematske analize.

Učesnice u istraživanju prepoznaju postojanje stigma povezane sa VTO kao i rizik da njihova deca, koja su začeta na ovaj način, mogu biti izložena stigmatizaciji. Sve učesnice žive u velikim gradovima što doprinosi manjoj izloženosti stigma i većoj spremnosti da o ovoj temi govori, dok naglašavaju da je stigma umnogome veća u manjim sredinama. Adekvatno informisanje i edukacija o VTO prepoznaju se kao mogući načini da se pređe put od stigmatizacije do „normalizacije" i značajnijeg prihvatanja VTO.

Istraživanje je omogućilo sticanje početnog uvida u percepciju i iskustva stigmatizacije pojedinaca i parova uključenih u proces VTO. Rezultati ukazuju na neophodnost uvođenja sistematske i kontinuirane podrške u ovoj oblasti.

Ključne reči: *Mekintajer, Kjerkegor, moraln, racionalno opravdanje, etičko, estetsko*.

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 163 - 171
https://doi.org/10.22190/FUPSPH2102163K

Review Paper

CANCER, FERTILITY, AND PSYCHOLOGICAL DISTRESS

UDC 613.86-055.2:[616-006.04:618.2/.3

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Abstract. *The number of young women treated for cancer who want to give birth is increasing, due to postponing pregnancy for older age. On the other hand, the disease is more often diagnosed in the early stage, when conservative treatment is much more successful, even in gynecological cancer. Most young women diagnosed with cancer can expect to live for decades after treatment, which makes many life issues, such as future fertility, increasingly important. This has led to the separation of Oncofertility as a new field in oncology, which includes all procedures for the treatment of malignant disease with the aim of preserving fertility, but without compromising the oncological outcome. And while the problem of fertility may not be a priority at the time of diagnosis, over time it becomes more important. Infertility resulting from cancer treatment has a major impact on quality of life. The turmoil experienced by women who are simultaneously faced with cancer and possible loss of fertility leave emotional consequences, especially if the localization of the disease directly affects the reproductive organs. Coping not just with medical issues, but with two psychological traumas at the same time increases susceptibility to distress. Helping to preserve the quality of life and the psychological aspect of caring for patients with malignant diseases who want to preserve the possibility of childbirth should become an indispensable part of treatment. Recognizing and managing negative emotions in cancer patients is a priority that aims to improve their quality of life.*

Key words: *cancer, fertility, oncofertility, psychological distress.*

1. INTRODUCTION

The number of young women who have been treated for cancer and want to give birth is increasing, due to delayed childbearing. On the other hand, cancer is more often diagnosed in the early stages, when treatment with conservative methods is increasingly successful, even in gynecological cancer. Fertility sparing surgical methods in gynecological oncology improve not only quality of life in the psycho-social and sexual sense, but also

Received November 3, 2020 / January June 28, 2021
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preserve reproduction. Informing women and family members about various aspects of the disease, both medical and psychological, can significantly contribute to the prevention, or alleviation of, psychological problems in the patient and her family.

The mentioned circumstances have led to the separation of Oncofertility as a new field in oncology, which includes all procedures for preserving fertility during the treatment of malignant disease, without compromising the oncological outcome. Oncofertility is not well known in the field of social sciences. In order to improve the quality of life of women who are struggling to preserve fertility during or after cancer treatment, in addition to oncologists and reproductive medicine specialists, it is necessary to educate professionals who provide psychological help and social support regarding oncofertility problems.

Every year, over 150,000 women aged 20–45 are diagnosed with cancer in Europe (Bray et al. 2020). Thanks to advances in therapy over the past 25 years, the outcome of these patients has improved significantly, with an overall 5-year survival rate of over 80%. In young cancer patients (Adolescents and Young Adults–AYA, ages 15 to 39), the 5-year survival rate in the United States is 84.5% (Howlader et al. 2019). Similar data come from England where mortality in this age group was found to have a declining trend, decreasing from 8.3% to 5% (Anderson and Nichols, 2020). Most young women diagnosed with cancer can expect to live for decades after treatment, which makes many life issues, such as future fertility, increasingly important. Women under the age of 50, treated for cancer, experience greater psychological distress than the elderly, and the issue of fertility is among the problems that bother them the most (Duffy and Allan 2009).

Clinicians, researchers, and societies of cancer survivors are beginning to recognize infertility as a late effect of cancer treatment, which negatively affects the quality of life of young cancer patients, as well as the importance that building a family has for these women. Recognizing this concern, the American Society of Clinical Oncology (ASCO) has published recommendations on preserving fertility in patients being treated for cancer (Lee et al. 2006). These guidelines instruct oncologists to discuss the risk of infertility after treatment for malignancy with their patients. They should be prepared to discuss various fertility options or to refer the patient to a reproductive medicine specialist.

Despite the fact that ASCO published these recommendations back in 2006 and has supplemented them two times since (Oktay et al. 2018), research among America's most eminent oncologists has shown that less than 50% of them refer patients to reproductive medicine specialists (Quinn et al., 2009). Research in academic medical centers has yielded similar results, with less than 40% of patients being referred to reproductive medicine specialists, although 95% of the surveyed physicians said they routinely discuss the effects of cancer treatment on fertility with their patients (Forman et al. 2010). In a similar study conducted in France, only 46% of all surveyed doctors said they discussed infertility risks in patients of a reproductive age, and even fewer (22%) referred them to a fertility center before starting treatment (Sallem et al., 2018). Only 14% of doctors considered themselves versed in fertility preservation techniques, and ovarian transposition was the most frequently mentioned technique during consultations. Doctors believe that they lack the knowledge and tools that would enable them to provide patients with appropriate information. A review of in-hospital clinical trials for childhood cancer, gynecological cancer, and stem cell transplantation, which found that only 47% of informed treatment consents contained information on the risk of infertility after cancer treatment (Nurden et al. 2009), is consistent with these findings.

