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Exploring emotional aspects of infertility in women from two countries

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A plethora of studies have examined the prevalence and severity of anxiety and depression in relation to infertility, while ignoring social and cultural factors. The aim of this cross-cultural study is to examine emotions related to quality of life, perceived social support, depression and anxiety in two groups of young women with identical demographic characteristics (age, education, and duration of infertility – years to have a child) who experience fertility problems in two neighboring countries, Greece and Bulgaria. A total of one hundred forty-eight women from both countries completed a demographics questionnaire along with the Multidimensional Scale of Perceived Social Support (MSPSS), the Subscale regarding State Anxiety from the State-Trait Anxiety Inventory (STAI), the Center for Epidemiologic Studies Depression Scale (CES-D), and some chosen questions from the Fertility Quality of Life (FertiQol). Seventy-four female participants from Northern Greece and seventy-four female participants from Southern Bulgaria were examined. The two groups of women did not show any statistically significant differences regarding their age, years of education, and the years needed in order to have their first child. The women were not on any type of medical treatment for their infertility problem at the time of the completion of the questionnaires. Results indicated that women in both countries did not have different levels of anxiety and depression regarding their infertility, but they had statistically different self-reported perceptions of social support and related to infertility quality of life. Future research should further investigate infertility and its relation to other emotional variables in larger samples of varying age ranges from different cultural environments.

Key words: Depression, anxiety, perceived social support, quality of life, infertility, cross-cultural study.

Introduction

Infertility is considered to be a major life event that brings about social and psychological problems. Among couples of reproductive age, 9% experience constant infertility, 16% experience infertility at some point in their lives, while these rates are con-

sistent internationally.¹ Couples, as well as individually men and women are affected by infertility in different ways.²⁻⁴ This study is focused on emotional aspects of infertility in women, because it has been established that men appear more reluctant than women to submit to examination into fertility problems.⁵

Research examining the varying effects of infertility on the emotional-psychological health of women focus mainly on the measurement of negative emotions during infertility treatment periods,^{6,7} while the general impact on everyday life is not adequately examined so far in different countries. Regardless of the country, the couples with infertility may feel uncertainty about the future, stress, sadness, anxiety, depression, and other negative emotional states.

Disclosure of negative emotions in relationships (e.g. with spouse/partner, family members, friends, and significant others) have been found to reduce adverse sequelae of stressful events and engagement in social coping has been demonstrated to augment physical and psychological wellbeing for a wide range of stressors.⁷ Social support-relationships within the context of infertility appear to be complex, because some research demonstrates similar positive effects of perceived and obtained support,⁸⁻¹⁰ while other studies indicate that individuals with infertility problems (both men and women) often experience negative consequences when information is shared.¹¹⁻²⁰ Sharing infertility problems could sometimes provoke derision by the surrounding people. Declining fertility in modern societies is related to low social support, and few kin (relative) networks.²¹

The principal aim of this paper is to investigate for the first time different aspects of emotional experiences in young women who face infertility problems in two neighbouring countries that share a lot of cultural, social and religious traditions.

There are some similarities, but also differences in fertility patterns in both countries. Greece is included in the list of the countries characterized by 1785-1900 fertility decline onset, whilst Bulgaria is among the countries with 1900-1945 fertility decline onset.²² At the beginning of the twentieth century, Bulgaria and Greece had similar rates of fertility – high fertility, but by the late 1920s Bulgarian birth rate had fallen.²³ Proportion of individuals having no children was higher for Greece than for Bulgaria from 1940 to 1960.²⁴ Fertility rate in Greece was relatively stable from 1960 to 1995,²⁵ a small fertility decline occurred in Greece between 1960 and 1998.²⁶ Bulgaria and Greece had similar fertility rates for the period from 1980 to 2000.²⁴ Higher population decline is expected in Bulgaria than in Greece.²⁷

Bulgaria and Greece both have a lower total fertility rate compared to the EU-27 average.²⁸

In addition to that, there is a continuous decrease in fertility rate in Eastern Europe after 1990.²⁹ Eastern Europe has the lowest fertility in the world²⁹ that is why it is important to be studied emotional aspects of infertility in women from Bulgaria and Greece.

Low fertility of the countries of Southern Europe occurs in those countries in which an emphasis on the family remains strong, they are family oriented.²⁶ Both Bulgaria²³ and Greece²⁸ value family, despite of the changing contemporary gender roles.

