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ASSESSMENT OF HEALTH-RELATED QUALITY OF LIFE OF HAEMODIALYSIS PATIENTS IN QUETTA, PAKISTAN

MOHAMMAD HAYAT[1], NOMAN UL HAQ[2], SYED LIAQAT ALI KHAN[3], SALAH UD DIN[1], AQEEL NASEEM[1]

1: M. Phil scholar Pharmacy Practice, Faculty of Pharmacy University of Balochistan

2: Assistant Professor Pharmacy Practice, Faculty of Pharmacy University of Balochistan

3: Associate Professor Nephrology Department Bolan Medical Collage Quetta

***Principle Author; Mohammad hayat[1]: E Mail: mohammadhayatrph@gmail.com; Ph.: (+923218114615)**

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ABSTRACT

Background

Health Related Quality of Life (HRQOL) have progressed since 1980 to include all aspects that affect health either physical or mental health and is "an individual's or group's perceived physical and mental health over time and to provide information to revise the strategies about the treatment outcome. Haemodialysis (HD) is one of the most widely used procedure in End Stage Renal Disease (ESRD) Patients worldwide. The patients of the HD suffering from lot of factors that affect HRQOL which have been highlighted in this study.

Methods

This is cross section hospital based prospective study to assess HRQOL of haemodialysis patients the study was conducted in the Sandeman provincial hospital Quetta (SPH) and Baluchistan institute of nephrology and urology Quetta (BINUQ),from March to May 2016.One hundred eighty five (185) patients were included in the study which was the total available patients. A self administrative questionnaire was used to measure demographics, disease condition and co morbidities of HD patients and EQ-5D EuroQol UK (English) questionnaire

has been used in this study to measure HRQoL. The statistical analysis was performed by using SPSS 16.0 (SPSS Inc., Chicago, IL)

Results

In the present study it was identified that EQ-5D index score was 0.46 and visual analog scale (VAS) was 0.45 which reveals poor HRQOL in haemodialysis patients. Regression model reported Gender, Marital Status, Education, occupation and Monthly Income Locality not significantly associated with HRQOL except Age group. Keeping Age group 18-28 year, it is shown in regression model that followed reference, only two sub age groups were significantly associated and Odd Ratio (OR) showed that 38% HRQOL decrease with increasing age. However, HRQOL among male is 4% better than female.

Conclusion

In present study the respondents showed poor HRQOL, age of the patients was contributing factor in poor HRQoL of the patients.

Keywords: Health related quality of life, Haemodialysis, EQ-5D, Quetta, Pakistan

BACKGROUND

The World Health organization define the Quality of Life (QOL) as the individual's own perception for their position in his life which will be in the context of the culture, values that they live to their goals, potential, principles and concerns [1] [2]. It covers a broad concept which affect the individuals health states, independence and psychological states and also covers the individuals independence of life and the relation to their environment [3]. But idea of Health Related Quality of Life (HRQOL) have progressed since 1980 to include all aspects that affect health either physical or mental health and is "an individual's or group's perceived physical and mental health over time" [4]. it express multi-dimensional construct covering disease and treatment-related symptoms, physical, psychological, and social functioning [5]. Comparing with QOL, the assessment of HRQOL has been carried out to provide information regarding the physical, mental and well being and also provide information to revise the strategies about the treatment outcome [6].

Haemodialysis (HD) is one of the most widely used procedure in End Stage Renal Disease (ESRD) Patients worldwide, there are two hundred eighty four (284) individuals per million population that undergo maintenance dialysis, which increase 1.7 times from 1990 till 2010 [7]. In south Asia there are around 1.5 million patients who are

suffering from end stage renal disease which leads to dialysis [8]. In Pakistan the numbers of chronic kidney disease patients which are on end stage that in stage three or four renal disease is about twenty one (2.1) million people [9]. worldwide over two million people receiving dialysis treatment to stay alive although this number may only represent ten percent of people who really need treatment to stay alive, this may be due to non affording treatment which result death of over one million people annually from untreated kidney failure [10].

