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Scientific Research

Psychological and Social Health Status of Patients with Lung Diseases in Jordan

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Abstract

Objective: The study aim to investigate the psychosocial health status of patients with pulmonary diseases in Jordan. Methods: A cross-sectional survey using 230 patients diagnosed with lung diseases from six major hospitals in Jordan used to collect data in regards to depressive symptoms, psychological distress, coping, life satisfaction, and perceived social support. Data were collected from Jan 2013 to May 2013. Results: About 50% of the patients reported moderate levels of ability to effectively cope with life situations, life satisfaction, psychological distress, and perceived social support from family, friends and others. About 29% of the patients reported that they had moderate to severe depressive symptoms. Depressive symptoms had significant and negative correlation with life satisfaction and perceived social support ($r = -0.21$ to -0.39, $p < 0.001$). Times of admissions ($\beta = 2.72$, $p = 0.007$), marital status ($\beta = 2.63$, $p = 0.009$), and life satisfaction ($\beta = -4.54$, $p \leq 0.001$) were the significant predictors of depressive symptoms. Conclusion: Health professionals need to screening for psychological disturbances for their patients. There should be integration between early detection of psychological disturbances and implementation of effective treatment plans.

Keywords

Depressive Symptoms, Psychological Distress, Coping, Life Satisfaction, Perceived Social Support, Lung Diseases

1. Introduction

The increasing comorbidity of chronic physical diseases and psychological health problems such as depression

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and stress raised the concern about this association on the overall individual health. According to Doumit and Nasser [1], patients with chronic illnesses are overwhelmed with psychological stressors due to requirement related to management of their illnesses. However, patients' psychosocial status may interfere with their ability to manage their needs independently that may exacerbate their health condition [2]. For example, patients with chronic illnesses may suffer unexplained symptoms, anxiety and depressive feelings that delay their recovery and healing process [3] [4]. Thus, patients with chronic illnesses are struggling to manage their physical illnesses independently and further overwhelmed with vulnerability to increased psychosocial co-morbidity [1].

The DSM-IV-TR states that approximately 20% to 25% of people with general medical conditions will become depressed during the course of their chronic condition [5]. International reports showed that patients diagnosed with chronic pulmonary conditions lead to impairments in activities of daily living, social functioning, psychological functioning, and recreational activities [6]. Reports also showed that chronic physical diseases have been associated with reduced health-related quality of life [7] [8]. In addition, depression among patients with pulmonary problems exacerbates the emotional and physical symptoms [9] [10]. The comorbidity between pulmonary diseases and psychological health problems appeared to have negative impact on severity of the disease, in particular and according to WHO, individuals with depression and co-morbid physical disorders had the worst overall health of all the disease states [11]. In an international study, role impairment was observed in about 50% in patients with chronic lung disease [12].

The impact of chronic illnesses on the bio-psycho-social aspects of individual's health and wellbeing cannot be interpreted solely in terms of disease process, but relates to difficulties of individuals' adjustment to their illnesses and the evolved changes of their lifestyle [13] [14]. Therefore, issues related to coping, social support, stress, optimism, and life satisfaction are significant in process of health-illness continuum. A recent study which investigated the level of psychological distress in a heterogeneous group of patients with pulmonary diseases reported significantly higher psychological distress among patients with pulmonary diseases than that among the general population [15] [16]. This emphasizes the importance of psychological support as a significant component of treatment modalities.

In Arabian region, and particularly in Jordan, management of chronic illnesses has showed growing interest for policy makers. However, the information related to psychological status of patients with chronic pulmonary diseases is limited. There is a need to explore the psychological and social wellbeing of those patients especially with the increased cost and demands for health care services globally. This study came to respond to these concerns and more to increase our knowledge in the field of mental and psychological wellbeing of patient with pulmonary diseases. The purpose of this study is to investigate the psychosocial health status of patients with pulmonary diseases in Jordan. The specific aims are:

- To determine the psychosocial health status of patients with pulmonary diseases in Jordan in regards to stress, depression, perceived social support, coping, optimism, and life satisfaction.
- To examine whether stress, social support, life satisfaction, and coping are significant predictors of depressive symptoms controlling for the demographic and personal characteristics of patients.
- To identify if the differences is the psychosocial health status of patients with pulmonary diseases in Jordan in relation to selected demographic and personal characteristics: age, gender, working status, and length of diagnosis.