Infertility pattern in Bulgaria is characterized by its beginning among almost entirely rural population, under the conditions of early marriages, in the social and economically homogeneous Bulgarian society that presumes relative ease of internal communication, and hence a faster diffusion of the ideas, norms and practices associated with birth control.²³ Besides, there has been a huge emigration wave of Bulgarians at fertility age³⁰ that could explain partly low Bulgarian fertility rate. Immigrants have higher fertility rates than native residents³¹ and immigrant women were not studied for the goals of this research.

Low fertility is typical for modern industrialized and urbanized nations.^{21,32,33} Migration from rural to urban areas is related to higher infertility. This paper is focused mainly on emotional aspects of infertility among women from the urban areas of Bulgaria and Greece.

Greek society is characterized by masculinity values³⁴ that supposes more rational than emotional approach to infertility. More institutional support than emotional support to infertility could be expected in a society with masculine values.

Both states have active policies regarding infertility that express concern about people with infertility problems, for example the countries' policies try to facilitate the access to assisted reproductive technology.¹ They offer a wide range of educational and occupational choices for women.³⁵

Women in Bulgaria tend not only to be educated and employed, but to have low life expectancy³⁶ that could be related to lower quality of life and durable negative experiences. Bulgarian mothers seem to have more anxiety and depression in self-

report measures when compared to Greek mothers.³⁷ Therefore, it could be expected that Bulgarian women would experience high levels of anxiety and depression related to infertility.

Low fertility might be the consequence of a decision to delay motherhood,³⁸ as it is the case in Greece. Mothers in Greece are older at childbirth and the majority of live births are inside marriage.²⁸ Bulgaria has younger mothers,²⁸ adolescent fertility was much higher in Bulgaria than in Greece in 2014.³⁹

Low fertility might be related to the new attitudes towards family and the working life of women as a consequence of their new education and economic status, and also as a result of the combination of gender equity to distribute family costs, and the lack of stability in the labour market which prevails in southern European societies.³⁸

The changes in socio-economic conditions are connected with decrease in fertility.⁴⁰ Both countries have undergone some changes in their political and economic development – Bulgaria, in the transition from socialism to democracy, Greece during its economic debt crisis,⁴¹ that could increase uncertainty, especially in women.

Poverty rates have been increased in Greece from 2009 onwards.⁴² Bulgarian Gross Domestic Product per capita is below 75% of the EU average.²⁸ The increased financial difficulties among a huge part of the population might make more difficult the choice to raise children and they could cause low fertility rates. The negative emotional states in women with fertility problems could be related also to some factors that parallel infertility, as their financial problems, not only to their health problems.

Fertility expectations and fertility choices are dynamic and change over time, they are not stable, but the impact of partnership status on fertility expectations cannot be ignored at any moment. Partnership status is a major factor in understanding someone's fertility expectations over time.⁴³

People who are not in a relationship and who are more advanced in age often do not expect to have a child in the future.⁴³ This study is focused on young women who are in a relationship and who desire to have children.

More specifically, emotional experiences were examined in the form of levels of anxiety and depres-

sion, perceived social support and quality of life. Apart from the hypothesis that Greek women would have less negative emotional experiences, due to financial and social differences that may act as burden for the Bulgarian sample, a second hypothesis was also tested. The second purpose of the study was to investigate the relationships between anxiety/depression symptomatology and social support as well as all these variables with the quality of life, assuming that less anxiety/depression would be correlated with more perceived social support and better quality of life.

Material and method

Seventy-four female participants from Northern Greece and seventy-four female participants from Southern Bulgaria participated voluntarily in this cross-cultural study, while at the time of the questionnaire administration they were not on any type of medical treatment for their infertility problem. The two groups (Greek versus Bulgarian) did not differ in age (26.48 ± 6.82 versus 24.09 ± 8.21 , $t(146) = 1.92$, $p = .056$), did not differ in years of education (13.00 ± 1.72 versus 13.05 ± 1.97 , $t(145) = .179$, $p = .858$), and did not differ in the period of time that they made in order to have a child (1.79 ± 1.54 versus 2.02 ± 2.18 , $t(146) = .737$, $p = .462$).

Data collection was conducted during the same period in both countries (summer of 2016). All of the participants were tested in their mother tongue, with the Multidimensional Scale of Perceived Social Support (MSPSS) (12 questions, Cronbach's alpha for our sample = .929), three questions from the Fertility Quality of Life (FertiQoL), the State-Trait Anxiety Inventory (STAI) (20 questions regarding anxiety as state in our case, Cronbach's alpha for our sample = .803) and the Center for Epidemiologic Studies Depression Scale (CES-D) (14 questions, Cronbach's alpha for our sample = .922).

