



Assessment of Depression among Chronic Kidney Disease Patients in Pakistan

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Abstract

Introduction: Chronic Kidney Disease patients are more prone to development of depression due to the physical and mental stress caused by this disease.

Objective: The objective of this study was to assess depression among patients with chronic kidney diseases in Pakistan.

Methodology: A descriptive cross-sectional study design was used. Study respondents included CKD pre-dialysis and dialysis patients with or without comorbidities visiting tertiary care facilities located in twin cities of Pakistan. Sample size was calculated to be 386 pharmacists to achieve 95% confidence level with 5% margin of error. Convenient sampling technique was used to select respondents. A pre-validated questionnaire Hospital Anxiety Depression Scale (HADS) was used. Data was coded and analyzed using SPSS 21 after collection.

Results: The results indicated severe depression among CKD patients of different genders, age groups, marital status, qualification & income levels and different stages of CKD. A significant difference ($p = 0.021$) was observed among male and females CKD patients. Females were relatively more depressed. Married patients had significantly higher depression scores as compared to unmarried patients. Also, a significant difference ($p=0.003$) and ($p = 0.045$) among depression scores was observed between different age groups and different levels of qualification, respectively. Increase in depression was observed with increase in age and higher qualification level.

Conclusion: The present study concluded that patients with CKD had severe depression regardless of novel treatments availability. A negative impact was observed among all demographic variables of patients with chronic kidney disease with significant likelihood of depression.

Keywords: Chronic kidney disease, Depression, Pakistan

Abbreviations: CKD: Chronic kidney disease; CKD: Chronic Kidney Disease

Introduction

Chronic Kidney Disease (CKD) is becoming one of the major public health issues due to its increased incidence and prevalence resulting in high treatment cost and poor outcomes [1]. The global number of individuals reported in 2016 with CKD were 752.7 million, including 417 million females and 335.7 million males [2]. Approximately 118 million patients have been reported to be diagnosed with kidney diseases in developing countries. It has been estimated that 500 million individuals have CKD with majority of the diseased population living in developing countries. The highest prevalence of CKD is reported in Asia where majority of the world population resides

[3]. Majority of the patient's disease remain undiagnosed at early stages. The disease progresses to end stage if appropriate treatment is not started at the earliest stage possible. Management of co-morbidities and etiological causes arrests its progression to further stages [4].

CKD patients are more prone to development of depression due to the physical and mental stress caused by this disease. CKD patients commonly suffer from depression and is linked with poor HRQoL and increased mortality [5]. Depressive episodes in CKD patients commonly lead to increased hospitalization and progression of disease to end stage renal disease [6,7]. The

glomerular filtration rate deteriorated faster in individuals with depression long with CKD [8]. The patients on high risk can be managed effectively if assessment of depression is carried out at earliest stage. High prevalence of CKD, lack of knowledge and the importance of mental health in chronic diseases were reported as important factors for better quality of life among CKD patients [9]. Therefore, the objective of this study was to assess level of depression among chronic kidney disease patients in twin cities of Pakistan.

Methodology

A descriptive cross-sectional was used to assess depression among patients with chronic kidney disease in Twin cities of Pakistan. All public and private tertiary health care facilities were included in study. Study respondents included CKD pre-dialysis and dialysis patients with or without comorbidities visiting tertiary care facilities located in twin cities of Pakistan. The study approval was taken from Ethical Committee of Hamdard University (ref no. HU/DRA/2018/408). Approval was also taken from Medical Superintendent (MS) of tertiary care hospitals. Besides this, verbal as well as written consent for participation was obtained from the respondents and their confidentiality of information was also ensured. Dialysis or pre-dialysis patients diagnosed with CKD at any stage from 1 to 5 were selected for this study. The respondents included both genders, aged more than 18 years and less than 70 years. However, Patients suffering from psychiatric illness, cognitive dysfunction (like dimension), stroke or drug abusers were not selected. Moreover, pregnant females or patients with transplanted kidney were also excluded from the study.

Sample size was calculated using Raosoft® sample size calculator. Sample size was calculated to be 386 pharmacists to achieve 95% confidence level with 5% margin of error. As no updated list of suffering from CKD in twin cities was available, so convenient sampling technique was used. Hospital Anxiety and Depression Scale (HADS) was used for assessment of depression among chronic kidney disease patients. Seven questions are used for anxiety and seven for assessing depression. It is necessary to score anxiety and depression separately, even though both the questions are intermixed in the tool. The score interpretation for HADS score 0-21 is: 0-7 = Normal, 8-10 = Borderline abnormal (borderline case) and 11-21 = Abnormal (case). Pilot

testing was conducted at 10% of data after data collection. The Cronbach alpha value for HADS was 0.79, respectively. Principal investigator collected the data who had been trained by supervisor. To avoid any chance of biasness, the questionnaires were hand delivered and collected from respondent on the same day. Data was coded and analysed using SPSS 21 after collection. Descriptive statistics comprising of frequency and percentages were calculated. For assessment of depression, Mann-Whitney and Kruskal-Wallis ($p \geq 0.05$) tests were according to different demographic variables.