2. Methods

Study design: A quantitative approach using cross-sectional, descriptive-correlational design was used to examine the psychosocial health status of patients with pulmonary diseases in Jordan. Data was from the three health care sectors in Jordan (governmental, educational and private). Information collected in regards to stress, depression, perceived social support, coping, optimism, and life satisfaction.

Sample and settings: Patients diagnosed with pulmonary diseases represented the population for this study. A convenience sampling of 230 patients completed and retuned the questionnaire. The study targeted patients attending primary, secondary and tertiary care units form six randomly major hospitals repressing the three health care sectors in Jordan. Data collected from Jan 2013 to may 2013. Inclusion criteria include: 1) patients diagnosed with pulmonary disease for longer than 6 months, 2) at age of 18 years or older, and 3) ability to read and write in Arabic. Exclusion criteria included: 1) no history of diagnosed mental or cognitive disorders.

Data collection procedure: Prior data collection, ethical approval obtained from the Faculty of Nursing at the

University of Jordan, and the targeted institutions. Data collected using self report format. Patients who expressed interest to participation in the study were approached by the researcher who explained the study and provided them with all details and answered all their questions. Patients were asked to sign the consent letter that included information related to the title of the study, its purpose, its significance and a statement informing the participants that their privacy would be protected by assuring them that their responses will be treated confidentially, and information that reveal their identity will not be recorded. Also, they were assured that the information will be used for the purpose of the study, and that their participation is voluntary and they have the right to withdraw at any time during the study and that their decision will not influence the quality of care they receive. The whole package presented in Arabic language.

Instruments: The data collected using an Arabic version of self-reporting questionnaires. The English format of questionnaires consulted by a professional English language editor. To formulate the Arabic language format, a numbers of procedures used to determine the reliability and validity of the tool. The tool first translation into Arabic language by a professional English language editor and back translated into English language another independent professional English language editor as described by Brislin [17] and Chapman and Carter [18]. The two English forms (the original and the translated) compared in terms of conceptual and cultural appropriateness rather than literal meaning of the items by the primary and co-investigators who had the expertise in the field. The translator and the back translator meet to examine the difference in the two forms. Pilot testing conducted using patients (n = 25) requesting their appraisals for the appropriateness of the translation.

The instruments were:

1) **Perceived social support** was measured by Multidimensional Scale of Perceived Social Support [19]. This scale is 12-item self-reported scale to assess the perception of social support adequacy from the family, friends, and significant others such as health care team. Each item is measured using a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). The scale has three sub scales, family (items 3, 4, 8, & 11), friends (items 7, 9, & 12), and significant others (items 1, 2, 5, & 10). The total score ranges from 7 to 84. The higher the score is the higher the perceived social support. This scale had good internal consistency for the scale as whole which was 0.88. In this study, Cronbach's Alpha for the subscales were 0.85 (family), 0.79 (friends), and 0.75 (others).

2) **The Beck Depression Inventory-II (BDI-II) [20]** was used to assess patients' depressive symptoms, which contain items that measure cognitive-affective symptoms and attitudes, impaired performance, and somatic symptoms. This instrument contains 21 questions answered on a four-point Likert scale in which 0 represents the absence of symptoms and 3 represents an extreme problem. The total range of 0 to 63 and standard cutoff points as follow: 0 - 13 indicates no or minimal symptom, 14 - 19 indicates mild symptoms, 20 - 28 indicates moderate symptoms, and 29 - 63 indicates severe symptoms [20]. A score of 13 is the cut-off point indicating depression. The test-retest r was 0.88, and Cronbach's Alpha is 0.87 [20]. In this study, Cronbach's Alpha was 0.85.

