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Demographic and Clinical Correlates of Quality of Life in Patients with Hepatitis C

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Abstract

This research investigated the demographic and clinical correlates of quality of life (QOL) in patients with Hepatitis C Virus (HCV). Correlational research design was employed and a sample of 102 patients (N=102) was selected using a purposive sampling technique. The Demographic and Clinical Questionnaire, the Mental Health Screening and the Quality of Life-BREF were used to screen and collect data. Results showed a significant negative relation of age with psychological health and a significant positive relation of education and income with subscales of QOL: physical health, psychological health, and environment. Illness and treatment-related variables, such as the number of side effects, duration from diagnosis, and financial burden due to illness, also influenced the QOL of patients. The present research has important clinical implications for future healthcare interventions. It suggests that demographic and clinical factors of patients must be taken into account for better health outcomes.

Keywords: Hepatis C Virus; quality of life; physical health; psychological health

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1. INTRODUCTION

In recent decades, hepatitis has become a community health issue, though Hepatitis C Virus (HCV) was discovered for the first time in 1989, when most of the patients had symptoms of hepatitis, but it was neither A nor B, then it was termed Hepatitis C (HCV). It was found that HCV is mainly transmitted through blood transfusion; however, Hepatitis Delta Virus (HDV) is unique as it only infects individuals who have already had hepatitis B infection. In some cases, it turns into a severe, asymptomatic and unobserved acute disease, and in some cases, it could be treated completely or could result in chronic hepatitis (Kausar & Yusuf, 2011). According to the World Health Organization, the global prevalence of HCV is 3% and it affects approximately 170 million people annually (Zhang et al., 2020). The prevalence of HCV in different provinces of Pakistan has risen to 5.46%, 2.55%, 6.07%, 25.77% & 3.37% in Punjab, Sindh, Khyber Pakhtunkhwa, Balochistan, and the federal tribal areas, respectively. The prevalence of HCV in Pakistan is almost 9% and the primary mode of transmission is the reuse of needles and syringes and the donation of blood without screening the donor for HCV (Arshad & Ashfaq, 2017).

Over the past decade, the effect of HCV on Health-Related Quality of Life (HRQOL) of patients has been studied (Foster, 2009). The proposed definition by the World Health Organization Quality of Life Group (WHOQOL; 1993) was employed to operationalize HRQOL. According to WHO (1993), HRQOL is an individual's perception about his/her position in life in the context of culture and value systems wherein they live, concerning their goals, expectations, standards, and concerns (Glavic et al., 2014). The quality of life is a broad and complex concept that cannot be measured without physical and psychological health because an individual's health is likely to affect his/her quality of life. The quality of life includes the following: physical health, psychological health, social life, relationship to the environment, and level of independence (Bowling, 1999). There has been evidence that patients suffering from chronic HCV displayed poor HRQOL in all domains before they received any treatment; however, HRQOL improved after they received treatment (Bezemer et al., 2012). Previously, HRQOL has mostly been studied during different phases of chronic illness, and the role of co-morbid illnesses such as Cirrhosis and Liver failure has been established, resulting in poor quality of life in patients with HCV (Kwan et al., 2008; Kallman et al., 2007). Previous literature also investigated demographic and clinical variables such as age, place of birth, education, employment, being overweight, psychiatric disorders, and feelings about disease in relation to HCV in patients as the disease progressed (Cossais et al., 2019). Evidence exists that the QOL of patients with chronic obstructive pulmonary disease declines with age. Further, higher education improves QOL, however, the presence of comorbid conditions along with increased duration of illness is associated with deteriorated QOL in the Polish population (Rosińczuk et al., 2018). Younossi et al. (2007) concluded the side effects of Interferon Therapy in patients with HCV. They identified fever, chills, tachycardia, headache, flu-like symptoms, depression, and fatigue as potential side effects of Interferon Therapy. They further stated that nausea, vomiting, and diarrhea are common amongst HCV patients. According to the biopsychosocial model of illness, understanding the psychological and social impact of HCV is important to identify how an individual suffers as a whole from the illness. In addition to the living conditions of an individual, the psychological reactions towards the illness must be taken into account (Barreira et al., 2019). Previous research conducted in Pakistan has studied demographic variables such as age, gender, education, occupation, and residence in relation to symptoms of depression (Mukhtar et al., 2015) and HRQoL (Niyomsri et al., 2023) in HCV patients. In addition, the quality of life of HCV patients on Interferon Therapy was studied and the findings concluded with poor QOL of patients receiving Interferon Therapy (Khan et al., 2017). Further, experiences of stigma and quality of life in HCV and HBV patients in Rawalpindi and Islamabad were also studied using mixed-methods research design. The findings revealed that patients suffering from both HCV and HBV experienced stigma mainly due to the lack of knowledge about the mode of transmission of the disease. They also experienced emotional distress due to the information about the extent of severity of their disease (Rafique et al., 2014). It is evident that there is considerable research investigating QOL in HCV patients; however, there is limited research investigating detailed demographic and treatment-related factors in relation to quality of life in HCV patients in Pakistan. The relationship between the components of HRQOL and patient-related factors is still unclear. This research will fill the gap in literature through its focus on studying such demographic and treatment-related factors in relation to HRQOL, which have not been investigated beforehand.