Results

Out of 386 respondents, 58.5% (226) were males and 41.5% (160) were females. Of the total respondents, 8.5% (33) were illiterate and 41.2% (159) were graduates. Regarding the job status of the respondents, 66.8% (258) were employed were as 33.2% (128) were unemployed. Out of all the respondents, 54.1% (209) were suffering from stage 4 with GFR value between 15-29 while 45.9% (177) were suffering from stage 5 kidney disease indicated by GFR value below 15. A detailed description of demographic characteristics is given (Table 1). The results highlighted that 14.7 % (n = 57) of the patients feel tense most of the time and 7.2 % (n = 28) hardly enjoy things at all. Moreover, 36.4 % (n = 141) got frightened definitely, 24.5 % (n = 95) worry a lot and 97.3 % (n = 376) did not feel cheerful often. On the other hand, 21.3 % (n = 121) definitely lost interest in their appearance, 20.9 % (n = 81) get panic very often and 26.4 % (n = 102) not often enjoy a book or TV program (Table 2). The results indicated severe depression among CKD patients of different genders, age groups, marital status, qualification & income levels and different stages of CKD. A detail description is given in (Table 3). Comparison of depression by gender using Mann-Whitney test demonstrated a significant difference ($p=0.021$) among male and females CKD patients. Females were relatively more depressed. Married patients had significantly higher depression scores as compared to unmarried patients. Also, a significant difference ($p=0.003$) and ($p = 0.045$) among depression scores was observed between different age groups and different levels of qualification, respectively. Increase in depression was observed with increase in age and higher qualification level. No significant difference ($p \geq 0.05$) was observed among CKD patients having different levels of income and disease stages (Table 4).

Table 1: Demographic Characteristics of Respondents.

Variable	Indicator	Total n (%)	Variable	Indicator	Total n (%)
Age	20-29Y	34 (8.8)	Income level	< 20,000	13 (3.4)
	30-39Y	54 (14.0)		20,000 - 40,000	106 (27.5)
	40-49Y	95 (24.6)		40,000 - 60,000	164 (42.5)
	50-59Y	132 (34.2)		60,000 - 80,000	68 (17.6)
	60-69Y	71 (18.4)		> 80,000	35 (9.2)
Gender	Male	226 (58.5)	Stage of kidney Disease	Stage 4	209 (54.1)
	Female	160 (41.5)		Stage 5	177 (45.9)

Marital status	Married	347 (89.9)	GFR	15-29	208 (53.9)
	Unmarried	39 (10.1)		<15	178 (46.1)
Qualification	Illiterate	33 (8.5)	Comorbidities	Hypertension	46 (11.9)
	Primary	67 (17.4)		Diabetes	17 (4.4)
	Secondary	117 (30.3)		Others	37 (9.6)
	Graduate	159 (41.2)		HTN + other	138 (35.8)
	Postgraduate	10 (2.6)		Diabetes + others	9 (2.3)
				HTN + Diabetes	11 (2.8)
				HTN + diabetes + others	128 (33.2)

Table 2: Assessment of Depression among CKD Patients.

Indicators	n (%)	
	I feel tense or 'wound up'	Not at all
From time to time, occasionally		141 (36.4)
A lot of the time		155 (40.1)
Most of the time		57 (14.7)
I still enjoy the things I used to enjoy	Definitely as much	57 (14.7)
	Not quite so much	170 (43.9)
	Only a little	130 (33.6)
	Hardly at all	28 (7.2)
I get a sort of frightened feeling as if something awful is about to happen	Not at all	39 (10.1)
	A little, but it doesn't worry me Yes, but not too badly	103 (26.6)
	Very definitely and quite badly	103 (26.6)
		141 (36.4)
I can laugh and see the funny side of things	Not at all	86 (22.2)
	Definitely not so much now	174 (45)
	Not quite so much now	103 (26.6)
	As much as I always could	23 (5.9)
Worrying thoughts go through my mind	Only occasionally	34 (8.8)
	From time to time, but not too often	131 (33.9)
	A lot of the time	126 (32.6)
	A great deal of the time	95 (24.5)
I feel cheerful	Not often	376 (97.3)
	Not at all	10 (2.7)
I can sit at ease and feel relaxed	Definitely	34 (8.8)
	Usually	139 (35.9)
	Not Often	191 (49.4)
	Not at all	22 (5.7)
I feel as if I am slowed down	Not at all	18 (4.7)
	Sometimes	104 (26.9)
	Very often	170 (43.9)
	Nearly all the time	94 (24.3)
I get a sort of frightened feeling like 'butterflies' in the stomach	Not at all	53 (13.7)
	Occasionally	185 (47.8)
	Quite Often	120 (31)
	Very Often	28 (7.2)

