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ORIGINAL PAPER

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The Effect of Spirituality on Mental Health Among Hypertensive Elderly People: A Cross-sectional Community-based Study

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ABSTRACT

Introduction: Elderly suffering from hypertension may also experience other psychological disorders in their daily life, such as depression and anxiety. Moreover, they use spiritual practices to relieve symptoms or comorbidities of hypertension. All these practices produce a calming effect on them.

Aim: This study aims at investigating the relation between spirituality and mental health among older adults with hypertension and their sociodemographic characteristics. **Methods:** A descriptive, cross-sectional study was conducted in Greece. A questionnaire consisting of the sociodemographic characteristics, the FACIT-Sp-12 scale and the General Health Questionnaire-28 (GHQ-28) was completed by a total of 134 hypertensive elderly (≥ 65 years of age) persons. Descriptive and inferential statistical methods were used. **Results:** The sample consisted of 42,5% males and 57,5% females, aged 65 to 95 years, with a mean age of 78,38 years (SD= 6,68). A statistically significant correlation was found between FACIT-Sp-12 total score and the “physical discomfort ($r=-0,562$ $p<0,001$), “anxiety” ($r=-0,735$ $p<0,001$), “social disfunctioning” ($r=-0,650$ $p<0,001$), “depression” ($r=-0,735$ $p<0,001$) and the total score of GHQ-28 ($r=-0,735$ $p<0,001$). Specifically, the higher the total score of spirituality among older hypertensive adults the lower the rates of psychosomatic disorders and the total burden of mental health (and vice versa). **Conclusion:** Results showed that younger elderly, living in urban areas and not experiencing any other chronic

health conditions, have higher levels of spirituality compared to older. Also, a negative correlation was found between spirituality and mental health. **Key words:** spirituality; hypertension; elderly; mental health

1. INTRODUCTION

Spirituality is an aspect of human experience which is challenging to study. It influences on individual behavior and attitudes in a variety of situations, such as in mental and physical health issues. It is defined as the meaning and purpose of life, and it is the connection of one’s self with the environment or a higher power, which is believed to be associated with everything that permeates life (1).

Dealing with spirituality / religiosity seems to be a key concern that senior citizens must contend with and especially when they have chronic health problems (2). Health problems as well as difficulties of life lead the individual to look for ways to accept and deal with these or to overcome them, and in many cases, spirituality fulfils the needs of the person associated with the power and meaning of life (3).

A chronic health condition often experienced by the elderly is hypertension, which is the major cardiovascular risk factor in elderly patients (4). The clinical manifestations of hypertension include high and persistent blood pressure levels (2). Stiffness of large arteries leads to multiple

hemodynamic effects such as increased pulse pressure and eventually and, consequently, to the development of isolated systolic hypertension (5).

The relationship between hypertension and spirituality, as a way of dealing with health conditions, has been the subject of a moderate body of research (2,6,7). In many cases, it has been found that spirituality helps to improve the quality of life of individuals (2), which is in turn associated with better physical and mental health, for example, with reduced levels of anxiety and depression (6). In particular, Anyfantakis et al. state that there is a positive impact of spirituality/religiosity on various cardiometabolic risk factors which contribute to the onset of hypertension (8).

Older individuals who are engaged in spirituality or participate in different types of religious events appear to have more social support (9) and lower mortality rates, tend to be in better physical health and also have less depressive symptoms (10-14). However other studies have shown that religious involvement and spirituality have little effect on depressive symptoms (15), and on different aspects of mental and physical health, which may be related to the place where someone lives, the role the individual plays in various religious practices and other factors such as physical health (10, 14, 16).

Spiritual practices also have long-term effects on cognitive functions such as memory. This is especially important for older adults, as it is perceived that spirituality helps them maintain healthy brain function as they grow older (17). On the contrary, those who don't participate in spiritual activities appear to exhibit reduction in executive attention with age, while this does not happen to those involved in spiritual practices such as meditation (18).

At the same time, the elderly who face a multitude of health issues and have more severe physical health are more involved with religious or spiritual practices compared with older people who do not pay much attention to these concepts. Many individuals have orientation toward religion and faith as a way in which they find meaning in their illness and to manage their health status. Faith gives the ability to incorporate health changes into their life in a more efficient way. The practices used, such as prayer, help them relax, to shift their attention away from negative experiences and face the impact of isolation and loneliness which arise (19). Those who have faith seem to be better able to deal with health problems they face due to having supportive social networks (9).