Although infertility is a frequent consequence of the treatment of a malignant disease, in the initial stages of treatment, the concern about infertility is usually secondary to the concern for survival. A woman diagnosed with cancer must process complex information about further treatment. The decision-making process for acceptance of proposed therapeutic modalities has long been recognized as lengthy and particularly difficult for women (Duffy and Allan, 2009). For some women, infertility can be unexpected because they have not been able to process or remember the information about the side effects of the treatment that the oncologist showed them during their conversation about treatment.

Given that doctors often do not discuss future fertility with their patients, the failure to initiate this conversation can be experienced by women as a clear impossibility to preserve their ability to give birth. They are often forced to make treatment choices for their survival, which has a negative impact on fertility and their desire to give birth. It has been found that women who lose fertility after treatment due to gynecological malignancies feel deprived of choice (Corney et al. 1992). At the same time, they may feel that they should be grateful, just having been able to survive cancer (Carter et al. 2007).

While the problem of fertility may not come first at the time of diagnosis, over time it becomes more important. About 75% of reproductive-aged women diagnosed with cancer defer childbearing wishes (La Rosa 2019). Fertility-related psychological distress is prevalent and persistent in cancer patients and survivors (Logan et al. 2019). Women treated for cancer have higher scores of depression and distress if they are not provided with sufficient information about future reproductive capabilities (Carter et al. 2005).

A study of more than 600 women with breast cancer found that 73% of patients had some degree of concern about the possibility of becoming infertile after treatment, and 29% said their desire to preserve fertility would influence their decision on cancer treatment. In fact, many women have suggested that they could choose less toxic doses of chemotherapy to preserve fertility, even if it could increase the risk of recurrence of the malignancy (Partridge et al. 2004).

Concerns about future reproductive abilities that accompany cancer treatment may be or are usually negatively related to quality of life (Logan et al. 2019). The diagnosis of cancer itself represents a difficult emotional impact on women. Research has shown that infertility, as a unique health problem, has a level of suffering comparable to that of coping with a life-threatening disease such as cancer (Loscalzo and Clark 2007). Infertility itself is associated with significant psychological distress, with levels of depression twice as high as in women who do not have this problem, while quality of life is reduced in the areas of emotional well-being, interpersonal relationships and sexuality (Carter et al. 2010a).

It has been shown that the psychological impact of treatment-related infertility is not negligible: 77% of patients exhibit a clinically significant level of suffering (distress) in regard to fertility loss (Carter et al. 2010a).

In particular, it has been emphasized that psychological distress related to infertility is more pronounced in women who have not yet started their own families and would still like to do so. Furthermore, the literature on the topic reports a significant presence of anxiety, depression, low self-esteem, anger, irrational beliefs about cancer, suicidal thoughts and sleep disorders (Desphande et al. 2015; Chan et Wang 2017).

The turmoil experienced by women who are simultaneously diagnosed with cancer and potential infertility leaves emotional consequences, which are described as “Adding the insult to injury” or “Double trauma”, especially if the localization of the disease is such that it directly affects the reproductive organs (Gamel et al. 2000). The synergistic

effect of coping with two different traumas increases the susceptibility to psychological distress that can affect a woman's mental health. Thus, it could be said that the simultaneous experience of cancer and infertility could be a risk factor for prolonged reactions of sadness and potentially inadequate coping with the problem. The patient must face both the potential and the actual threat of infertility, which jeopardizes her desire to start or expand a family in the period after treatment (Kesic 2015).

Concerns about future reproductive abilities that accompany cancer treatment may be or are usually negatively related to quality of life (Logan et al. 2019). Parenting has been cited as an important aspect of life for cancer patients. An increasing group of cancer patients who have taken extensive measures to preserve their fertility have emotional difficulties. One of the older studies showed that women with infertility have constant feelings of sadness and regret, as a consequence of the cancer treatment, which lasted for more than a year after treatment (Carter et al. 2010b). The results of recent studies of the quality of life of patients with initial cervical cancer treated with methods that preserve fertility show that indicators of functional and physical well-being which have been significantly deteriorating for a period of 6 months, return to normal after that time, but that the emotional state remains worse 6 months, one year, but also two and four years after the end of treatment (Fleming et al. 2016)

Psychological experience, however, differs in some women, depending on the cause, the degree of fertility impairment, the importance attached to the desire to have a biological child, as well as the availability of reproductive medicine or the desire to adopt a child. Although there are several modern techniques for preserving fertility today, as well as the possibility of adopting a child, a woman's feeling that she cannot have her own child can be very traumatic. The potential loss of fertility could be more distressing than the cancer itself (La Rosa et al. 2020).

The possibilities for preserving fertility exist, but they are very complex. The complexity of these procedures requires that a woman weigh the strength of her desire to preserve the potential of childbirth, as opposed to a possible delay in treatment and, with everything, the uncertain outcome of future fertility.

Infertility treatment can lead to a number of emotional problems, as well as exhaust women and couples both psycho-physically and financially. Unfortunately, a significant obstacle for many cancer patients is the cost of fertility procedures. A study examining the experiences and financial concerns of people treated for cancer who want to build a family using assisted reproductive technology (ART) identified four main groups of problems: *emotional experiences, financial barriers to building a family after cancer, the impact on partnerships,* and *a disrupted life pathway*. Negative emotions were ubiquitous, but balanced with hope and optimism that parenthood would be realized. However, the combination of high costs of ART or adoption costs, the financial impact of malignancy treatment, and limited sources of support, may cause financial stress with extreme consequences.