There is a need to understand demographic variables such as age, gender, education, income, family system, and clinical variables such as duration from diagnosis, mode of treatment, psychological and physical symptoms experienced during the treatment of HCV, and financial problems faced because of illness, etc., in association with QOL. It is important to consider such factors to understand the determinants of the burden of disease and how it may affect the HRQOL of patients. Assessment of HRQOL in such patients will help understand the treatment's outcome and related factors, which would help provide necessary support to these patients.

Hypotheses

H1: Demographic and Clinical variables (age, education, duration of diagnosis, duration of treatment, number of injections, number of times treated, number of side effects, distress due to illness, and number of comorbid conditions) would have a relationship with domains of quality of life.

H2: Demographic and Clinical variables (age, education, duration of diagnosis, duration of treatment, number of injections, number of times treated, number of side effects, distress due to illness, and number of comorbid conditions) would predict domains of quality of life.

H3: There would be group differences in quality of life of HCV patients based on demographic and clinical variables (gender, marital status, monthly family income, family system, residence, mode of treatment, types of treatment taken, financial problems due to illness, primary carer and inability to go to work).

2. METHOD

2.1. Research Design

A correlational research design was used for this research, as it investigates the relationships among various variables at one point in time, given their varied nature.

2.2. Sample

A total of 102 participants diagnosed with hepatitis C, with an age range of 22-65 (M=47; SD=10.29), participated in the research. The sample size was collected using G-Power analysis with a medium effect size of 0.5. Two government hospitals, one private and one semi-government hospital, were selected based on the availability of research participants, whereas participants were selected through a purposive sampling technique. The patients diagnosed with HCV above 18 years of age who were under treatment (Interferon Therapy) in the active phase were included. Patients diagnosed with any other chronic illnesses (other than Hypertension, Diabetes and Hepatitis C-related conditions), such as coronary heart disease, kidney failure and epilepsy etc. and/or who had undergone liver transplant or those advised for liver transplantation were excluded to rule out health conditions that may be contributing to quality of life other than HCV. Patients with diabetes mellitus and hypertension could not be excluded, as most patients suffered from these conditions. Instead, the record of these conditions was kept using a clinical questionnaire. Patients with a present or past diagnosis of any psychological illness or any physical disability were also excluded. Informed consent was signed by the participants before collecting data. A total of 177 patients with HCV were approached, out of which 21 patients were excluded because they had other medical conditions. Six patients were excluded because they had undergone liver transplantation, and two patients were excluded because they reported symptoms of anxiety and depression on screening.

2.3. Measures

The present research was conducted using the following measures:

Demographic and Clinical Questionnaire 1. The demographic and clinical questionnaire was developed to find out demographic and disease-related variables such as age, gender, education, marital status, monthly family income, time from when the diagnosis was made, mode of treatment, co-morbid conditions, side-effects of treatment, etc.

Mental Health Screening Questionnaire 2. Mental Health Screening Questionnaire (MHSQ; Mirza & Kausar, 2008) is a self-report questionnaire used to screen patients for psychosis, anxiety (OCD), and depression. The scale was developed in the Urdu language for the Pakistani population and includes 5 items. It is a binary scale, so participants had to respond with "Yes" or "No" option. The sample items include, "During the last six months, have you felt sad or depressed for nothing?" and "During the last six months, have you suffered once or more from an acute state of anxiousness, fear, or restlessness?" After screening, only those patients were included who showed no signs of psychological illness. If any patient reported any of the symptoms, he/she was referred to the Department of Psychiatry for further assessment and treatment.