2. AIM

This study aims at investigating the effect of spirituality on mental health of elderly hypertensive people.

3. MATERIAL AND METHODS

The current study belongs to observational studies and particularly to descriptive correlational studies. A cross-sectional study design was used.

Population and Sample

The study population consists of elderly with arterial high blood pressure. The sample consisted of 134 older adults diagnosed with high blood pressure who were recipients of health care services provided by Open Day

Care Centers for Elderly People-KAPI and 'Help at Home' Programme in the Municipalities of Ellassona and Larissa, in the Larissa regional unit in Greece. The study inclusion criteria included: a) adult men and women aged 65 years and older, b) a diagnosis of arterial hypertension and c) antihypertensive medication use.

Convenience sampling, a non-probability sampling technique was used.

Data collection method and Research tools

Research methodology is based on empirical data collection from Open Day Care Centers for Elderly People-KAPI and 'Help at Home' programme in the Municipalities of Ellassona and Larissa, in the Larissa regional unit in Greece. An anonymous, structured and self-administered questionnaire was used to collect data from each respondent. Participants participated in the study voluntarily, after receiving oral and written information and after written consent had been obtained, in order to ensure compliance with basic ethical principles and ethical standards.

In particular, the questionnaire was composed of three parts, which are as follows:

a) An investigator-developed questionnaire was designed to collect data related to participant sociodemographic characteristics and other personal data, such as age, gender, marital status, presence of children, education level, insurance company, monthly household income, place of residence, whether they live alone or with others, religion, how religious they are and the existence of other chronic health problems.

b) The validated Greek Functional Assessment of Chronic Illness Therapy - Spiritual Well-Being Scale - 12 (FACIT-Sp-12), instrument was used to assess the spirituality level of the elderly (1). The Greek version of the Scale was proved to be a reliable and valid measure with the value of Cronbach's α reliability coefficient being 0.77. The scale was created by Cella et al. and has been widely used for the assessment of spirituality in chronic patients (20). It is a part of a larger measurement system that assesses important functional factors in patients with chronic diseases. Spiritual well-being Scale (FACIT-Sp-12), consists of 12 questions, with the recall period for each question being seven days. Those 12 questions are divided into three subscales, the 4-item faith subscale and two separate 4-item subscales for meaning and for peace. Answers are scored on a five-point Likert scale ranging from 0 (not at all) to 4 (very much). Two items are negatively worded and must be reverse coded. A total score of spiritual well-being is obtained from the sum of all points a respondent earned in each question. Higher total FACIT-Sp-12 score and individual subscale scores reflect higher spiritual well-being.

c) General Health Questionnaire - 28 (GHQ-28) was used for the assessment of mental health status of the elderly. GHQ-28 is one widely used self-report questionnaire directed towards the detection of possible psychiatric morbidity in general population (21). GHQ is available in four different versions, according to the number of items. The 28-item version of the General Health Questionnaire was chosen for the present study because it has been used most widely in other studies. The scale has been translated and validated for the Greek population by Garyfallos et al. (22).

Characteristics		n	%
Gender	Male	57	42.5
	Female	77	57.5
Age (years)	65 – 69	13	9.7
	70 – 79	56	41.8
	80 – 89	60	44.8
	≥ 90	5	3.7
	Mean ± SD	78.38 ± 6.68	
Marital status	Single	6	4.5
	Married	63	47.0
	Divorced	2	1.5
	Widowed	63	47.0
Number of children	0	13	9.7
	1 – 2	66	49.3
	≥ 3	55	41.0
Highest level of education	None	58	43.3
	Primary	66	49.3
	Secondary	8	6.0
Place of residence	Tertiary	2	1.5
	Urban	28	20.9
	Semi-urban	38	28.4
Living arrangement	Rural	68	50.7
	Alone	58	43.3
	With family	76	56.7
Monthly individual income (in Euro)	≤ 300	7	5.2
	301 – 600	83	61.9
	601 – 1000	40	29.9
Self-reported chronic diseases (except hypertension)	≥ 1001	4	3.0
	Yes	92	68.7
	No	42	31.3

Table 1: Characteristics of the hypertensive elderly participants (n=134).