Health insurance does not usually cover these costs, as they are not considered compulsory health care. Further, faced with these high costs, many survivors reported concern and guilt (Benedict et al. 2018). There are suggestions that insurance should cover iatrogenic infertility resulting from cancer treatment, similar to other iatrogenic treatment consequences such as breast reconstruction after mastectomy or wigs for alopecia.

Despite concerns of cancer patients which include worry about costs and potential risks, the follow-up of survivors who tried to preserve fertility showed that 92.3% of them felt well because of the decision to choose a fertility preservation treatment (Friedman et al. 2011). However, the fact that patients with a recurrence of malignant disease may die and

leave a minor child with one parent is an additional ethical issue. There is an opinion that it can be unethical to allow reproduction to a woman if she is expected to live shorter. However, the opinion of the Ethics Committee of the Association for Reproductive Medicine is that this reason does not have to be convincing, given that the risk of recurrence for many patients may not be particularly high, and that a child can have a meaningful life despite the death of a parent (Matthews et al. 2012). Also, legal restrictions may call into question the role of a person being treated for cancer as a parent. A recent study showed that adoption agencies may be reluctant to consider people treated for malignancy as potential parents. Possible health problems and the risk of relapse after treatment may be an obstacle in the adoption process (Rosen 2005).

Before starting treatment, women should be aware of the fact that the treatment of malignant disease in premenopausal women often reduces fertility or leads to permanent ovarian failure. For example, after adjuvant chemotherapy for breast cancer, only 10% to 20% of women under the age of 35 develop permanent amenorrhea. However, the risk of ovarian failure increases tenfold for women treated in their late thirties, leaving up to 90% of women over the age of 40 with permanent ovarian failure (Canada et al. 2012). Due to the possible risk of premature menopause, couples who want children, and in whom a woman is treated, should be encouraged to have children as soon as possible from the oncological side.

The patient and her partner should be made aware of the growing success of infertility treatment with the help of reproductive technologies. Today, the techniques for preserving fertility before starting cancer treatment are highly developed. Most women can delay cancer treatment for a few days until the ovarian tissue is surgically removed, or for up to two to three weeks so that the ovarian stimulation cycle can take place and the oocytes (eggs) can be collected. These oocytes can be preserved in the unfertilized state by cryopreservation or can be used to create an embryo which is then stored by cryopreservation. In addition, it is necessary to provide information on modern options for assisted fertilization, including reproduction with the help of a third party. Patient-independent reproduction includes oocyte donation and a surrogate mother. New reproductive technologies are becoming more widely available and successful and can give hope to those who have no other pregnancy options. This information should be part of the Informed Consent that the patient signs before starting treatment.

Children and adolescents with malignant disease and/or their parents (if the child is very young) should be informed about the long-term consequences of treating the malignant disease, even if they do not ask. Most patients and their families will not refuse treatment that can save a child's life, because of possible future infertility, but they should know as much as possible about the diagnosis and therapy in order to better understand the causes of its late effects. A study of a cohort of adults treated for cancer as children found that almost 60% felt uncertain about their fertility status (Nicholson et al. 1993), and 44% had moderate to high general concerns about reproduction (Young et al. 2019). However, only 19% of young patients received advice on preserving fertility. Most studies have shown that adolescents have a strong desire to participate in decisions about their own cancer treatment and many have concerns about future fertility although age barriers have often prevented these discussions (Quinn et al. 2011).

Women report insufficient information and express a desire for more information either before or during treatment. Unfortunately, even if women want to consider fertility preservation, many do not receive timely information. Most women feel that the information obtained about fertility and the consequences of treatment (i.e., menopause, sexuality,

mood swings) is insufficient. A study conducted among young women treated for breast cancer found that 72% of them discussed fertility dilemmas with their doctor, but only 51% felt that their questions were adequately answered (Partridge et al. 2004).

In many cases, women who have an infertility problem as a consequence of treating a malignant disease experience social isolation at the same time as psychological, psychosocial, and sometimes psychiatric disorders, such as anxiety and depression. These are all significant problems whose recognition and treatment would be of great benefit. Ideally, these issues should be identified during treatment, in the hope that early intervention could prevent more serious long-term consequences.

Patient counseling regarding future fertility should include a discussion not only about the side effects of the treatment on fertility, but also about the course of the future pregnancy and the potential risks for the child. A review of the psychosocial outcome in women after treatment for malignancy revealed that women had long-standing fears about their ability to carry a normal pregnancy, but were also concerned that pregnancy would increase the risk of disease recurrence. If they remain pregnant, women are additionally struggling with worries about the health risks of pregnancy and the risk of possible genetic problems in children.

Women treated for malignant disease may fear that their own health is not good enough to successfully carry a pregnancy. This fear may have a basis, because pregnancy is a cardiorespiratory stress, which is why those who have had anthracycline therapy or radiation in the chest area may benefit from a heart evaluation or pre-pregnancy lung function test.

If pregnancy occurs, women can experience significant anxiety generating fear that they will have unhealthy offspring. Current findings suggest that there is no increased risk of genetic diseases in children whose parent has previously been treated for malignancy (Signorello et al. 2012; Rosenberg 2012). Because of all these problems, when patients previously treated for cancer are advised regarding a planned pregnancy, it must first be considered whether there is a risk that the tumor will be inherited. Family history is crucial, including a full family history of the spouse.

Finally, there is another very important issue that connects ethics and law. Persons whose gametes, embryo or gonadal tissue have been submitted for cryopreservation in order to preserve fertility, should leave clear instructions on how these tissues will be disposed of in the future. This is best done when gametes or tissue are taken. It is crucial that the patient (or legal representative) determines exactly what to do with the gametes or tissue if the patient dies (Robertson 2005). The written document must specify whether the frozen material should be discarded or can be used by certain persons for posthumous reproduction. Posthumous reproduction is a new field in which neither the medical nor legal relations have yet been resolved.