According to the Dialysis Registry of Pakistan 2008 report, there are about 6000 patients who are receiving dialysis in Pakistan. Thus, only about 40% of the patients have access to dialysis services [11]. Kidney failure impairs the QOL of these patients [12] Mode of the dialysis affect QOL of the patients [13].

The patients of the HD suffering from lot of factors that affect HRQOL which have been highlighted in studies including the time factor

METHODOLOGY

This is cross sectional study to assess health related quality of life of haemodialysis patients the study was conducted in the Sandeman provincial hospital Quetta (SPH) and Baluchistan institute of nephrology and urology Quetta (BINUQ), SPH is government public tertiary care hospital located in Quetta, Baluchistan having sixteen beds for haemodialysis patients. And BINUQ is newly established hospital which is dedicated hospital for kidney disease patients and having twelve beds for haemodialysis patients among three are for Hepatitis-positive patients. All the registered patients of the units were included in the study except the patients aging less than eighteen year old. The study was conducted from March to May 2016. One hundred eighty five (185) patients were included in the study which was the total available patients.

Ethical approval

The study was approved by the ethical committee of Faculty of pharmacy and Health Sciences, University of Baluchistan Quetta as per guideline of National bioethical committee of Pakistan (N.B.C, 2016). All the participants were informed by the consent form that their participation is voluntary.

Study instrument

A self design questionnaire was used to measure demographics, disease condition and co morbidities of HD patients and EQ-5D EuroQol UK (English) questionnaire has been used in this study to measure health related quality of life (HRQoL). This is a standardized non disease specific instrument

for describing and valuing health-related quality of life which is most famous and widely use in several studies [14].EQ-5D is a generic QoL assessment instrument widely used to measure HRQoL in ESRD patients. EQ-5D is used to determine the HRQoL in hemodialysis patients in Japan[15]Korea [16]England and Ireland [17]EQ-5D is a multidimensional QOL tool consist of descriptive system questionnaire and visual analogue scale, the descriptive system is consist of Five dimensions that is mobility; self-care; usual activities; pain/discomfort; anxiety/depression which further have three levels per dimension 'No Problems', 'Some Problems' and 'Severe Problems'. The visual analogue scale cover the worst health imagination to the best health imagination[18].

RESULTS & STATISTICAL ANALYSIS

The statistical analysis was performed by using SPSS 16.0 (SPSS Inc., Chicago, IL)

Demographic characteristics

Table 1 describe the demographic characteristics of the study respondents Majority of the respondents in the age group of 29-38 were 45 (24.3%) and the male respondents were 119 (64.3%) among the total respondents, the majority of the respondents were uneducated 103 (55.7%) and the married respondents were dominant 155 (83.3%). Most of the respondents were unemployed 78 (42.2%) with having no income 138 (74.6%). The respondents from rural area were in majority 121 (65.4%). Among the respondents n=118(63.8%) were hypertensive patients.

Disease condition of the respondents

Table 2 describe the disease characteristics of the respondents in which majority of the respondents were ill from 1-3 years 71 (38.4%) most of the respondents were having twice 164 (88.6%) haemodialysis per week for three and half hour to four hour 152 (82.2%) each dialysis and this timing was feasible for most 107 (57.8%) of the respondents, majority of the respondents have shown change in food habit 110 (59.9%) and change in weight 91 (49.2%).The perception of the respondents regarding the cause of haemodialysis were different but the majority 65 (35.1%) were having hypertension. The respondents were taking medicine regularly 174 (94.1%), 113 (61.1%) were transfusing blood and 139 (75.1%) of the respondents have passed the fistula. And the opinion of the respondents regarding the good health were 94 (50.8).

EQ-5D Domains

Table 4 shows EQ-5D domain the first domain is mobility in which majority of the respondents 89 (48.1%) were having no

problem in walking about, in self-care 122 (65.9%) respondents have no problem in self care, 83 (44.9%) were having no problem in performing usual activities, 90 (48.6%) of the respondents were having no pain and discomfort while 65 (35.1%) were moderately anxious.