The scale has good validity and reliability and has been widely used in previous studies conducted in Greece. The GHQ-28 consists of 28 close ended questions designed to assess the mental health status of adults. These questions are related to the presence of various psychosomatic complaints in adults, normal day-to-day activities, self-efficacy, feelings about life and self-esteem. The scoring takes the form of a four-point Likert scale with response options ranging from 0 (“Not at all”) to 4 (“Much more than usual”). Items may be scored using the Likert method (0-1-2-3) and the total possible score on the GHQ 28 ranges from 0 to 84. The higher the score the poorer the psychological well-being of the individual. Also, the 28 items of the GHQ total scale can be divided into four subscales of 7 items each, which measure the constructs of somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. Higher scores represent higher levels of specific disorders for each subscale.

Statistical Data Analysis

The collected data were analyzed using SPSS software, version 19.0 to obtain descriptive and inferential statistics. Descriptive statistics included the frequency distribution of

qualitative variables (absolute frequency and relative frequency) as well as the position and dispersion parameters (mean, median, standard deviation, maximum and minimum value) of the quantitative variables. Inferential statistics which was used to examine the relationship among variables, included the Pearson correlation coefficient, r, and multiple linear regression.

4. RESULTS

Individual characteristics of the participants are reported in Table 1. A total of 134 older adults were examined for this study out of which 57 (42.5%) were males and 77 (57.5%) were females. Participants’ ages ranged from 65 to 95 years and the average age of the overall sample was 78,38 years (SD = 6,68). Concerning marital status, 47,0% of the participants were married and 47,0% were widowed. 90,3% had children and about half of the respondents in our sample reported having 1 to 2 children (49.3%). Remarkable, too, is the percentage of participants who reported having three or more children (41.0%). About four-in-ten seniors reported living alone (43.3%) and 56.7% reported living with others. Regarding the level of education, the overwhelming majority of participants had attended some classes in primary school or had graduated primary school (49.3). With regards to the place of residence, 28 participants lived in urban, 38 in semi-urban and 68 in rural places. Approximately two-thirds of seniors were living under a monthly income less than or equal to € 600. In regard to health insurance, the majority of participants were insured in the insurance scheme for agricultural employees (OGA) (60,4%) and in the Institute for Social Insurance (IKA) (26,9%). Almost all participants reported being Orthodox Christians (99,3%) and stated that they felt too religious (86,5%). Except for hypertension, 68,7% of respondents experienced more chronic medical conditions (Table 1).

The Cronbach-α coefficient of the three FACIT-Sp-12 ranged from 0.75 to 0.80 indicating good level of internal consistency and good reliability within the assessment (Table 2). The total score of spirituality using the “FACIT

Scales and Domains	Item amount	Mean ± SD	Range	Cronbach's alpha
GHQ-28				
- Somatic symptoms	7	7.57 ± 4.73	0 - 21	0.89
- Anxiety and insomnia	7	8.21 ± 4.71	0 - 20	0.88
- Social dysfunction	7	9.04 ± 5.35	1 - 21	0.93
- Severe depression	7	4.15 ± 4.57	0 - 18	0.90
- GHQ total	28	28.97 ± 16.88	4 - 76	0.96
FACIT-Sp-12				
- Meaning	4	10.88 ± 3.04	2 - 16	0.75
- Peace	4	8.19 ± 3.53	0 - 16	0.80
- Faith	4	9.03 ± 3.24	1 - 16	0.79
- FACIT-Sp total	12	28.10 ± 8.23	9 - 46	0.88

GHQ: General Health Questionnaire
 FACIT-Sp: Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale

Table 2: Scores of the GHQ-28 and FACIT-Sp-12 subscales among the elderly (n=134).

GHQ-28	FACIT-Sp-12			
	Meaning	Peace	Faith	FACIT-Sp total
Somatic symptoms	-0.534***	-0.643***	-0.228**	-0.562***
Anxiety and insomnia	-0.549***	-0.633***	-0.293**	-0.589***
Social dysfunction	-0.547***	-0.654***	-0.428***	-0.650***
Severe depression	-0.704***	-0.744***	-0.474***	-0.765***
GHQ total	-0.667***	-0.765***	-0.409***	-0.735***
Pearson's correlation coefficient (r)				
*p<0.05, **p<0.01, ***p<0.001				

Table 3: Correlation between GHQ-28 dimensions and FACIT-Sp-12 subscales.