The main problem is that the deceased agreed to the posthumous use of his material. The legal system respects the patient's previous wishes not to use or destroy reproductive material. Similarly, if the deceased gave instructions to use the material, it should be done. Several court systems and legal regulations already recognize that a child born after a posthumous conception or implantation becomes the legal heir or qualifies for benefits provided by law.

CONCLUSION

Doctors treating young patients diagnosed with malignancy should be aware of the negative effects of cancer treatment on fertility and ways to minimize these effects. If the toxic effects of treatment on the gonads cannot be avoided, the patients should have knowledge about the possibilities of preserving fertility. Although many doctors who treat cancer in young people are sensitive to these issues, oncologists have traditionally focused more on providing the most effective treatment, and less on the quality of life after treatment. Therefore, they must know to whom to refer patients who want to preserve fertility. On the other hand, specialists in reproductive medicine must be aware that the fact that someone has been diagnosed with cancer or that he has survived the acute or prolonged phase of dealing with cancer, distinguishes this patient from other patients with infertility. They must cooperate with the oncologist, because there are numerous differences in the type of tumor and the method of treatment, which requires that the treatment strategy be adjusted to each individual case. In addition, knowledge about oncofertility is necessary for mental health practitioners who take care of cancer patients. Only in this way will they be able to explore and define with their clients new ways of living filled with satisfaction and in accordance with a person's value systems, despite cancer treatment and fertility problems.

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KANCER, FERTILITET I PSIHOLOŠKI DISTRES

Broj mladih žena koje su lečene od kancera, a žele da rode je sve veći, zbog odlaganja rađanja za starije životno doba. S druge strane, bolest se češće dijagnostikuje u ranim stadijumima, kada je lečenje konzervativnim metodama mnogo uspešnije, čak i kod ginekološkog kancera. Većina mladih žena sa dijagnozom raka može očekivati da će živeti decenijama po završetku lečenja, što mnoga životna pitanja, kao što je buduća plodnost (fertilitet) čini sve važnijim. To je dovelo do izdvajanja Onkofertiliteta kao nove oblasti u onkologiji koja obuhvata sve postupke lečenja maligne bolesti sa ciljem očuvanja fertiliteta, ali bez ugrožavanja onkološkog ishoda. I dok problem plodnosti možda nije na prvom mestu u vreme postavljanja dijagnoze, tokom vremena on postaje sve važniji. Infertilnost koja je posledica lečenja kancera ima veliki efekat na kvalitet života. Previranja koja doživljavaju žene koje se istovremeno suočavaju sa dijagnozom raka i mogućim gubitkom plodnosti ostavljaju emocionalne posledice naročito ako lokalizacija bolesti direktno utiče na reproduktivne organe. Nošenje sa dve psihološke traume u isto vreme povećava osetljivost za nastanak distresa. Pomoć u očuvanju kvaliteta života i psihološki aspekt brige o pacijentkinjama sa malignim bolestima koje žele da očuvaju mogućost rađanja trebalo bi da postane neizostavni deo lečenja. Prepoznavanje i zbrinjavanje anksioznosti i depresije kod pacijentkinja sa kancerom je prioritet koji ima za cilj poboljšanje kvaliteta njihovog života.

Ključne reči: *kancer, fertilitet, onkofertilitet, psihološki distres*.

FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 173 - 178

Book Review

THE CULTURE OF BIRTH *

The book "The Culture of Birth" emerged from the research sub-project "The Policy of Parenthood" realized as part of the project "*Challenges of new social integration in Serbia: concepts and actors*". The author envisioned the book as one that incorporates seven fields. The chapter titled *General theoretical and methodological framework of the research* points to the sharp increase in interest in studying the body as a social phenomenon. In accordance with the new trend, an extensive body of feminist literature has been amassed on the topic of female corporeality. The motivation for this research was the idea to study the role of patriarchal patterns in the corporeal socialization of women in order to present how it actually appears in a phenomenological sense in the experience of individual females.

The research used the method of the in-depth interview. The aim was to show the actual steps involved in social gender mainstreaming through bodily practices, using at the same time, in the broadest sense, several theoretical frameworks which could be included in the politics of corporeality. The research included the combination of a "snowball" and deliberate sample of thirty women of various ages and levels of education. When processing and presenting the data four life stories were identified, which represent four different and at the same time major patterns in the reproductive and sexual socialization of women.

The first is the story of Asja, titled *"The patriarchal pattern of poverty and marginality*". It is a life story of an individual who has an elementary education, who grew up in a patriarchal environment, but under conditions of poverty and social discrimination.

The second is Jelena's story which illustrates the model of "*A patriarchal pattern as an unwanted destiny and the search for an authentic female identity."* Her upbringing was marked by stigma and guilt over one's own corporality, with the awareness that it would be better to be male than female. In this pattern there are no adequate possibilities for social articulation of the needs which deviate from the patriarchal code, but the individual intensively seeks out new and alternative means of confirming and expressing their own personality and subjectivity.

The third story represents "*a dependent emancipated pattern*". Iva is characterized by economic dependence, the importance of education in life strategies, pronounced active decision-making regarding one's own life and taking responsibility for one's own choices, a rational, critical awareness, a non-traditional and non-patriarchal choice of life strategies, but at the same time a limiting economic dependence, that is, unemployment.

The fourth story presents a "*mixed modern-patriarchal pattern*". Anastasia is a highly educated individual who grew up in a rural environment in a well-to-do family. She is married, has two children, and shares her life with her children and husband who is financially successful. She identifies positively with the patriarchal female stereotype but also the modern model of a successful woman.