3) **Stress** was measured using the brief form of Psychological Stress Measure [21]. The original Psychological Stress Measure (PSM) was designed using 49 items drawn from descriptors generated by focus groups on stress. The scale is unifactorial in structure and maintains a test-retest stability of 0.68 to 0.80 under apparently constant conditions. Patients check the answer that best indicates the degree to which each statement has applied to him/her recently. The responses made on a Likert scale and ranged from range from 1 (null) to 4 (much). The higher the score in the scale reflect higher level of psychological stress. In this study, Cronbach's Alpha was 0.88.

4) **Coping skills** were measured using the abbreviated version of the COPE Inventory [22]. Brief COPE is a 28 items scale measures the ways individuals use to cope with stress in their life. Brief COPE is formed of 14 domains (each consisted of 2 items) were responses ranged from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot). The scale takes >10 minutes to be completed. The scale has good internal inconsistency with Cronbach's alpha of 0.83 [22]. In this study, Cronbach's alpha was 0.73.

5) **Life satisfaction** was measured using the Satisfaction with Life Scale [23]. This is a general measure of life satisfaction, which consisted of five statements. Participants were asked to rate each statement according to the following seven-point scale: 1) strongly disagree, 2) disagree, 3) slightly disagree, 4) neither agree nor disagree, 5) slightly agree, 6) agree, and 7) strongly agree. The scores of the total scale ranges from 5 to 35 and interpreted as follow: from 31 - 35 (eextremely satisfied), from 26 - 30 (satisfied), from 21 - 25 (slightly satisfied), 20 (neutral), from 15 - 19 (slightly dissatisfied), from 10 - 14 (dissatisfied), and 5 - 9 (extremely dissatisfied).

The test-retest reliability was estimated to be 0.87 [23]. In this study, Cronbach's alpha was 0.78.

Potential covariates: Gender, age, marital status, duration of disease, smoking status, income, education level and work status. The demographic information obtained from an investigator-developed subject profile.

3. Results

3.1. Descriptive Characteristics

A total number of 230 patients completed the questionnaire (see **Table 1**). Patients' age ranged from 19 to 90 years, with mean of 51.8 (SD = 16.4). About 50.4% (n = 116) of the patients there were male patients, while 49.6% (n = 114) were females. In regard to marital status, the majority of them 70.9% (n = 163) were married, while 2.2% (n = 2) were divorced, and 12.2% (n = 28) were single, and 12.6% (n = 29) were widow. The analysis also showed that most of patients (56.1%, n = 129) were not working, and 22.2% (n = 51) of them had a full time work, also 13.5% (n = 31) had retired, where the least percent 8.3% (n = 19) of patients had a part time work. The analysis also showed that the majority (70.0%, n = 161) of patients were not smoking, while 30.0% (n = 69) were active smokers.

3.2. Psychosocial Health Factors

3.2.1. Coping Skills

Regarding patients' coping skills using brief COPE scale (see **Table 1**), the analysis showed that patients had a mean score of 70.3 (SD = 10.3) with scores ranging from 29 to 97. Considering that the possible range of score is 28 - 112, and that the analysis showed that 50% (n = 115) of the patients had a score of 71.6 or above and 50% of them had a score between 65 and 67, the results indicate that patients, in general, had moderate ability to effectively cope with their life situations.

3.2.2. Psychological Distress

Regarding patients' psychological distress level (see **Table 1**), the analysis showed that patients had a mean score of 42.6 (SD = 11.0) with scores ranging from 15 to 68. Considering that the possible range of score is 9 - 72, and that the analysis showed that that 50i% (n = 115) of the patients had a score of 42.6 or above and 50% of them had a score between 35 and 52, the results indicate that patients, in general, had moderate level of stress.

3.2.3. Perceived Social Support

Regarding patients' perception of perceived social support (see **Table 2**), the analysis showed that patients' highest perception of perceived social support was from others and family with mean scores of 21.2 (SD = 5.3) and 21.5 (SD = 5.3) respectively. However, patients had lower perception of social support from friends with score of 17.8 (SD = 6.3). In general, perception of social support from family, friends and other were at the moderate level give the possible range of score for each subscale to be 4 - 28 and the median scores for all subscales were almost equal and at the moderate to high level (20 - 23). The analysis is showing the lowest level of perception was support from friends although the scores of seem to be at the moderate level.