The three questionnaires were chosen based on their widespread use, mainly in the English-speaking world in clinical as well as non-clinical samples and because there are available forms in both the Greek and Bulgarian language. More specifically, the MSPSS⁴⁴ is a 12-item self-report measure of subjectively assessed social support, which includes three subscales, each addressing a different source of support, such as a. family, b. friends, and c. the sig-

nificant other. The scoring for all of the sentences ranges from 1=if you very strongly disagree, 2=if you strongly disagree, 3=if you mildly disagree, 4=if you are neutral, 5=if you mildly agree, 6=if you strongly agree, and 7=if you very strongly agree.

The STAI⁴⁵ is an introspective psychological inventory consisting of 40 self-report items pertaining to anxiety symptoms. In our study, we used only the 20 state questions, which are scored on 4-point Likert-type response scale. Scores range from 20 to 80, with higher scores suggesting greater levels of anxiety. According to Spielberger's criteria, a score of 40 or higher reflects clinically relevant symptoms of anxiety. Although this specific cut-off has not been validated in a Greek or Bulgarian population, the Greek and Bulgarian STAI scales have been shown to have similar psychometric properties to other translations used in the international research.^{46,47} Bulgarian adaptation of STAI indicates 53 as the cut-off score for S-trait and T-trait in men between 18–60 years old; 57 as the cut-off score for S-trait among women from 18 to 60 years old; 59 as the cut-off score for T-trait among women from 18 to 60 years old; 48 as the cut-off score for S-trait among boys between 13–18 years old; 49 as the cut-off score for T-trait among boys between 13–18 years old; 52 as the cut-off score for S-trait among girls between 13–18 years old; and 56 as the cut-off score for T-trait among girls between 13–18 years old.⁴⁷ Low scores suggest mild anxiety, median scores suggest moderate anxiety, while high scores suggest severe anxiety.

The CES-D⁴⁸ is a measure that rates how often over the past week they experienced symptoms associated with depression. Responses range from 0 to 3 for each item (0=rarely or none of the time, 1=some or little of the time, 2=moderately or much of the time, 3=most or almost all the time). Scores range from 0 to 60, with high scores indicating greater depressive symptoms. The CES-D also provides cutoff scores (e.g., 16 or greater) that aid in identifying individuals at risk for clinical depression, with good sensitivity and specificity and high internal consistency.

Finally, the chosen 5-point Likert scale questions from the FertiQol were namely: A) How would you rate your health?, B) Are you satisfied with your quality of life?, E1) Are your attention and concentration impaired by thoughts of infertility?, E14) Do you feel your family can understand what you are going

through?, E18) Are you bothered by fatigue because of fertility problems?, and E22) Do you feel social pressure on you to have (or have more) children?^{49,50} These specific questions were chosen instead of the full questionnaire, because they were considered as not activating defense mechanisms, not pointing out the issue of fertility as an intimate and intimidating problem for the participants, and at the same time taking into account personal and social consequences of infertility. The chosen questions permit the issue of fertility to be studied also among people who have not stated directly, overtly that they have some fertility problems.

Statistical analyses were performed using SPSS package for Windows, version 21. The statistics mean (M), standard deviation (SD), Pearson correlation coefficients (r), and independent samples t-tests (t) were conducted as the obtained data followed normal distribution. The significance level was selected at $p < .001$.

Results

Comparisons with t-tests revealed that there were no statistically significant differences between the two demographically equated ethnic groups of women for the STAI ($t(119)=.833$, $p=.407$), and the CES-D ($t(134)=1.812$, $p=.072$), but a statistically significant difference was found between the groups for two countries for the MSPSS ($t(138)=.573$, $p < .001$, $\eta^2=.18$), with the Greek women facing infertility problems mentioning less support from their environment in contrast to the Bulgarian women who face infertility problems, but mention more social support (see table 1).

More specifically, all three subscales of MPSS were found to differentiate in a statistically significant way between Greek and Bulgarian women. Namely, family subscale ($t(146)=5.275$, $p < .001$, $\eta^2=.16$), friends subscale ($t(146)=4.721$, $p < .001$, $\eta^2=.13$), and significant other subscale ($t(146)=4.181$, $p < .001$, $\eta^2=.10$) differentiated in the two countries (see table 2).

When the selected questions from the FertiQol were entered into the analyses with the use of Pearson correlations, a number of statistically significant correlations were found for the whole sample regarding the total score of the questionnaires and some other variables, such as FertiQoIA and educa-

Table 1. Anxiety, depression, perceived social support and quality of life in the two study groups.