Received January 18, 2021

* Sekulić, Nada. *Kultura rađanja (Istraživanje o seksualnoj i reproduktivnoj socijalizaciji žena)*. Beograd: Institut za sociološka istraživanja Filozofskog fakulteta u Beogradu i Čigoja štampa, 243 str. ISBN 978-86-531-0238-8

In the chapter "*Constituting gender – becoming a girl*" the author points out how childhood represents a vital phase in shaping gender identity. The differences which can be noted in that phase distinguish between boys' and girls' games, and usually the differences in behavior between boys and girls are quite clear, as is their appearance, as society immediately upon birth imposes upon its newborn members the social category of either woman or man.

For Asja, being a woman, getting married, having children is the only and most natural option in life. The author points out that the influence of parents and the immediate environment is always the most important one. A comparison of the four stories gives the impression that these are four women who have made different choices, and where Iva has a much broader field for making free choices compared to Asja. A strong reproduction of patterns of gender relations inherited from their primary families is evident, within which individual choices are made. The assumption is that gender and sex are not stable categories of personal choice, but are firmly built into the dynamics of family life within which the child grows up, and which are through the family built into the gender regimes of society in general. Constructivist and feminist-poststructuralist approaches additionally deal with the idea that there is dual upbringing of children in the primary family, which has not always matched the physical gender of the children. This refers to bringing up a female child like a "son", addressing a female child as "son" and self-reference on the part of the female as if to a male. As they grow up, children abandon games which are not suited to their sex/gender. When behavior deviates from what is characteristic for a particular gender, we can say that we are dealing with gender clusters. The process of constructing gender identity can be conflicting, precisely because to the child it seems as if it is being molded along patterns which for him or her carry to meaning. It is important to point out that the gender of a child is key for shaping the dynamics of the relations within the family itself and the decisions of adults. The level of education of the female participants is more similar to the level of education of the father than that of the mother. In the families of our female participants the father had a higher level of education than the mother, and the female participants often left their primary families with a level of education higher than that of their mothers, rather than of their fathers.

In the chapter "*Sexual and reproductive behavior*" the author, after outlining the experiences of four female participants, points out the significance of Christian tradition. Within it, not knowing one's own body, physical inexperience and non-participation in everything that pertains to the body is lauded as a principle of good upbringing, especially in the case of sexuality and the reproductive practices of women. However, we encounter extensive incongruity between tradition and objective medical knowledge. Sexuality may be the most illustrative example, considering that on the one hand it is an important part of consumer culture, commercialization, and a source of great profit, while on the other hand, sexuality as an experience is closed off inside the sphere of private life as a secret. Traditional culture and religion often pathologize sexual experiences which everyone acquired during the course of their life. There are great differences between male and female sexuality. Social norms and expectations play a more important role in making the decision to enter into sexual relations for girls than they do for boys.

The research was focused on the key moments of the corporeal socialization of women, in relation to their sexuality and reproductivity. These include: their first menstrual cycle, contraceptive practices and attitudes towards contraception and abortion, as well as planned pregnancy.

In the subchapter "*Experiencing one's first menstrual cycle*" the author cites that this concept as a cultural symbol is undoubtedly burdened with the meaning of "filth" and "disease". In addition, it also represents a marker which is meant to remind us that women are inferior to men and as a result belong in lower positions in society. An increase in medical knowledge and emancipation have contributed to a change in traditional patterns of female corporeality.

When girls experiencing their first menstrual cycle, the attitude of the mother and father toward this event and their knowledge of this phenomenon in the moment of the experience is used as an important marker. The modern pattern includes an adequate preparation of female children for maturity, their familiarization with what a menstrual cycle is, support from their environment, a primarily hygienic-medical approach, and a non-traumatic and solidary experience in this phase of life. The answers of the female respondents indicate that in more than one half of the studied cases, the first menstrual cycle represented a very traumatic experience and that a strong traditional and patriarchal pattern of socialization in this case is dominant. One-third of the female respondents when first starting their cycle did not understand what was happening to their bodies, considering that their mothers had not previously spoken to them or had given them incomplete information. Two-thirds of the female respondents had some idea and knowledge, but among them there were those who had not received this knowledge from their mothers or sisters. Among the obtained responses there is a clearly identifiable pattern of female respondents who over the course of their first menstrual cycle received support from their primary family, where the menstrual cycle is presented as a positive experience of sexual maturity, and as confirmation of the female identity or becoming a young woman.

The following subchapter "*The decision to give birth"* indicates it is important to view the context in which sexual partnerships turns into parenthood, which represents a complex task in the social conditions in Serbia. The most frequent reasons for this are that traditional models of partnership, matrimony and parenthood have undergone a strong transformation in terms of modernization of society, while on the other hand the necessary conditions which could support such a state of affairs in contemporary societies do not exist.

In contemporary social circumstances the transition into parenthood is considered a private matter and the individual decision of the partners. The individual decision-making process is strengthened through wide use of contraceptives, which enable planned parenthood. In that context, whether one will have children primarily depends on the individual and their rational choice and therefore preferences.

In accordance with the aforementioned, there are two basic models which we use to explain changes in fertility. One is economic, the other culturological. The economic model is based on theories of rational choice, pointing out the importance of parental income, as well as the expense of raising a child. The culturological approach begins with cultural changes and norms, with the transition in a partnership induced by a shift in the system of values towards an egalitarian model, as well as away from the postmaterialist orientation in devising life strategies. Individuals do not have to hold up patriarchal values and norms and instead can choose one of several possible options (cohabitation without offspring, parenting without a shared life together, in vitro fertilization and adoption). The family is the greatest value for both men and women, and is the only stronghold in a society of chaos.