3.2.4. Life Satisfaction

Regarding patients' satisfaction about their life (see **Table 1**), the analysis showed that patients had a mean score of 23.0 (SD = 6.3) with scores ranging from 5 to 35. Considering that the possible range of score is 5 - 35, and that the analysis showed that 50% (n = 115) of the patients had a score of 24 or above and 50% of them had a score between 19 and 27, the results indicate that patients, in general, had high level of satisfaction about their life.

3.2.5. Depression

Regarding depressive symptoms, the analysis (see **Table 1**) showed that the patients had a mean score of 16.9 (SD = 9.8) with scores ranging from 0 to 54. About 50% of the patients had a score of 16.0 or above and that 50% (n = 115) had a score between 11 and 21. In regards to level of depression, the analysis showed that 34.3% (n = 79) of the patients found to have no or minimal depressive symptoms, while 36.5% (n = 84) had mild depressive symptoms, 17.0% (n = 39) had moderate depressive symptoms, and 12.2% (n = 28) had severe depres-

Table 1. Psychosocial health status of patients diagnosed with lung disease in Jordan (N = 230).

Variable	M	SD	Min	Max	P_{25}	P_{50}	P_{75}
Life satisfaction	23.0	6.3	5.0	35.0	19.0	24.0	27.0
Social support-other	22.1	5.3	4.0	28.0	20.0	23.5	26.0
Social support-family	22.5	5.2	4.0	28.0	19.0	22.2	25.0
Social support-friends	17.8	6.3	4.0	28.0	14.0	20.0	23.0
Coping skills	70.4	10.3	29	97.0	65.0	71.6	76.0
Stress	42.6	11.0	15	68.0	35.0	43.0	52.0
Depression	17.0	9.8	0.0	54.0	11.0	16.0	21.0

Table 2. Correlation among psychosocial factors of patients diagnosed with lung disease in Jordan (N = 230).

	Depression	PSS-Other	PSS-Fa	PSS-Fr	Life Sat	Cope	Stress
Depression	-						
PSS-other	−0.21**	-					
PSS-Fa	−0.24**	0.63**	-				
PSS-Fr	−0.27**	0.38**	0.40**	-			
Life Sat	−0.39**	0.41**	0.33**	0.22**	-		
Cope	−0.10	0.30**	0.17*	0.23**	0.24**	-	
Stress	0.13	0.02	0.01	−0.04	0.06	0.21**	-

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). PSS-Fr: Perceived social support from friends. PSS-Fa: Perceived social support from family. PSS-others: Perceived social support from others. Life Sat: Life satisfaction.

sive symptoms. The analysis indicates that about 65.7% of the patients are suffering from depressive symptoms, and 29% (n = 67) had moderate to severe level of depression.

3.3. Bivariate Analysis

Using Pearson correlation coefficient (r), the analysis (see **Table 2**) showed that depressive symptoms had significant and negative correlation with life satisfaction, perceived social support from friends, family, and others, depressive symptoms ($r = -0.21$ to -0.39, $p < 0.001$), while no significant correlation found between depressive symptoms and psychological distress and coping. In addition, life satisfaction has alcohol correlated positively and significantly with perceived social support from friends, family, and others, and coping ($r = 0.22$ to 0.41, $p < 0.05$). On the other hand, psychological distress had no significant correlation with any of the psychological or social health factors ($p > 0.05$). The results indicate that those who have lower level of depression, higher level of social support (all forms) and positive coping skills are more likely to report higher level of life satisfaction.