Questionnaires total scores	MPSS (maximum score 84)	p	STAI (maximum score 80)	p	CES-D (maximum score 60)	p
Greece	59.88 (11.96)	<.001*	48.78 (10.41)	.407	24.41 (9.44)	.072
Bulgaria	71.30 (11.61)		47.59 (5.03)		21.85 (6.88)	

MPSS=Multidimensional Scale of Perceived Social Support, STAI=State-Trait Anxiety Inventory, CES-D=Center for Epidemiologic Studies Depression Scale

*Statistically significant at $p < .001$

Table 2. Differences in family, friends, and significant other subscales of MPSS between Greek and Bulgarian women.

MPSS subscales	Family mean (SD)	p	Friends mean (SD)	p	Significant other mean (SD)	p
Greece	20.28 (5.33)	<.001*	19.37 (3.97)	<.001*	20.43 (4.78)	<.001*
Bulgaria	24.60 (4.61)		22.76 (4.51)		23.83 (5.07)	

*Statistically significant at $p < .001$

tion years ($r(145) = -.186, p = .024$), FertiQoIA and age ($r(146) = -.163, p = .048$), FertiQoIE22 and age ($r(145) = -.183, p = .026$), FertiQoIA and CES-D ($r(134) = -.477, p < .001$), FertiQoIA and MSPSS ($r(138) = .398, p < .001$), FertiQoIB and CESD ($r(134) = -.503, p < .001$), FertiQoIB and MSPSS ($r(138) = .486, p < .001$), FertiQoIE1 and CES-D ($r(130) = .362, p < .001$), FertiQoIE14 and MSPSS ($r(138) = .422, p < .001$).

No statistically significant correlations were found between STAI and MSPSS ($r(114) = -.047, p = .618$), CES-D and MSPSS ($r(128) = -.50, p = .573$). In addition to that, there were no statistically significant correlations between STAI and FertiQoIA ($r(119) = .073, p = .424$), STAI and FertiQoIB ($r(119) = -.907, p = .289$), STAI and FertiQoIE1 ($r(115) = -.156, p = .092$), STAI and FertiQoIBE14 ($r(119) = -.122, p = .182$), STAI and FertiQoIBE18 ($r(119) = -.170, p = .063$), STAI and FertiQoIBE22 ($r(118) = -.154, p = .093$).

No statistically significant correlations were found for CES-D and FertiQoIE14 ($r(134) = -.077, p = .375$), and also CES-D and FertiQoIE22 ($r(133) = -.135, p = .119$).

An interesting finding is that a number of differences between the two countries were found when independent samples t-tests were applied, and statistically significant cross-cultural differences exist

for the questions directly related to infertility: A) How would you rate your health? ($t(146) = 7.156, p < .001, \eta^2 = .25$), B) Are you satisfied with your quality of life? ($t(146) = 6.286, p < .001, \eta^2 = .21$), E1) Are your attention and concentration impaired by thoughts of infertility? ($t(146) = 4.254, p < .001, \eta^2 = .11$), E18) Are you bothered by fatigue because of fertility problems? ($t(146) = 3.879, p < .001, \eta^2 = .09$), and E22) Do you feel social pressure on you to have (or have more) children? ($t(146) = 6.527, p < .001, \eta^2 = .22$), with the exception of the statistically non-significant finding for the question E14) Do you feel your family can understand what you are going through? ($t(146) = .922, p = .358$) (see table 3).

Discussion

Our study results reveal that there are no cross-cultural differences in the Greek and the Bulgarian women regarding their anxiety and depression levels. There were a number of statistically significant differences with large effect sizes regarding the scores of the MSPSS scale, and more specifically higher perceived levels of family, friends, and significant other support reported by the Bulgarian women. This finding corresponds to stronger family

Table 3. Means and standard deviations for the selected questions of the FertiQol

FertiQol Questions	Country	Mean	SD	p value
A	Greece	2.04	1.05	<.001*
	Bulgaria	3.09	.70	
B	Greece	1.98	.95	<.001*
	Bulgaria	2.87	.75	
E1	Greece	2.05	1.04	<.001*
	Bulgaria	2.78	1.00	
E14	Greece	1.70	1.03	.358
	Bulgaria	1.52	1.27	
E18	Greece	2.12	1.27	<.001*
	Bulgaria	2.89	1.14	
E22	Greece	2.16	1.30	<.001*
	Bulgaria	3.45	1.08	

*Statistically significant at $p < .001$

solidarity slightly more expressed among Bulgarians than among Greeks.⁵¹ It is of interest that although the relationship between STAI - MSPSS and CES-D - MSPSS did not reach in this sample statistical significance, a number of statistically significant correlations were found for MSPSS and all FertiQol ques-

tions. Thus, anxiety and perceived social support, as well as depression and social support, may not relate in a profound way in women with prior infertility problems, but quality of life does have a strong relation with perceived social support.