GHQ-28	FACIT-Sp-12							
	Meaning		Peace		Faith		FACIT-Sp total	
	β (SE)*	P value	β (SE)*	P value	β (SE)*	P value	β (SE)*	P value
Somatic symptoms	-0.737 (0.116)	<0.001	-0.770 (0.096)	<0.001	-0.340 (0.125)	0.007	-0.302 (0.043)	<0.001
Anxiety and insomnia	-0.777 (0.119)	<0.001	-0.792 (0.099)	<0.001	-0.329 (0.124)	0.009	-0.315 (0.044)	<0.001
Social dysfunction	-0.763 (0.128)	<0.001	-0.839 (0.105)	<0.001	-0.487 (0.126)	<0.001	-0.349 (0.046)	<0.001
Severe depression	-0.968 (0.098)	<0.001	-0.906 (0.082)	<0.001	-0.553 (0.110)	<0.001	-0.401 (0.034)	<0.001
GHQ total	-3.252 (0.369)	<0.001	-3.337 (0.288)	<0.001	-1.603 (0.410)	<0.001	-1.360 (0.131)	<0.001

*Regression coefficient (standard error) adjusted for socio-demographic and medical characteristics.

Table 4: Multiple regression results with GHQ-28 dimensions as dependent variables and FACIT-Sp-12 subscales as independent, adjusted for characteristics of the elderly.

– Sp12 Scale” ranged from 9 to 46 with mean value 28,10 (SD= 8,23) and median 29,00. For the FACIT – Sp 12 subscales we calculated a) for the “meaning” subscale a mean value equal to 10,88 (SD=3,04) and median 11,00, b) for “peace” subscale a mean value equal to 8,19 (SD=3,53) and median 9,00, c) for “faith” subscale a mean value equal to 9,03 (SD=3,24) and median 9,00 (Table 2).

The total score for GHQ-28 ranged between 4 and 76, the mean value was 28,97 (SD=16,88) and the median value was 23,00. In subclass analysis of the GHQ results: a) for the subscale somatic symptoms mean score was 7,57 (SD=4,73) and median value was 6,00, b) for the subscale anxiety and insomnia mean score was 8,21 (SD=4,71) and median value was 8,00, c) for the subscale social dysfunction mean score was 9,04 (SD=5,35) and median value was 7,00 and d) for the subscale social dysfunction mean score was 4,15 (SD=4,57) and median value was 3,00 (Table 2).

As shown in Table 3, there is a statistically significant negative relationship between spiritual well-being (FACIT-Sp-12) and mental health (GHQ-28).

To test the influence of spirituality on mental health of hypertensive elderly, a multiple linear regression was performed. Demographic variables, medical characteristic and spirituality total score and the subscales were entered into the model as the independent variables. Total GHQ-28 score and subscales of GHQ 28 were the dependent variables. The results from multiple linear regressions analysis (Table 4) revealed that there was a significant effect of spirituality on mental health of the hypertensive elderly. More specific

when total spirituality and the subscales are increasing the score of GHQ-28 in total and in subscales is decreasing in a statistical significant level $p < 0.001$ in all cases, revealing the positive effect of spirituality on mental health of hypertensive elderly.

5. DISCUSSION

The main purpose of this research is the study of relationship between mental health and spiritual wellbeing among older adults and the identification of the nature of this relationship. Our findings are in agreement with those of other authors who showed that spirituality has positive effects on the general health of the individual (23).

Religion and spirituality are closely related and intertwined as both concepts refer to a divine being and to individuals’ beliefs about it (23). According to Cowlshaw et al., higher levels of religious attendance is associated with higher levels of psychological well-being (24). Religion is recognized as a key element in palliative care for the management of chronic diseases such as hypertension and kidney failure and there is a great deal of studies that suggest that those who believe are better able to manage their health conditions (1).

Moreover, there were statistically significant correlations between the FACIT – Sp 12 total score and the “somatic symptoms” ($r = -0,562$ $p < 0.001$), the “anxiety” ($r = -0,589$ $p < 0.001$), the “social dysfunction” ($r = -0,650$ $p < 0.001$), the depression ($r = -0,765$ $p < 0.001$) and the total scores of GHQ-28 ($r = -0,735$ $p < 0.001$). In particular, when levels of spiritual well-being in elderly patients with hypertension increased, both psychosomatic disorders and the total burden of mental disorders were reduced (and vice versa). This finding was in agreement with that made by Baetz et al., who has argued that having a strong sense of spirituality might lead to a reduction in depression symptoms (25). Individuals with a stronger sense of spirituality have less psychosomatic symptoms. At the same time, they have lower mortality rates and better physical health (13). Previous literature argues that people with intense spiritual lives are better able to cope with stress and with the consequences of having a chronic illness (26, 27).