To examine whether stress, social support, life satisfaction, and coping are significant predictors of depressive symptoms controlling for the demographic and personal characteristics (age, gender, working status, and medical diagnose), two-steps multiple hierarchical regression analysis was performed. The results (see **Table 3**) showed that model 1 that contained demographics and personal characteristics explained 17% ($R^2 = 0.17$) of the variance in depressive symptoms (see **Table 3**). The model was also significant ($F_{9, 203} = 4.13$, $p < 0.001$). In this model, level of education ($\beta = -2.16$, 0.032), and times of admissions ($\beta = 3.65$, $p < 0.001$) and marital status ($\beta = 3.11$, 0.002) were the significant predictors of depression. After entry of stress, social support, life satisfaction, and coping at step 2, the total variance explained by the model as a whole was 33% ($R^2 = 0.33$) and was significant ($F_{15, 230} = 6.4$, $p < 0.001$). The variables in step 2 explained an additional 16% of variance in depressive symptoms. In Model 2, times of admissions ($\beta = 2.72$, $p = 0.007$) and marital status ($\beta = 2.63$, $p = 0.009$) remained significant predictors; in addition; life satisfaction ($\beta = -4.54$, $p \leq 0.001$) was the only psychosocial predictor of depressive symptoms among all other factors.

3.4. Differences in Psychosocial Health Status Related to Demographic Characteristics

Regarding the relationship between demographic and personal characteristic and psychosocial factors, the analy-

Table 3. Two steps Multiple Hierarchal Regressing depressive symptoms on stress, social support, life satisfaction, and coping controlling for demographic and personal characteristics among patients with lung diseases in Jordan (N = 230).

Variables	Model 1		Model 2	
	β	p-value	*β*	p-value
Age	−0.64	0.536	0.45	0.652
Gender	−0.24	0.811	−0.46	0.648
Marital status	3.11	**0.002**	2.63	**0.009**
Working status	−1.44	0.151	−1.22	0.226
Level of education	−2.16	0.**032**	−1.97	0.050
Duration of medical diagnosis	0.34	0.734	0.18	0.856
Times of admission	3.65	**<0.001**	2.72	0.**007**
Period of last admission	−1.36	0.175	−0.14	0.888
Smoking status	−0.36	0.716	0.29	0.769
PSS-others			0.35	0.724
PSS-Fa			−1.81	0.071
PSS-Fr			−1.90	0.059
Life Sat			−4.54	**<0.001**
Cope			0.36	0.723
Stress			1.93	0.056
		p		p
R^2	0.17	<0.001	0.33	<0.001
Adjusted R^2	0.13		0.28	
R^2 change	-		0.16	

PSS-Fr: Perceived social support from friends. PSS-Fa: Perceived social support from family. PSS-others: Perceived social support from others. Life Sat: Life satisfaction.

sis showed that there was a positive correlation between patients' age and only perceived social support from family ($r = 0.17$, $p < 0.001$) that indicts that older person had higher perception of social support from family. On the other hand, duration of medical diagnosis had negative and significant correlation with only perceived social support from others ($r = -0.15$, $p < 0.001$) which indicates that those with longer period of diagnosis have higher perception of social support from others. All other psychosocial factors had no significant correlation with age or period of diagnosis.

Regarding gender, and using t-test for two independent sample, the analysis (see **Table 4**), showed that males and females patients were only different in their perception of social support from others ($t = -2.66$, $p < 0.008$), while all other psychosocial factors showed no significant differences. The analysis showed that female patients had higher perception compared to male ones. Regarding smoking status, the analysis (see **Table 2**), showed that there were significant differences in depressive symptoms and perceived social support from others between smoker and non-smokers ($p < 0.05$). Smoker patients had higher depressive symptoms and lower perception of social support from others than nonsmokers. On the other hand, and using ANOVA test (see **Table 4**), and regarding working status, there was a significant difference between patients in regards to their working status related to depressive symptoms and perceived social support from friends ($p < 0.05$). Using post hoc comparison (Scheffe test), the analysis showed that there was a significant difference in depressive symptoms between those who have full time job and those who are not working, while retired and those with part-time job were no difference in their depressive symptom than those working or not working.

4. Discussion

Psychosocial concerns are nearly universal among patients with chronic illnesses. Previous studies showed that psychological problems may exacerbate physical condition of individuals diagnosed with chronic illnesses [1].

Table 4. Differences in psychosocial factors related to demographic characteristics among patients diagnosed with lung disease (N = 230).

