Volume 70 Number 1

Assessment of quality of life and spirituality in lung cancer patients

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Abstract

Aim of the study was to assess Quality of life and Spirituality in Lung Cancer Patients and theirpossible relation.

Material and Methods: A cross-sectional study was employed in this study and a cohort of 32 lung cancer patients was recruited. Data were collected with a three-part self-reported questionnaire consisted by Missoula Vita QoL index, Daily spiritual experience and a sheet contain sociodemographic data. Statistical analysis performed with the Statistical Package for the Social Sciences (SPSS 21.0 for Windows) and included Pearson and Spearman correlation coefficient and linear regression analysis.

Results: The total sample includes all patients, consisting of 21 men (65.6%) and 11 women (34.4%). Participants were, on average, 55 years old. MVQOLI Total, Interpersonal, Wellbeing and Transcendent presented negative correlation with DSES total score. showing that patients with greater religious believes have lower MVQOLI Total, Interpersonal, Wellbeing and Transcendent scores.**Conclusions:** Religion and spirituality are two essential aspects of human existence that can impact various health outcomes such as QoL and distress.

Keywords: Lung cancer, spirituality, quality of life

Introduction

Lung cancer is the most common cancer of men and the fifth most frequent cancer of womenworldwide [1]. It is a complex environmental disease involving the accumulation of several risk factors [2]. The study of the epidemiology of lung cancer has been one of the rewarding aspects of medical research in the past 50 years, and it has already taught us enough toensure that lung cancer can be considered to 28 Study background be the most common formof fatal yet preventable cancer throughout the world [3]. The seriousness of lung cancer derives not only from its high rate of occurrence but also from poor prognosis: 5-year overallsurvival is ≤ 15%. For the patient, cancer represents a threat to his existence, to which can be added the uncertainty and a lack of control over the illness, secondary symptoms, lifestyle changes, and various repercussions in the social and family environment [4].

Patients that are diagnosed with lung cancer are reporting decreased QoL, mainly as a result of the progress of the disease, the intensity and severity of the symptoms as well as the various side effects that lung cancer treatments can have [5]. Among the causes that have provoked an interest in the quality of life (QOL) of patients with cancer, and in particular patients with lung cancer, are that many patients do not have curative treatments and are highly symptomatic [6], the progressive increase in the patient's autonomy over decision- making, and the financial cost of established treatments resulting in small changes to survival rate justifying their inclusion as benefitting the patient's QOL [7, 8].

For many people, religion and spirituality can play an important role in their life as well as in their general lifestyle and health-related decision making [9]. Spirituality, as defined by Ian Govier is conceptualized in the 'Five R's of Spirituality': Reason and Reflection, Religion, Relationships, and Restoration. According to Govier, spirituality involves the process of reason and reflection. These two terms: reason and reflection are mentioned together because they encompass searching through life and finding meaning in life experiences. As an individual search for meaning in the illness experience, questions such as "Why is this happening to me or my loved one?" may arise. The second aspect of spirituality is religion which can be defined as the "vehicle for expressing spirituality through a framework of values, beliefs, and practices" [10].

Patients confronted by advanced cancer acknowledge religion and the use of religious coping as a significantfactor influencing their QOL [11, 12]. In a recent study of 170 patients with lung cancer it was found that the greater use ofpositive religious coping was associated with better overall QOL as well as higher scores on the support and existential quality of life dimensions. According to this study, the useof positive religious coping such as prayer and benevolent religious appraisals of negative situations resulted in a greater report of physical symptoms. In contrast, those individuals who used negative religious coping such as viewing their illness as a punishment from God, or feeling abandoned by God resulted in a poorer overall QOL [12]. Additionally, they had lower scores on the existential and psychological QOL dimensions and reflected an 11 ominousview of life, and a sense of disconnectedness with a religious community [12].

In terminally ill cancer patients, spiritual well-being hasbeen negatively related to despair at the end-of-life. End-of- life-despair often predicts hopelessness, desire for hastened death, and suicide ideation, all which can affect the quality of life of a patient. In addition, as a patient approaches the terminal phase of an illness, feeling of depression, hopelessness, and anxiety are common [13].

Although a considerable number of articles on lung cancer patients have been published, few studies have examined the relation of QOL to spirituality in lung cancer patients [14]. Also, studies of QOL and spiritual beliefs have produced mixed findings in Greece.

The aim of the present study is to examine QoL and spirituality in lung cancer patients, furthermore to determine the association between QoL and spiritual beliefs among lung cancer patients. The main hypothesis is that lung cancer patients are experiencing decreased QoL [15, 16], and spiritual beliefs can positively affect QoL of lung cancer patients [17].