Ottaviani et al. state that through spirituality indi-

viduals are able to manage their chronic diseases that are directly linked to conditions such as hypertension (28). Therefore, spirituality is an element of the quality of life of the individual and is associated with improved well-being (23, 29). At the same time, it is argued that the development of meaning which occurs through spirituality has a positive impact on the individual's psychology, particularly for those who are older. Third age individuals face several challenges related to declines in physical function. It may be that, this ability to find meaning in such challenges, through spirituality, is extremely important for preserving life satisfaction and personal wellbeing (24).

Delaney et al, argue that hypertensive individuals with a high level of spirituality have reduced stress levels and better psychosomatic health (6). One of the main findings of Anyfantakis et al's research was that those with a strong sense of spirituality/ religiosity were less likely to experience mental disorders, namely depression (30). Involvement and participation in religious activities may strengthen social contact, optimism and feelings of belonging to a group leading to reduction of depression symptoms. Spirituality gives people the opportunity to mobilize and thus to deal with any problems that might arise, either physical or mental. Specifically, spiritual beliefs help people to gain awareness of their medical conditions and to better integrate health changes into their everyday lives. Indeed, religious practices can help a person relax, distract his attention from loneliness, and react to the isolation which can result from physical illness (19). Also, it is worth mentioning that religion, as opposed to spirituality, can have opposing effects on individual's mental health, making him think that illness is punishment from God (23).

Our hypothesis is that spirituality can help a person not to experience psychosomatic symptoms as it encourages him to make healthier lifestyle choices. Thus, the person might stop drinking alcohol, quit smoking and follow a healthier diet, which over time result in better physical and mental health (31). Bonelli et al, also claim that spiritual and religious beliefs can be viewed as defense mechanisms used to help the individual deal with stressful situations (31).

Our study has some limitations which have to be pointed out. First, the present study was restricted to a particular municipality in Greece, so the extent to which results could have been comparable or different with samples in different Greek municipalities is difficult to be interpreted. Also, the relationship among spirituality and mental health among older adults with high blood pressure is assessed at a specific point in time, so we cannot know whether the results are valid over time. It would be interesting to conduct iterative testing over the course of one year in order to determine whether specific individuals still have high levels of spirituality after this certain time period.

We also found that older adults living in rural areas have a lower level of spirituality. This is an interesting finding worthy of further research, as one would expect that individuals who are closer to nature would have more faith in the Divine, but it's quite the opposite actually. It will be important that future research investigate spiritual beliefs of hypertensive elderly people residing in rural areas.

Lastly, future research would benefit from the use of a

larger sample of both hypertensive and non-hypertensive individuals. The aim will be to further investigate the possible relationship between spirituality and mental health in hypertensive and non-hypertensive individuals. Such studies would give us new insights into whether hypertension is a causal factor in the development of spiritual beliefs in elderly people, or whether spirituality manifests itself, irrespective of health condition, to a greater extent in older people.

6. CONCLUSION

Spirituality has a significant positive impact on mental health of hypertensive elderly people. Higher levels of spirituality among hypertensive elderly people are significant correlated with lower levels of somatic symptoms, anxiety and insomnia, social dysfunction and severe depression.

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- **Author's contribution:** Authors contribution: Ioanna V. Papathanasiou, Chrysoula Papathanasiou, Evangelos C. Fradelos gave substantial contributions to the conception and design of the study. Foteini Malli, Konstantinos Tsaras, Dimitrios Papagiannis, Lamprini Kontopoulou, Lambrini Kourkouta, Areti Tsalogliodou, Foteini Tzavella gave substantial contributions of the work in acquisition, analysis, or interpretation of data for the work. Ioanna V. Papathanasiou, Chrysoula Papathanasiou, Areti Tsalogliodou, , Evangelos C. Fradelos had a part in article preparing for drafting or revising it critically for important intellectual content, and all authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
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