For the female respondents the decision to give birth was implicit and determined by the quality of their romantic and sexual partnerships. It is the deciding factor for a pregnancy to occur like a desired and planned outcome, even though it in fact was not rationally planned.

The studied sample indicates that birth somehow eludes these categories and primarily "happens" when the time comes (according to biological and social criteria), and that it is not something that we clearly and explicitly decide. The body at that time is more of a venue for the pregnancy than a means of its production.

The chapter "*Motherhood as a social relation"* begins with the quote: "We know more about the air we breathe, the seas we travel, than about the nature and meaning of motherhood" (Rich, 1986 /1986/: 11). In the broadest sense, motherhood represents activities based on love, and is expressed through a responsible relationship towards life, and a nurturing relationship towards one's offspring. On the other hand, it has been neglected as a social concept to the same extent that care and love have been placed outside the framework of measurable indicators of social development. Relying on the questions of human nature, motherly instinct and natural reproduction, motherhood has remained in the sphere of a mute naturalized experience. However, this has never been an innocent, apolitical or marginal topic.

Motherhood as a social relation can be viewed in the context of the onset of a populationist policy. The population policy deals with reproduction as an issue of public interest, but this interest is not necessarily defined by the categories of the sanctity of private life and the political subjectivity of those it concerns most, that is women. Private life remains a sphere which the state deliberately, from time to time, can "enter" to regulate, to intervene, to plan reproductive practices and their outcomes.

On the other hand, a feminist approach does not support the concept of a populationist policy since it is discriminating and exploitative, even when it appears to support the family, women, and parenthood. Motherhood should be based on complete freedom of choice, on respect for the physical, personal and political integrity of women, it should be helped by institutional and extrainstitutional mechanisms of support and viewed through the perspective of protection and the improvement of the rights of equality for women.

As part of the feminist movement, there is an increasingly frequent attempt to make public and socially recognize, to name and legally sanction violence against women during pregnancy, and especially during childbirth, and to specify what represents violence against women during childbirth. For a woman, becoming a mother usually changes everything, not uncommonly in an unexpected or even shocking manner. The more patriarchal a society, the more limited the choice and the more deprived the woman is of all other roles; in the worst-case scenario she will remain just a mother for the remainder of her life. Women, by becoming mothers, become more respected, but also become more vulnerable and dependent on others.

The aim of the subchapter "*Mothers on the social position of motherhood in Serbia today*" was to study the relationship of the female respondents towards the social position of motherhood in Serbia, and their relationship towards policies focused on the preservation of "the biological substrate" of the nation through population planning. Among the respondents there is a dominant pragmatic perspective when it comes to social relations towards motherhood. This means that it is interpreted from the perspective of personal life strategies, and not broader political views.

Most of the female respondents (18) consider that women have an obligation to give birth. It could be concluded that most of the arguments are of a moral (*"It is selfish not to have children."*), and biological (*"It is the natural purpose of each woman to bear children."*), but not of a political nature. The most frequent reasons which make motherhood as well as parenthood more difficult are viewed as more or less problems of social policy, where the state is seen as the provider of a certain group of services, and the mothers as the

beneficiaries of these services. When an incongruity occurs between private and public life, the burden of responsibility falls on the parents, primarily on the mother.

The author points out that the least amount of attention has been allotted to setting up priorities dedicated to the promotion of the reproductive rights of women and the improvement of the rights of patients regarding their right to choose the means and procedures of treatment and delivery. It is important to point out that over the past few years, the treatment of women during labor has been publicly problematized and an initiative to introduce a new provision – violence against women during childbirth has been initiated.

In the chapter that bears the same title as the book *"The culture of birth"* the author speaks about the experiences of childbirth that women have had in Serbia today. After some descriptive accounts of their own deliveries provided by the female respondents, accounts which were mostly unpleasant, the question of violence against women during childbirth is posed, which represents a relatively new topic both in medical science, and in sociologically-feminist research on violence against women in general. However, no law regulating this segment of women's rights exists as yet, and the main reason is that the public still does not view the negative treatment that women during labor experience from the perspective of violence against women. The potential reasons are to be found in patriarchal society, since the body of a woman is viewed as a deviation from the male body.

In this research, "violence against women during childbirth" represents a central concept which serves to intertwine various the categories and indicators. Based on the prevalence of this response and the experience of the female respondents, the indicators have been grouped into several key and basic categories: 1. "The body as a machine or object", related to indicators which refer to descriptions of inductions, episiotomies and serial deliveries of women in hospitals; 2. "Being mute" related to indicators noted in the descriptions of withholding information, disinformation, ignoring, insulting and inappropriately addressing women during delivery, as well as the inability of the female respondents to articulate or satisfy their needs pertaining to specific hospital treatment; 3. "Roughness and disrespect towards the intimacy of a woman in delivery" relates to indicators which refer to testimonials of rudeness, unnecessary infliction of pain, as well as exposure of the female body to the examination and looks of an unnecessary number of people; and 4. The category of a "protector" is related to indicators of bribery and "pulling strings" as a precondition to having a humane delivery. All experiences and responses of the female respondents can in the majority of cases be classified into four categories. Based on their experiences, it can be concluded that the differences in the treatment received by women who wanted to or had the option of "pulling strings" or giving bribes, was at the expense of those women who had no strings to pull, who could not or did not want to give a bribe.

A comparative analysis of four select interviews allows us to clearly identify the differences between the respondents. The respondents who were raised in the spirit of a positive relationship towards the female identity, in a family environment in which sexuality and gender are not taboo, in which being a woman does not mean being in any sense of the word the worse or lower-ranked gender, in an environment in which they could move about freely and play "boys'" and "girls'" games and use their bodies, later in life had a greater positive relationship towards their corporeality and sexuality, and a greater possibility of making decisions about their own bodies.