Quality of Life-BREF 3. Quality of Life-BREF (QOL; World Health Organization, 1997) is a self-report questionnaire administered to measure the quality of life of patients with HCV. It has 26 items which are rated on a 5-point Likert scale. It measures four domains: physical health, psychological health, social relationships, and environment. The two additional questions measure the overall state of health ('how much', 'how completely', 'how often', 'how good', or 'how satisfied'). The sample items for physical health include "To what extent do you feel that physical pain prevents you from doing what you need to do?" and "How much do you need any medical treatment to function in your daily life?" The sample items for psychological health include "How much do you enjoy life?" and "To what extent do you feel your life to be meaningful?" The sample items for social relationships are "How satisfied are you with your relationships?" and "How satisfied are you with the support you get from your friends?" The sample items for environment are "How safe do you feel in your daily life?" and "Do you have enough money to meet your needs?" For the current research, the reliability value for physical health is α=0.85; for psychological health is α=0.66; for social relationships is α=0.37, and for environment is α=0.79.

2.4. Procedure

The research topic was presented to the Departmental Doctoral Program Committee, and after obtaining permission from the original authors and those who translated the questionnaires into Urdu. Afterward, permission from the hospital Ethical Committees and the heads of the respective departments was obtained. Further, information regarding patients was obtained from the doctors, and the patients' maintained records were reviewed. Patients were included in the research by maintaining records and following the guidance of their respective doctors. Patients were briefed about the objectives of the study and written consent was taken before administering the questionnaires. They were informed that information obtained from them would remain confidential and would be used only for research and educational purposes.

3. RESULTS

Results were analyzed using the Statistical Package of Social Sciences (SPSS). Descriptive analysis was used on demographic and clinical variables. Pearson Product Moment Coefficient was used to find the relationship of demographic and clinical variables with quality of life. Linear regression analysis was used to predict domains of quality of life from demographic and clinical variables in patients with HCV. Independent sample t-test and ANOVA were used to find group differences in association with demographic and clinical characteristics in domains of quality of life.

Table 1. Demographic Characteristics of the Participants (N=102)

Characteristics	*M (SD)*	*n (%)*
Age (Years)	47(10)	
Gender		
Men		38(37)
Women		64(63)
Education (Years)	6.5(5)	
Marital Status		
Married		82(80)
Unmarried		4(4)
Divorced/Separated/Widow		16(16)
Monthly Family Income (PKR)		
0-15000		23(23)
15000-30,000		39(38)
30,000-50,000		21(21)
50,000 or above		19(19)
Family System		
Joint		39(38)
Nuclear		63(62)
Residence		
Rural		28(28)
Urban		74(73)
House		
Owned		86(84)
On rent		16(16)

Hepatitis C patients' mean age was 47 years (SD=10.29), wherein 37% were men and 63% women. Table 1 includes the demographic characteristics of research participants, including age, gender, education, marital status, monthly family income, etc.

Table 2. Clinical Characteristics of the Participants (N=102)

Characteristics	*M (SD)*	*n (%)*
Duration from Diagnosis (Months)	64(63)	
Mode of Treatment		
Oral medication		63(62)
Oral Medication and Injections (Interferon Therapy)		39(38)
Duration of Oral Treatment (Months)	16(29)	
Number of Injections Injected so far	20(32)	
Number of Times Treated before the Present Treatment		
0		4(4)
1		71(70)
2		19(19)
3		7(7)
5		1(1)
Other Types of Treatment Taken		
None		69(68)
Herbal/Homeopathy/Spiritual Treatment		33(32)
Symptoms Experienced During the Course of Treatment		
Fatigue		74(73)
Fever		51(50)
Cough		14(14)
Skin rash		9(9)
Body ache		58(57)
Headache		44(43)
Anxiety		59(58)
Loss of sleep		52(51)
Nausea/Vomiting		25(25)
Diarrhoea		5(5)
Chills		13(13)
Lack of appetite		37(36)
Backache		32(31)
Sore throat		19(19)
Shortness of breath		41(40)
Low mood		36(35)
Anger		61(60)
Irritability		59(58)
Indigestion		37(36)
Weakness		69(68)
Dizziness		29(28)