Methodology

Study Design and Sample

This cross-sectional study was conducted in a general hospital in the broader area of Athens between in an one- day care chemotherapy clinic. Lung cancer patient who were visited the facility to undergo chemotherapy were the target population.

Subjects were eligible for study participation if they were patients diagnosed with lung cancer. Selection criteria will include: (a) >18years of age; (b) ability to communicate in Greek; (c) diagnosed with lung cancer; (d) adequate level of cooperation and perceived ability and had sufficient cognitive ability to participate in the study. A sample of 32 participants was recruited and all participants provided written informed consent before completing a structured questionnaire. All patients were informed of their right to refuse or discontinue participation in the study according to the ethical standards of the Helsinki Declaration. Ethical permission for the study will obtain from the scientific committee of the participating hospital. The study took place between April and June 2016.

Instruments

Measurements were conducted with the following instruments:

(A) A sheet containing demographic and clinical information.

(B) The Missoula-VITAS Quality of life Index (MVQOLI-15). The framework of the MVQOLI-15 is based on Ira Beyok's work regarding growth and development at the end of life and the concepts of the landmarks and tasks of life closure. The specific tool asks patients about five dimensions or domains of QoL: function, symptoms,interpersonal, well-being and transcendence. There is also a total score. The instrument is specifically designed to assess the patients' personal experience in each of these dimensions[18]. Within each dimension, three kinds of information are gathered from respondents in order to illuminate their overall experience:

Assessment (A): Subjective measurement of actual status or circumstance (What it is?) Example: I feel sick all the time.

Satisfaction (S): degree or acceptance or mastery of actual circumstance (How much does it bug you?) Example: I am satisfied with current control on my symptoms

Importance (I): Degree to which a given dimension has an impact on overall QoL (How much does it matter?) Example: Physical discomfort overshadows any opportunity for enjoyment.

(B). The Daily Spiritual Experience Scale (DSES) is the second instrument which will be used in our study, which has been translated in Greek. The Daily Spiritual Experience Scale, also, designed to measure ordinary or "mundane" spiritual experiences, not the more dramatic mystical experiences such as near-death experiences or hearing voices or seeing visions. It also measures experiences of relationship with and awareness of the divine or transcendent. It measures how beliefs and understandings are part of moment-to-moment features of life from a spiritual or religious perspective [19].

Statistical analysis

Initially, descriptive statistics were conducted for the sociodemographic characteristics of the sample, as well as for the dimensions of both questionnaires. Then, we perform Kolmogorov-Smirnov normality test in order to find if the values of the sample follow the normal distribution, and also we calculated the Cronbach's alpha coefficient in order to assess the reliability of the measurement tools.

The main statistical analysis contains Pearson correlation coefficient (parametric) and Spearman correlation coefficient (no parametric), in order to investigate the relationship between the measurement tools. Finally, linear regression analysis was performed in order to conclude if religious beliefs consist of a significant predictor of theQOL dimensions.

All analyses were performed with the Statistical Package for the Social Sciences (SPSS 21.0 for Windows).

Results

Sociodemographic Characteristics

In this study, the sample consists of 32 participants. The sociodemographic characteristics of the sample are summarized in the following table (Table 1). The total sample includes all patients, consisting of 21 men (65.6%) and 11 women (34.4%). Participants were, on average, 55 years old. With regards to a variable of marital status 4 patients (12.5%) were single, 18 (56.3%) were married, 6 patients (18.8%) were divorced, and 4 (12.5%) were widowed.

Further, concerning educational level, the majority of patients (28.1%) had elementary education, 25.0% had

middle education, 18.8% had high education, 21.9% and 6.3% had bachelor and master education correspondingly. Regarding work status, 12 patients (37.5%) were unemployed or retirees, 6.3% were private employees, freelancers or households, and 3.1% were civil servants or other work. The average of LC treatment in years was 3.53; likewise, the time from the terminal diagnosis was 3.69.

Table 1: Sociodemographic data of the sample (N = 32)

N=32	
Age (years) Mean (SD)	55,13 (14,648)
Treatment time (years) Mean (SD)	3,53 (2,603)
Time from Terminal Diagnosis (years) Mean (SD)	3,69 (2,633)
Gender	
Male	21 (65.6%)
Female	11 (34.4%)
Total	32 (100%)
Marital Status	4 (12.5%)
Single	18 (56.3%)
Married	6 (18.8%)
Divorced	4 (12.5%)
Widowed	32 (100%)
Total	
Education	
Elementary School	9 (28.1%)
Middle School	8 (25.0%)
High School	6 (18.8%)
Bachelor Degree	7 (21.9%)
Master Degree	2 (6.3%)
Total	32 (100%)
Employment	
Unemployed	12 (37.5%)
Private Employee	2 (6.3%)
Civil Servant	1 (3.1%)
Freelancer	2 (6.3%)
Household	2 (6.3%)
Retired	12 (37.5%)
Undergraduate Student	0 (0%)
Other	1 (3.1%)
Total	32 (100%)

Note: SD, standard deviation

Normality test of the sample

The Kolmogorov – Smirnov test was performed in order to check whether the values of the sample would fall within the normal distribution. According to the results of the Kolmogorov – Smirnov test, the values of the sample were found to pass the normality distribution test, so parametric tests would be contacted.