Therefore, we could conclude that subjugation does exist. It is manifested in girls wanting to be boys, in them limiting their movement, their physical manifestation, in them having to perform chores, experiencing the natural processes of body development

as traumatic and a cause of personal uncleanliness, of having to be afraid of being called prostitutes when they want to have sexual intercourse if they are not considering marriage, birth or a long-term relationship. The subjugation of women is directly related to a lack of care for the social status of motherhood and is manifested through a neo-liberal transformation of health, social protection, working conditions, and the number of preschool facilities and their availability. In terms of health, the subjugation of women is directly related to the conditions in which deliveries are carried out in Serbia today. Among many of the identities and roles which people can acquire or inherit during their lifetime, for a woman become a mother frequently changes everything, often in an ambivalent manner, and often also in an unexpected or even shocking manner. Women are frequently allowed to retain their role of a mother and that identity will eclipse their other identities, with a more obligatory neglect of everything else. The reported experiences are transgenerationally passed on and for many girls their mothers have become a model of compromise and a type of behavior which they do not want for themselves. Based on the aforementioned, it can be concluded that every woman builds her own culture of attitudes towards her own body based on her upbringing and life-long experiences.

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FACTA UNIVERSITATIS
Series: **Philosophy, Sociology, Psychology and History** Vol. 20, Nº 2, 2021, pp. 179 - 182

Book Review

THE MEANING OF INFERTILITY IN THE EYES OF SOCIETY, THE FAMILY AND THE INDIVIDUAL*

The collection of papers titled *The meaning of infertility in the eyes of society, the family and the individual: implications for planning support for couples was* published by the Psychology Department of the Faculty of Philosophy, University of Novi Sad in 2018. It was edited by Mihić Ivana, an associate professor at the Faculty of Philosophy of the University of Novi Sad, and Zotović Marija, a full professor of the Faculty of Philosophy of the University of Novi Sad.

The collection consists of eight articles which provide us with a broad spectrum of viewpoints on, and a better understanding of, the phenomenon of infertility in various contexts – the social context, the context of the family and the personal context. As the editors state in their introduction, existing literature defines infertility as the inability to conceive a child after twelve or more months of unprotected sexual intercourse, or the inability to carry a pregnancy to term. The questions which the articles in this collection attempt to resolve, and which pertain to the social context, refer to the social valuation of women as mothers and men as fathers in our still highly traditional social system, in which an increasing number of couples is experiencing difficulties related to childbirth. They are followed by questions on the impact that numerous challenges of the inability to bear children have on the development and survival of a marriage and a family, considering that the developmental phases of a family are closely tied to the roles of parents and all the changes that parenting brings. And finally, very important questions have also been asked in the personal domain, and have to do with stress and the impact on the emotional and social functioning of an individual. In addition, questions of identity, the status one feels they have in the family and society, the roles which they realize (or not) are also important.

The first article begins with an analysis of the social dimension of the problem and refers to the "cultural-specific disorder" of the issue of infertility. This article analyzes the ways in which methods of assisted reproduction are used in non-western countries, and how a culturally specific environment shapes the way in which we use and experience these methods. For example, in Israel there are more infertility clinics per capita than in any other country in the world, and Israeli experts are global leaders in the research and development of ART. Every Israeli citizen has the right to an unlimited number of *in vitro* fertilization treatments, until the birth of their two children, and these subventions are available irrespective of marital status or sexual orientation. Among ultra-Orthodox Jews there are various dilemmas related to the process of artificial insemination when the semen of a Jewish donor is being used. Such insemination procedures can be related to adultery (*mamzerim*); however, the concept of adultery does not come into play when a Jewish woman is married to a Jewish man who is infertile, and undergoes insemination from a non-Jewish donor. Such a child will be a full-fledged Jew since Judaism is transferred matrilineally. In the case of

Received January 21, 2021

* Mihić, Ivana i Marija Zotović, ur. *Društveno, porodično i lično značenje neplodnosti: implikacije za planiranje podrške parovima*. Novi Sad: Filozofski fakultet u Novom Sadu, 2018, str. 1-164. ISBN 978-86-6065-504-4.

donated oocytes, the attitudes of rabis are more flexible. Israel became the first country to legalize the practice of surrogate motherhood in 1996 as part of the Embryo Carrying Agreement, and all surrogacy contracts are approved by a committee appointed by the government and the national ministry of health. Motherhood has a very great and important role in Israeli society, and therefore bestows upon a single woman of marginal status a more normative status. A completely opposite set of circumstances can be found in Egypt, a patriarchally organized country, where the cost of one cycle of *in vitro* fertilization treatment exceeds the annual income of the average Egyptian. In Egypt there is a strong pronatalism and a cruel stigmatization of infertility. Male progeny is nurtured, as it will continue the patrilineal structures in the future, while male infertility is seen as a negation of masculinity. Contrary to Egypt, in Lebanon there is a greater openness in terms of male infertility and it is accepted like any other medical problem which is not to be kept secret. In China, the single-child policy has led to a limit in the number of centers for assisted reproduction and the number of *in vitro* fertilization cycles performed annually. In Confucian societies, the inability to have offspring, and especially sons, is considered shameful. It was mostly the women who shouldered the responsibility for infertility, even though that is not always realistically the case. Female respondents have stated that they have used oocytes inseminated with the semen of their husbands and that this was an important factor which determined that the child is "theirs". Because of the patrilineal pattern, there much caution about using the semen of an anonymous donor. Theoreticians point out that adhering the single-child policy and relying on the practice of assisted reproduction have facilitated the creation of one perfect child, more precisely "the perfect boy". In India motherhood is considered the basis of the gender identity of the woman and it lifted to the level of the divine. Women achieve a higher social status when they become mothers, especially the mothers of sons. Sons are very important since they provide economic security for their elderly parents, while daughters are considered "someone else's property". This very strong preference for sons has led to mass abortions and the disruption of the balance in the demographic profile of the country. In India, commercial surrogacy has been very popular ever since 2002, when it was legalized. Of the 500-600 babies born in surrogacy the world over, 100-150 are born in India per year. This type of gestational surrogacy has become quite popular among Indian surrogate mothers and infertile women from the west. The needs of infertile women from "the first world", and the financial troubles of women from "the third world" have established a mutual dependence which represent a sort of basis for mutual solidarity. It is not just the low prices which are being paid in this country that are the deciding factor, but also the belief that women of "brown skin" will find it easier to give up a "white-skinned" child.