I have lost interest in my appearance	I take just as much care as ever	44 (11.4)
	I may not take quite as much care	99 (25.6)
	I don't take as much care as I should	122 (31.5)
	Definitely	121 (31.3)
I feel restless as I have to be on the move	Not at all	35 (9)
	Occasionally	110 (28.4)
	A lot of the time from time to time,	161 (41.6)
I look forward with enjoyment to things	Most of the time	80 (20.7)
	As much as I ever did	53 (13.7)
	Rather less than I used to	183 (47.3)
	Definitely less than I used to	128 (33.1)
	Hardly at all	22 (5.7)
I get sudden feelings of panic	Very often indeed	81 (20.9)
	Not at all	91 (23.5)
	Not very often	146 (37.7)
	Quite often	68 (17.6)
I can enjoy a good book or radio or TV program	Often	79 (20.4)
	Sometimes	126 (32.6)
	Not often	102 (26.4)
	Very seldom	79 (20.4)

Table 3: Severity of Depression among CKD Patients.

Indicator	Mean depression score (0-21)	Depression severity
Gender	Male = 21.42	Severe depression
	Female = 23.69	
Marital status	Unmarried=18.38	Severe depression
	Married=22.81	
Age	20-29yrs= 19.41	Severe depression
	30-39yrs=19.24	
	40-49yrs=22.2	
	50-59yrs=23.81	
	60-69yrs=22.63	
Qualification	Illiterate=20.33	Severe depression
	Primary=21.79	
	Secondary=21.94	
	Graduate=23.39	
	Post grad=21.80	
Income	< Rs 20,000 = 19.15	Severe depression
	Rs 20,000 – 40,000 = 22.24	
	Rs 40,000 – 60,000 = 23.12	
	Rs 60,000 – 80,000 = 21.3	
	> Rs 80,000 = 22.1	
Stage of CKD	Stage 4=21.83	Severe depression
	Stage 5=23.00	

Table 4: Comparison of Depression among CKD Patients by Demographic Characteristics.

Demographics	Composite score			
	n	Mean rank	Test statistics	P value

Gender	Male=226	182.71	15641.50 ^a	0.021
	Female=160	208.74		
Marital status	Unmarried=39	135.18	4492.00 ^a	0.001
	Married=347	200.05		
Age	20-29yrs=34	154.04	22.14 ^b	0.003
	30-39yrs=54	143.12		
	40-49yrs=95	188.92		
	50-59yrs=132	217.22		
	60-69yrs=71	189.77		
Qualification	Illiterate=33	154.59	9.620 ^b	0.045
	Primary=67	184.97		
	Secondary=117	185.18		
	Graduate=159	212.08		
	Post grad=10	190.95		
Income	< Rs 20,000 = 13	142.54	6.109 ^b	0.185
	Rs 20,000 – 39,000 = 106	188.36		
	Rs 40,000 – 59,000 = 164	200.6		
	Rs 60,000 – 80,000 = 68	172.26		
	> Rs 80,000 = 35	176.42		
Stage of CKD	Stage 4=209	184.19	16550.50 ^a	0.073
	Stage 5=177	204.49		

Discussion

Due to prolonged therapy and progression of chronic kidney disease towards renal failure, most common issues encountered among CKD patients leading towards poor disease outcomes includes physical, mental and social limitations. The results of the current study reported severe depression among CKD patients in Pakistan [10]. Chronic disease patients suffer from impaired health related quality of life which puts a significant psychological stress on patients leading to depression and anxiety. The results of the current study reported severe depression among patients of CKD of both genders, age groups, marital status and different qualification levels. This might be due to the fact that as the kidney disease effects daily life activities of patients such as their ability to work and travel. They also feel more dependent on doctors and restricted to medical settings and need frequent visits for dialysis without which their survival is not possible, this in turn increases depression among CKD patients. The findings are in line with the study conducted in Malaysia which showed that anxiety and depression is linked with poor HRQoL among CKD patients [11].

Conclusion

The present study concluded that patients with CKD had severe depression regardless of novel treatments availability. A negative impact was observed among all demographic variables of patients with chronic kidney disease with significant likelihood of depression. Necessary programs focusing on health education for patients with low literacy levels should be initiated to increase health awareness and improve mental health among

CKD patients. Depression is associated with CKD being chronic in nature, special counselling sessions must be provided to the patients for coping up with their depression.

Conflict of Interest

Authors declare no conflict of interest.

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