Variables			Mean	SD	Test statistics			
					t-test	p-value	F	p
PSS-other	**Gender**	Male	21.3	5.3	−2.66	0.008		
		Female	23.1	5.1				
Life satisfaction	**Smoking status**	Not Smoking	20.5	6.5	−2.07	0.039		
		Smoking	22.9	6.1				
PSS-other		Not Smoking	21.7	6.1	−3.21	0.001		
		Smoking	23.5	4.7				
Depression	**Working status**	not working	19.3	11.0			6.13	0.001
		Full time work	13.1	7.7				
		Part-time work	14.3	5.3				
		Retired	15.4	6.9				
PSS-Fr		Not working	16.8	7.2			2.85	0.038
		Full time work	19.3	5.3				
		Part-time work	19.4	3.8				
		Retired	18.8	3.9				

PSS-Fr: Perceived social support from friends. PSS-others: Perceived social support from others.

Therefore; screening for psychological factors among patients diagnosed with chronic illnesses became a primary concerns and requirement for health professional caring for this group of patients [24]. This study aimed at examining the psychological and social health factors among patients diagnosed lung diseases. The study found, in general, that patients diagnosed with lung diseases suffer psychological and social disturbances. Patients had moderate level of psychological and social wellbeing with significant number of them suffering moderate to severe depressive symptoms. Previous international studies found that chronic illnesses increased the vulnerability to psychological stressors and psychosocial co-morbidity [1] [24]. However, the results in this study do not completely support international reports as this study found moderate level of psychological distress and depressive symptoms. One possible explanation is that patients had also reported moderate level of satisfaction and social support, and had moderate ability to effectively manage their life situations. This may served as moderator to unpleasant experiences and distressing situation that are related to their illnesses and that may resulted in lowering levels of stress and depression. According to Cohen, Gottlieb and Underwood [25], social support influences health through stress-buffering model. The main premises of the stress-buffering model is that others will provide necessary resources that may redefine the potential for harm posed by a situation and cushions one's perceived ability to cope with imposed demands, thereby preventing a particular situation from being perceived as stressful. Although previous reports [14] indicated that patients diagnosed with lung diseases have higher rates of depression and psychological distress that general population, in this study; the psychological distress and depression rates were not higher compared to reports from general population in Jordan [26] [27].

Moreover, this study found that sociodemographic and risky life styles factors vary in their effect on the psychological and social factors. Smoking has been associated only with life satisfaction and perceived social support from friends, while working status found to associate with depression. The results, in general, do not agree with previous reports that risky life styles such smoking and clinical and demographic characteristic of patients do exacerbate patients' psychological status [1] [4] [11] [13] [17]. Although one third of the patients in this study had moderate to severe depression and that correlation found between depression and all other psychosocial factors, only life satisfaction found to be significant predictor. These finding has some agreement with previous international reports [11] that the majority of the patients in this study with pulmonary diseases had depressive feelings, and that depression increases morbidity and functional limitation. One limitation for this study is that data were cross sectional. A longitudinal study may allow better understanding for a cumulative experience over long period of time.

5. Conclusion

Psychological disturbances are common in hospitalized patients with pulmonary diseases and may exacerbate patients' physical stability and negatively affect their quality of life [7]. This study found that Jordanian patients with lung disease were suffering psychological and social disturbances; however, they were able to manage and maintain their function ability that affected positively their satisfaction about their life and their ability to use effective coping skills. This study also found that older patients are more likely to have higher level of support from friends and others, higher level of life satisfaction, lower level of support from friends and moderate level of psychological distress. The study has an implication for health professionals at the community and primary care settings. There is a need to assess and screen for psychosocial factors: depression, stress, social support, life satisfaction and coping skills among patients with lung diseases in their routine checkups and visits to outpatients units. Health professionals may use screening instruments for this purpose. This will also require using comprehensive approach leading to early detection of psychological disturbances and implementation of effective treatment plan. Further studies are recommended focusing on implementing effective screening measures and intervention for psychological and social disturbances among patients diagnosed with pulmonary disease.

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