Effect of demographic characteristics on HRQOL

Logistic regression was performed for demographic characteristics effect on HRQOL, before performing models EQ5D continuous variable converted into dichotomous variable having Good and Poor health related quality of life, of which maximum respondents N=96 fall under Poor EQ5D score. All demographics were entered into Model. The tested model was approved for analysis as Omnibus test of Model coefficients was highly significant.

The model was further confirmed by likelihood ratio whereby total variance was notified from 2.9% - 3.9% (Cox & Snell R Square).

The model was further tested for accuracy. The model was rated as acceptable as Hosmer & Lemshow test was non-significant (P=0.964, χ^2= 2.460).

Regression model reported Gender, Marital Status, Education, occupation and Monthly Income Locality not significantly associated with HRQOL except Age group. Keeping Age group 18-28 year, it is shown in regression model that followed reference, only two sub age groups were significantly associated and Odd Ratio (OR) showed that 38% HRQOL decrease with increasing age. However, HRQOL among male is 4% better than female.

Further multiple regressions were used to interpret the result but no significant association was reported and the effect was negligible to be considered as model interpretation.

Table 1: Demographic characteristics of study respondents (n=185)

Description	Frequency (n=185)	Percentage
Age years		
18-28	**33**	**17.8**
29-38	**45**	**24.3**
39-48	**31**	**16.8**
49-58	**34**	**18.4**
59-68	**30**	**16.2**
69-78	**12**	**6.5**
Gender		
Male	**119**	**64.3**
Female	**66**	**35.7**
Education		
Uneducated	**103**	**55.7**
Primary	**20**	**10.8**
Secondary	**39**	**21.1**
Graduate	**7**	**3.8**

Master	**6**	**3.2**
Religious education	**10**	**5.4**
Marital status		
Married	**155**	**83.3**
Unmarried	**27**	**14.6**
Other	**3**	**1.6**
Occupation		
Unemployed	**78**	**42.2**
House wife	**57**	**30.8**
Student	**7**	**3.8**
Own business	**24**	**13.0**
Government Employee	**13**	**7.0**
Retired	**1**	**0.5**
Other	**5**	**2.7**
Income		
No income	**138**	**74.6**
<5000	**10**	**5.4**
5001-10000	**16**	**8.6**
10001-20000	**11**	**5.9**
>20000	**9**	**4.9**
0 (not to disclose)	**1**	**0.5**
Locality		
Urban	**64**	**34.6**
Rural	**121**	**65.4**
Diabetes		
Yes	**39**	**21.1**
No	**146**	**78.9**
Hypertension		
Yes	**118**	**63.8**
No	**67**	**36.2**

Table 2: Disease condition of the respondents

Description	Frequency	Percentage
How long you are ill		
<1 month	**27**	**14.6**
1-3 month	**18**	**9.7**
3-12 month	**39**	**21.1**
1-3 year	**71**	**38.4**
4-7 year	**19**	**10.3**
8-15 year	**9**	**4.9**
>15 year	**2**	**1.1**
Heamodialysis per week		
Once	**16**	**8.6**
Twice	**164**	**88.6**
Thrice	**5**	**2.7**
Heamodialysis per session		
>Three hours	**13**	**7.0**
Three and half hour to four hour	**152**	**82.2**
<Four hour	**20**	**10.8**
Heamodialysis timing feasibility		
Yes	**107**	**57.8**
No	**43**	**23.2**
Don't know	**35**	**18.9**
Blood transfusion		
Yes	**113**	**61.1**
No	**72**	**38.9**
Fistula pass		
Yes	**139**	**75.1**
No	**46**	**24.9**

Table 3: EQ-5D health status
A total of 43 health states were reported by the HD patients