Reliability analysis

The reliability of the measurement tools used in this study, particularly MVQOLI-15 and DSES was verified by the Cronbach's alpha coefficient. Values equal to or greaterthan 0.60 are acceptable. The Cronbach's alpha coefficient of the QOL was 0.63, which is slight above the value of acceptance. This is attributed to the nature of the QOL questionnaire. On the other hand, the Cronbach's alpha coefficient of the DSES was very high 0.94.

Quality of life in lung cancer patients

In table (Table 2), are present the results of the MVQOLI-15 questionnaire. The Total score mean value were found 19.01, with a standard deviation of 3.31. The minimum and the maximum of the Total score was 11.70 and 23.80 respectively. Concerning the QOL dimensions, particularly the Symptom score mean value were found 8.66, with a standard deviation of 4.54. The minimum and the maximum of the Symptom score was -4 and 16 respectively. Also, the Function score mean value were found 7.03, with a standard deviation of 8.42. The minimum and the maximum of the Function score was -30 and 20 respectively. Furthermore, the Interpersonal score mean value were found 19.78, with a standard deviation of 11.21. The minimum and the maximum of the Interpersonal score was -12 and 30 respectively. In addition, the Well-being score mean value were found -6.59, with a standard deviation of 14.54. The minimum and the maximum of the Well-being score was -30 and 25 respectively. Finally, the Transcendent score mean value were found 11.22, with a standard deviation of 13.24. The minimum and the maximum of the Well-being score was -20 and 30 respectively.

Table 2: Mean Scores ± SD of The Missoula-VITAS Quality of life Index.

MVQOLI – 15			
	Mean ± SD	**Minimum**	**Maximum**
Total	19.01 ± 3.31	11.70	23.80
Symptom	8.66 ± 4.54	-4	16
Function	7.03 ± 8.42	-30	20
Interpersonal	19.78 ±11.21	-12	30
Well-Being	-6.59 ± 14.54	-30	25
Transcendent	11.22 ± 13.24	-20	30

Daily Spiritual Experience

The mean value of the total score was found 49.78, which is obtained by summing the scores of the 16 items. This value can vary from 16 to 94. Lower scores reflect a higher frequency of spiritual experiences. The standard deviation of the total score was found 16.01, and the minimum and maximum values recorded were 16 and 85 respectively.

Correlations between QOL dimensions and DSES

Pearson correlation coefficient was first calculated between QOL dimensions and DSES total score and the results are presented in the Table 3. MVQOLI Symptom and MVQOLI Function presented positive correlation with DSES total score. Particularly, MVQOLI Symptom Pearson correlation coefficient with DSES was found r=0.191, a weak positive correlation which indicates that patients with greater religious believes have greater Symptom. This result isn't statistical significant (p-value>0.05). MVQOLI Function Pearson correlation coefficient with DSES was found r=0.056, which is a very low correlation coefficient and also it isn't statistical significant.

In contrary, MVQOLI Total, MVQOLI Interpersonal, MVQOLI Wellbeing and MVQOLI Transcendent presented negative correlation with DSES total score. Specifically,these QOL dimensions have a Pearson correlation coefficient with DSES around -0.30, which is a weak negative correlation coefficient showing that patients with greater religious believes have lower MVQOLI Total, Interpersonal, Wellbeing and Transcendent scores. These results aren't statistical significant too (p-value>0.05).

Spearman correlation coefficient was calculated between QOL dimensions and DSES total score and the results are also presented in the Table 3. Such as Pearson correlation

coefficient, Spearman correlation coefficient between MVQOLI Symptom and MVQOLI Function with DSEStotal score presented positive values. Particularly, MVQOLI Symptom Spearman correlation coefficient with DSES was found r=0.167, which isn't statistical significant (p-value>0.05). MVQOLI Function Spearman correlation coefficient with DSES was found r=0.051, which is a very low correlation coefficient and also it isn't statistical significant.

Statistical significant results (p-value<0.05) were found between MVQOLI Total and the other QOL dimensions (apart from MVQOLI Wellbeing) with DSES total score, with a medium negative Spearman correlation coefficient (close to -0.40), which indicates that patients with greater religious believes have lower MVQOLI Total, Interpersonal and Transcendent scores. As far concerning the Spearman correlation coefficient of MVQOLI Wellbeing score with DSES total score was found -0.251, a weak correlation and not statistical significant too.