Additionally, young Greek women with infertility problems mention statistically significant lower perceived levels of general health, lower perceived quality of life, lower everyday attention to the infertility problems, less fatigue directly linked to infertility and less social pressure regarding infertility in contrast to the young Bulgarian women with infertility problems.

Although the findings from the correlations revealed not strong correlations between the variables of infertility and emotions, these results concern only young women who have not many years facing infertility problems. In this direction future research should further investigate confounding variables, by including in the analyses other hidden social and/or psychological parameters that might be related directly or indirectly with the social-financial changes in Greece, and may affect the way that women with long-term infertility problems feel and think about infertility.

Διερεύνηση συναισθηματικών πλευρών της υπογονιμότητας σε γυναίκες από δύο χώρες

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Πλήθος μελετών έχουν εξετάσει τον επιπολασμό και τη σοβαρότητα του άγχους και της κατάθλιψης σε σχέση με την υπογονιμότητα, αγνοώντας ωστόσο τους κοινωνικούς και πολιτισμικούς παράγοντες. Ο στόχος αυτής της διαπολιτισμικής μελέτης είναι να εξετάσει τα συναισθήματα που αφορούν στην ποιότητα ζωής, την αντιλαμβανόμενη κοινωνική στήριξη, την κατάθλιψη και το άγχος σε δύο ομάδες νεαρών γυναικών με τα ίδια δημογραφικά χαρακτηριστικά (ηλικία, εκπαίδευση και διάρκεια υπογονιμότητας - χρόνια έως την απόκτηση ενός παιδιού), οι οποίες αντιμετωπίζουν προβλήματα γονιμότητας σε δύο γειτονικές χώρες, την Ελλάδα και τη Βουλγαρία. Συνολικά εκατόν σαράντα οκτώ γυναίκες προερχόμενες και από τις δύο χώρες συμπλήρωσαν ένα ερωτηματολόγιο για την καταγραφή των δημογραφικών τους στοιχείων μαζί με την Πολυδιάστατη Κλίμακα Προσλαμβανόμενης Κοινωνικής Υποστήριξης (Multidimensional Scale of Perceived Social Support), την υποκλίμακα

Καταστασιακού Άγχους από το Ερωτηματολόγιο Καταστασιακού-Σταθερού Άγχους (State-Trait Anxiety Inventory), την Κλίμακα CES-D (Κέντρο για την Επιδημιολογική μελέτη της κατάθλιψης), και κάποιες επιλεγμένες ερωτήσεις από το Ερωτηματολόγιο Ποιότητας Ζωής Γονιμότητας (Fertility Quality of Life). Εβδομήντα τέσσερις γυναίκες οι οποίες προέρχονταν από τη Βόρεια Ελλάδα και εβδομήντα τέσσερις γυναίκες από τη Νότια Βουλγαρία συμμετείχαν στην έρευνα. Οι δύο ομάδες γυναικών δεν παρουσίαζαν στατιστικώς σημαντικές διαφορές όσον αφορά στην ηλικία, τα έτη εκπαίδευσης και τα χρόνια για την απόκτηση ενός παιδιού. Οι γυναίκες δεν λάμβαναν κανενός είδους θεραπεία ή φαρμακευτική αγωγή για το πρόβλημα υπογονιμότητάς τους κατά τη συμπλήρωση των ερωτηματολογίων. Τα αποτελέσματα έδειξαν ότι οι γυναίκες και στις δύο χώρες δεν είχαν διαφορετικά επίπεδα άγχους και κατάθλιψης σε σχέση με το πρόβλημα υπογονιμότητας που αντιμετωπίζουν, αλλά παρουσίασαν στατιστικά διαφορετικές αντιλήψεις για τον βαθμό της κοινωνικής στήριξης και την αναφερόμενη ποιότητα ζωής τους. Η μελλοντική έρευνα θα πρέπει να διερευνήσει περαιτέρω την υπογονιμότητα και τη σχέση της και με άλλες συναισθηματικές μεταβλητές σε μεγαλύτερα δείγματα διαφορετικού ηλικιακού εύρους από διαφορετικά πολιτισμικά περιβάλλοντα.

Λέξεις ευρητηρίου: Κατάθλιψη, άγχος, προσλαμβανόμενη κοινωνική υποστήριξη, ποιότητα ζωής, υπογονιμότητα, διαπολιτισμική έρευνα.

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