S No	EQ-5D	Frequency	Percentage
1	11111	8	4.3
2	11112	2	1.1
3	11113	1	0.5
4	11122	5	2.7
5	11123	1	0.5
6	11211	2	1.1
7	11212	4	2.2
8	11213	1	0.5
9	11222	7	3.8
10	11223	6	3.2
11	11233	2	1.1
12	12112	2	1.1
13	12212	1	0.5
14	12213	1	0.5
15	12222	3	1.6
16	12223	1	0.5
17	12233	1	0.5
18	12323	1	0.5
19	21121	1	0.5
20	21122	5	2.7
21	21123	5	2.7
22	21211	1	0.5
23	21212	6	3.2
24	21213	1	0.5
25	21221	1	0.5
26	21222	10	5.4
27	21223	8	4.3
28	22112	1	0.5
29	22113	1	0.5
30	22122	3	1.6
31	22132	1	0.5
32	22213	1	0.5
33	22222	24	13.0
34	22223	2	1.5
35	22233	2	1.1
36	31112	1	0.5
37	31222	1	0.5
38	32122	1	0.5
39	32222	1	0.5
40	32233	1	0.5
41	32333	2	1.1
42	33223	2	1.1
43	33333	1	0.5

Table 4: EQ-5D Domains

EQ-5D Domain	Frequency (n=185)	Percentage
First domain (mobility)		
No problem in walking about	89	48.1
Some problem in walking about	71	38.4
Confined to bed	25	13.5
Second domain (self-care)		
No problem in self care	122	65.9
Some problem in washing and dressing myself	46	24.9
Wash and dress myself	17	9.2
Third domain (usual work)		
No problem in performing usual activities	83	44.9
Some problems in performing usual activities	55	29.7

Unable to perform usual activities	**47**	**25.4**
Forth domain (pain and discomfort)		
No pain and discomfort	**90**	**48.6**
Some pain and discomfort	**65**	**35.1**
Extreme pain and discomfort	**30**	**16.2**
Fifth domain (anxiety and depression)		
Not anxious	**62**	**33.5**
Moderately anxious	**65**	**35.1**
Extremely anxious or depress	**58**	**31.4**