A brief overview has also been provided of the Serbian pronatalist strategy which rests within a legal framework of heteronormativity, marriage and the absence of previous genetic offspring. From the mid-1980s, artificial insemination was introduced in Serbia as treatment for infertility, while the first law which regulates this field (treating infertility) was passed in 2009, and a new one, which regulates biomedically assisted reproduction was passed in 2017.

The remaining articles in the collection present data from a study of stress and the strategies used to overcome stress among women dealing with infertility, the importance of infertility for the experience of marital quality and the possibility for divorce among women, sexual dysfunction, and the affective attachment issues among women struggling with infertility, motivation for parenthood in relation to means of conception, psychophysical health, intentions, experiences and the need to seek out professional help in the case of women dealing with infertility.

As expected, the female respondents dealing with infertility more frequently face a series of physical and psycho-social stressors. As expected, the results have indicated that female respondents struggling with this problem will perceive the stressors related to infertility more negatively, while assigning greater positive importance to stressors which assist in distraction, compared to female respondents who are not facing issues of infertility. In the case of women suffering from infertility, a lower level of marital satisfaction was registered; however, when conducting research on this topic, attention should be paid, in addition to the duration of the marriage, to the type and number of unsuccessful fertility treatments, since they can increase the negative impact on pleasure. Furthermore, it is also necessary to include the women's marital partners in such research, so the problem of infertility could be viewed through the partner prism. When studying sexual dysfunctions, the data indicate that all the indictors of sexual dysfunctions are more present among women who do not have children, compared to women who have become mothers but are dealing with infertility when trying to conceive their second child. Viewing these data within the context of primary infertility, a greater source of stress and dysfunctional patterns are expected. Since studies of the differences in affective attachment between these groups are not to be found, the results presented in this paper could be very significant for pointing out the specific nature of these two groups, and also the application of these results in practice. The results for the dimension of avoidant patterns are higher among women who do not have children. The motivation to be a parent varies and depends on numerous factors, and what the results of one of the articles published in the proceedings indicate is that there are differences in the fatalistic form of motivation between pregnant women who have conceived naturally and women who are undergoing IVF. Fatalistic motivation interprets reproduction as the purpose of life and the manner of survival of humankind, as something unavoidable. In addition, altruistic motivation which points to the love one feels for their children and the desire to care for them is also predominant. Women dealing with infertility have a somewhat greater level of social behavior disorders compared to female respondents form the control groups, which can be ascribed to the social stigmatization which is attached to infertility. In their case a moderately disrupted physical health was also noted, considering that women with infertility issues are faced with a greater number of stressors, and the identified higher level of fatigue is also explained in the same way. One half of the female participants dealing with infertility reported their intention to seek out psychological help; however, only one-quarter spoke of having actually gone out and actively looked for it. The study which focused on the need that women struggling with infertility have for psychological support indicates that psychological support could be of significance when working with feelings experienced in all the phases of confronting problems. They also need the support in the field of partner function, the financial aspect of treating infertility and the continued participation in social life. Considering that 17% of couples in Serbia are dealing with infertility (Statistical Office of the Republic of Serbia, 2011), the results of this research represent useful guidelines for the creation of support programs for couples struggling with infertility.

The final article in the collection presents the *Program za podršku parovima koji se suočavaju sa sterilitetom 3PS* (3PS: A support program for couples dealing with infertility), which emerged based on the overview of research and programs carried out abroad, and the study of the need for support carried out on our sample. The program combines three forms of support: – partner support, support from people dealing with the same problem, and professional psychological support. The basic aim of this program was to improve the quality of life and satisfaction of the couples, and to reduce stress. The experiences of participants in

the pilot study indicated that the program was a positive experience, and was a useful tool for strengthening bonds of unity among partners, for improving communication, pleasantness when sharing experiences with other individuals dealing with the same problem, and awareness of the presence of various emotions which need to be worked on.

This collection combines articles which deal with a very important topic in need of further research, in order to facilitate the formation of a higher quality approach in recognizing and treating infertility, but also the necessary support programs for the couples. A significant contribution of individual studies would contribute the inclusion of a greater number of male participants, that is, the study of the effects of infertility on partner relationships from a dyadic perspective. Every one of these articles presents significant guidelines for researchers for future work in this field.

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CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

1+316+159.9+93/94

FACTA Universitatis. Series, Philosophy, Sociology, Psychology and History / editor-in-chief Dragan Todorović. - Vol. 7, N° 1 (2008)- . - Niš : University of Niš, 2008- (Niš : Unigraf-X-Copy). - 24 cm

Tri puta godišnje. - Je nastavak: Facta Universitatis. Series: Philosophy, Sociology and Psychology = ISSN 1451-2483. - Drugo izdanje na drugom medijumu: Facta Universitatis. Series: Philosophy, Sociology, Psychology and History (Online) = ISSN 1820-8509
ISSN 1820-8495 = Facta Universitatis. Series: Philosophy, Sociology, Psychology and History
COBISS.SR-ID 155246604