Table 3: Correlations between QOL dimensions and DSES.

	Pearson correlation coefficient (parametric) DSES Total Scale Score	**Spearman correlation coefficient (no parametric) DSES Total Scale Score**
Mvqoli Total	-0.277	-0.377*
Mvqoli Symptom	0.191	0.167
Mvqoli Function	0.056	0.051
Mvqoli Inerpersonal	-0.279	-0.393*
Mvqoli Wellbeing	-0.269	-0.251
Mvqoli Trancendent	-0.260	-0.364*

*p<0.05

Linear regression analysis

In order to investigate if religious believes consist a statistically significant predictor of the QOL dimensions, linear regression analysis performed on QOL dimensions, using DSES total score as an independent variable (predictor). According to the results (Table 4), the DSES had no statistical significant relationship with the QOL dimensions.

Table 4: Linear regression of the DSES on QOL dimensions.

	Linear Regression	
	b	**R^2 (Adjusted)**
Mvqoli Total	-0.057	0.046
Mvqoli Symptom	0.054	0.004
Mvqoli Function	0.029	0
Mvqoli Interpersonal	-0.195	0.047
Mvqoli Wellbeing	-0.244	0.042
Mvqoli Transcendent	-0.215	0.037

According to the results at Table 4, the religious believes explain the 4.6% of the MVQOLI Total score variance and as DSES total score increases one unit, MVQOLI Totalscore decreases by 0.057, results that aren't statistically significant. Also, the religious believes explain the 0.4% and0% of the MVQOLI Symptom score and MVQOLI Function score variance respectively, values that are considered negligible. In addition, the religious believes explain the 4.7% of the MVQOLI Interpersonal score variance and as DSES total score increases one unit, MVQOLI Interpersonal score decreases by 0.195, results that also aren't statistically significant. Furthermore, the religious believes explain the 4.2% of the MVQOLI Wellbeing score variance and as DSES total score increases one unit, MVQOLI Wellbeing score decreases by 0.244,results aren't statistical significant too. Finally, the religious believes explain the 3.7% of the MVQOLI Transcendent score variance and as DSES total score increases one unit, MVQOLI Transcendent score decreases by 0.215, results aren't statistical significant.

Discussion

This study was aimed to examine the possible relationship between spiritual beliefs and QoL in lung cancer patients. According to our results lung cancer patients are experiencing decreased levels of QoL and although spirituality is associated with some aspects of QoL doesn't consist a predictor of it.

Diagnosis of lung cancer, cancer therapy and symptoms that cancer patients are experiencing can be a significant stressor in patients' life [20]. Many cancer patients are exhibiting psychological distress as a result of their illness [21] and according to a recent Greek study, psychological distress can have a negative impact on lung cancer patients QoL [22]. Concerning the relation between QoL and spiritual beliefs in the total sample, it seems that spirituality it is not an important predictor for the QoL of lung cancer patients. Furthermore, in contrast with other studies, our results show that patients with lung cancer believe that spirituality has no significance in their quality of life. In studies that have examined spirituality and spirituality/religiosity among persons with lung cancer, the authors concluded that spirituality and religiosity contribute to an individual's coping with lung cancer [23].

Piderman, *et al*. [24] for example, conducted a cross-sectional study to examine the influence of spirituality on physical activity in LC patients resulting that higher scores in spiritual wellbeing can increase physical activity, even after adjusting for age, gender, race, marital status, education,smoking status, and stage of disease. Harrison and colleagues [25], who examined the role that spirituality plays in LC patients, concluded that individuals who attendedchurch once or more a week reported better perception of QoL.

Spirituality and spiritual health are essential ingredients in remaining motivated and acting on the desire to maintain quality health outcomes, thus balancing life with a chronic disease [26]. Strickland and associates summarizing the themes from their focus group said that religion serves as a coping insulator. Participants in their study reported the use of religion, going to church, and frequent praying to cope with the pain, the stress of LG, and the prospect of early death [27].

In the other hand, some researches have shown that not all aspects of spirituality are important predictor for QoL of LC

patients, for example, the study of Heyley and olvier shown the aspect of faith that is included in spirituality did not significantly contribute to the unique prediction or overlap of QoL [28]. In another multicenter research in USA the majority of lung cancer patients stated that their spiritual needs were addressed minimally or not at all to their QoL [29].

Limitations

At this point, there is two limitations that worth to be mentioned. First of all, the rather small sample size that does not allows generalizing the results. In addition, the cross-sectional study design that does not give as in-depth view of the changes on Qol and spirituality in the course of illness.

Conclusion

Religion and spirituality are two essential aspects of human existence that can impact various health outcomes such as QoL and distress. Thus, those aspects should be taken into consideration by health care professionals while planning and providing health care.

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