Table 5: Mean EQ-5D and VAS scores

	EQ-5D scores				**VAS Score**			
Description	**N**	**Mean score**	**Std deviation**	**P value**	**N**	**Mean score**	**Std deviation**	**P value**
Age years								
18-28	**33**	**0.7542**	**0.3559**		**33**	**54.70**	**17.763**	
29-38	**45**	**0.6054**	**0.3887**		**45**	**49.33**	**20.605**	
39-48	**31**	**0.4383**	**0.3737**		**31**	**46.29**	**17.934**	
49-58	**34**	**0.4618**	**0.3806**		**34**	**51.32**	**14.265**	
59-68	**30**	**0.1372**	**0.4227**		**30**	**31.33**	**18.144**	
69-78	**12**	**0.0079**	**0.3551**	**0.001**	**12**	**25.83**	**21.088**	**0.001**
Gender								
Male	**119**	**0.4295**	**0.4533**		**119**	**44.75**	**19.998**	
Female	**66**	**0.5230**	**0.4119**	**0.274**	**66**	**47.42**	**20.517**	**0.341**
Education								
Uneducated	**103**	**0.3380**	**0.4591**		**103**	**40.39**	**18.861**	
Primary	**20**	**0.5673**	**0.3969**		**20**	**51.25**	**20.188**	
Secondary	**39**	**0.7155**	**0.3517**		**39**	**50.90**	**19.764**	
Graduate	**7**	**0.5984**	**0.2166**		**7**	**64.29**	**25.071**	
Master	**6**	**0.5378**	**0.2873**		**6**	**65.00**	**10.488**	
Religious education	**10**	**0.4157**	**0.3740**	**0.001**	**10**	**45.70**	**16.406**	**0.001**
Marital status								
Married	**155**	**0.4158**	**0.4393**		**155**	**44.42**	**20.489**	
Unmarried	**27**	**0.7049**	**0.3685**		**27**	**52.96**	**17.168**	
Other	**3**	**0.7190**	**0.3631**	**0.002**	**3**	**46.67**	**20.817**	**0.129**
Occupation								
Unemployed	**78**	**0.3332**	**0.4623**		**78**	**40.13**	**19.755**	
House wife	**57**	**0.4884**	**0.4190**		**57**	**45.26**	**20.776**	
Student	**7**	**0.6264**	**0.5243**		**7**	**55.00**	**20.616**	
Own business	**24**	**0.7114**	**0.2869**		**24**	**54.58**	**16.011**	
Government Employee	**13**	**0.5319**	**0.4186**		**13**	**53.08**	**19.315**	
Retired	**1**	**0.2220**	**.**		**1**	**70.00**	**.**	
Other	**5**	**0.6418**	**0.3185**	**0.13**	**5**	**58.00**	**13.509**	**0.009**
Income								
No income	**138**	**0.4219**	**0.4518**		**138**	**43.59**	**20.136**	
<5000	**10**	**0.4620**	**0.5228**		**10**	**48.50**	**26.358**	
5001-10000	**16**	**0.6149**	**0.3107**		**16**	**51.25**	**18.664**	
10001-20000	**11**	**0.6626**	**0.2580**		**11**	**49.55**	**14.909**	
>20000	**9**	**0.5347**	**0.4826**		**9**	**57.78**	**17.159**	
0 (not to disclose)	**1**	**0.8480**	**.**	**0.275**	**1**	**70.00**	**.**	**0.151**
Locality								
Urban	**64**	**0.5525**	**0.4011**		**64**	**52.19**	**18.917**	
Rural	**121**	**0.4155**	**0.4539**	**0.071**	**121**	**42.27**	**20.042**	**0.001**

Table 6: Effect of demographic characteristics on HRQOL

Omnibus Tests of Model Coefficients		
Chi-square	**df**	**Sig.**
45.812	**11**	**0.001**
45.812	**11**	**0.001**
45.812	**11**	**0.001**
Cox & Snell R Square (-2 Log likelihood)		
-2 Log likelihood	**Cox & Snell R Square**	**Nagelkerke R Square**
210.388	**0.219**	**0.293**

Logistic Regression					
Demographics	**Wald**	**P- Value**	**Exp (B)**	**95% C.I for EXP(B)**	
				Lower	**Upper**
Age group					
18-28 year	**21.537**	**0.001**			
29-38 year	**9.526**	**0.002**	**0.025**	**0.002**	**0.259**
39-48 year	**5.812**	**0.016**	**0.068**	**0.008**	**0.605**
49-58 year	**2.114**	**0.146**	**0.191**	**0.021**	**1.778**
59-68 year	**2.555**	**0.110**	**0.163**	**0.018**	**1.508**
69-78 year	**0.691**	**0.406**	**0.384**	**0.040**	**3.669**
Gender	**0.013**	**0.908**	**1.049**	**0.467**	**2.358**
Marital Status	**0.007**	**0.935**	**0.962**	**.380**	**2.433**
Education	**0.102**	**0.750**	**0.959**	**.742**	**1.240**
occupation	**0.464**	**0.496**	**0.886**	**.625**	**1.255**
Monthly Income	**0.145**	**0.704**	**1.089**	**.701**	**1.693**
Locality	**1.520**	**0.218**	**1.602**	**.757**	**3.386**

Sig = 0.05
C.I = Confidence interval
Exp (B) = Odd Ratio

DISCUSSION

During the course of this study the demographic characteristics showed that total 185 patients were included, out of them n=119 (64.3%) were male. During the study it was assessed that age group (29-38) n=45 (24.3%), unemployed n=78 (42.2%), Married n= 155 (83.3%) and the respondents of the rural area n=121 (65.4%) were dominant. The study conducted in India by Jadhav et al is in line with the study which showed that male patients 68% and number of unemployed respondents 54% married 78% are dominant [19]. The study conducted in Pakistan by Anees et al showed the male respondents are 71%, the age group less than 45 year is 60 %, the married respondents were 79.2% and the unemployed respondents were 82.4% [20] which are in line with this study.

It was assess in the study that the respondents with co-morbidity Hypertension is dominant n=118 (63.8%) followed by n=39 (21.1%) diabetic patients and n=27 (14.6%) were hepatitis-C Positive. The study conducted in the USA by Lionel et al showed that 66.7% were hypertensive which is in line with this study [21] similarly the study showed in

Europe the hypertensive patients are dominant 72.7% while in Japan this percentage is 55.9% [22]. It was assessed in the study that in Europe the percentage of diabetes respondents were 20.1% and in Japan this was 25.6% [22] which is near to the value of this study. The study also showed that Hepatitis-C was 11.5% in Europe and 13.4% in Japan [22] which is in line with this study. and the study conducted by showed that the percentage of diabetic patients are 48% [23] which is high than the present study.

The current study assessed that the respondents showed hypertension family history was n=33 (17.8%) the study conducted in the turkey by Kayikcioglu et al showed little increase in this number it was 25% and 31% of the family hypertension history respondents[24]and diabetic family history respondents was 26 (14.1%) the family history of the respondents are not significant because the respondents are mainly of high age and illiterate and they did not remember the family history.

In the current study it was assessed that 71 (38.4%) respondents were ill from 1-3 year. Nearly all the respondents 164 (88.6%) were having twice dialysis session per week and 152 (82.2%) respondents showed a haemodialysis session for three and half hour to four hour so the respondents were receiving 8 hour haemodilayis per week and this timing was feasible for 107 (57%) respondents while in Belgium, Finland, France and Slovenia More than 90% of patients had three sessions per week. 21% patients had less than three session per week [25]a study conducted in Japan in which 24.8% patients had receiving two hemodialysis sessions per week [26]. Two sessions per week is generally not recommended the study conducted in USA had just 4.0% patients that were receiving two haemodialysis session per week because they had smaller body mass index (BMI) [27]. The vascular access of the haemodailysis were through fistula that was passed to n= 139 (75.1%) respondents which is the best haemodialysis access and the rates of fistula use in Europe and Japan are much higher [28]. It was assessed in the study that n=113 (61.1%) of respondent had blood transfusion the blood lose mainly occur in haemodialysis patients the study conducted in Japan showed that 41.7% patients had blood transfusion [29] which is less from the current study as the anemia therapy reduce the blood transfusion.

EQ-5D domain indicated the actual quality of life of the haemodialysis respondents there is no problem in first domain mobility n=89

(48.1%), in second domain self-care n=122 (65.9%) there is no problem in self-care, the third domain indicated n=83 (44.9%) no problem in performing usual activities, the forth domain indicated n=90 (48.6%) no pain and discomfort and the fifth domain indicated n=65 (35.1%) were moderately anxious. A study conducted in Switzerland showed 50% had no problem with mobility which is near to current study, 71% had no problem in self care, while there is contrast in the usual activity that the study indicated 50% had some problem in usual activity and 64% had some problem in pain and discomfort and 52% had no problem in anxiety and depression [30].

The study conducted in Canada indicated EQ-5D index score was 0.59 and VAS was 60.9 [31] which is better than the current study. The study in UK indicated EQ-5D index score 0.56 and VAS 54.5 while in Ireland EQ-5D index score was 0.60 and VAS was 63.5 [17] which is better than the current study. The study conducted in Japan also indicated the EQ-5D score 0.75 [15] the study in Korea indicated EQ-5D score 0.70 [16] which indicated better HRQOL than the current study.

In present study the respondents showed poor HRQOL, age of the patients was contributing factor in poor HRQoL of the patients.

CONCLUSION

In present study the respondents showed poor HRQOL, age of the patients was contributing factor in poor HRQoL of the patients.

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