Drowsiness		16(16)
Flu		4(4)
Weak eyesight		19(19)
Stomach ache		22(22)
Pain in chest		25(25)
Number of Symptoms Experienced During the Course of Treatment	9(6)	
Financial Problem due to Treatment Expenses		
Yes		82(80)
No		20(20)
Distress Caused by Illness (0-10)	8(2)	
Primary Carer		
Patient himself/herself		30(29)
Immediate Family Member (spouse, children, parents or siblings)		66(65)
Other		6(6)
Inability to go to Work/Job		
Yes		57(56)
No		45(44)
Co-morbid Conditions		
Hypertension		30(29)
Diabetes		24(24)
Chronic Liver Disease		36(35)
Cirrhosis		27(27)
Varices		5(5)
Ascites		2(2)
Dyslipidemia		1(1)
Enteritis		1(1)
Number of Co-morbid Conditions	1(1)	
Reported Medium of Infection		
Unknown		69(68)
Contaminated water		13(13)
Immediate family member		1(1)
Surgery/injection/dental procedure		15(15)
Unhygienic food		3(3)
Alcohol use		1(1)

Table 2 includes clinical characteristics of HCV patients such as mode of treatment, duration of diagnosis, co-morbid conditions, and side effects, etc. On average, patients had been diagnosed for 64 months (SD=63.19) when they were taking treatment. 62% patients were on oral medication, while 38% of them were taking both oral medication and injections (Interferon Therapy).

Table 3 shows a correlation matrix showing the relationship of demographic and clinical characteristics with domains of quality of life. Age had a significant negative relationship with psychological health. Education had a significant positive relationship with physical health, psychological health, and environment domains of QOL, which suggests that an increase in education was associated with better physical and psychological health outcomes along with improved facilities and resources. Increased duration of oral treatment was also negatively associated with physical and psychological health. An increase in the number of side effects experienced during treatment was negatively related to physical health, portraying poor physical health outcomes for patients who experienced more side effects during treatment. Illness-related distress was negatively related to physical health, psychological health, and the environment subscale.

In Table 4, multiple regression analysis showed that education was a positive predictor of physical health, psychological health and environment. Duration of diagnosis negatively predicted psychological health. The number of side effects negatively predicted physical health, indicating that patients who experienced an increased number of side effects during the time of treatment reported poor physical health. Illness-related distress negatively predicted psychological health and the environment domain of QOL in HCV patients. Further, significant models emerged for physical health: F(5, 96)=9.730, p<.001; psychological health: F(5, 96)=8.756, p<.001 and environment: F(5, 96)=7.402, p<.001 which accounted for 33%, 31% and 27% variance, respectively.

Table 3. Correlation Matrix for Demographic and Clinical Variables and Subscales Quality of Life for Hepatitis C (N=102)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age (Years)	-	-.15	.16	.16	-.00	.00	-.23*	-.13	.34**	-.08	-.20*	.07	.07
2. Education (Years)		-	.03	-.13	.00	-.12	.07	-.09	-.04	.43**	.44**	.09	.38**
3. DD (Months)			-	.20*	.13	.40**	.10	-.12	.17	.05	.10	-.04	.12
4. DOT (Months)				-	.05	.02	.14	06	.12	-.20*	-.29**	.01	-.16
5. Number of Injections					-	.20*	.34**	.30**	-.04	-.03	-.09	-.05	-.11
6. Number of Times treated						-	.22*	.00	-.12	.01	.04	.13	-.04
7. Number of Side Effects							-	.16	-.24*	-.31**	-.05	-.04	-.01
8. Distress due to Illness								-	.13	-.20*	-.23*	-.06	-.36**
9. NCC									-	-.10	-.12	-.04	.05
10. Physical Health										-	.51**	.28**	.42**
11. Psychological Health											-	.42**	.61**
12. Social Relationships												-	.44**
13. Environment													-

Table 4. Multiple Regression Analysis Predicting Quality of Life from Demographic and Clinical Variables (N=102)

	Quality of Life					
	PH			Psy		
Predictor	B	SE B	β	B	SE B	β
Age (Years)	-.02	.02	-.10	-.03	.01	-.15
Education (Years)	.20	.04	.41***	.14	.03	.38***
DOT (Months)	-.00	.00	-.07	-.01	.00	-.20*
NSE	-.15	.04	-.33***	-.02	.03	-.06
DdI	-.12	.08	-.12	-.15	.07	-.19*
R^2		.33			.31	
F		9.73***			8.75***	
	Quality of Life					
	SR			Env		
Predictor	B	SE B	β	B	SE B	β
Age (Years)	.01	.07	.07	.02	.02	.11
Education (Years)	.04	.10	.10	.16	.04	.35***
DOT (Months)	.00	.02	.02	-.01	.00	-.12
NSE	-.01	-.02	-.02	.02	.04	.06
DdI	-.04	-.04	-.04	-.31	.08	-.32***
R^2		.02			.27	
F		.39			7.40***	

Note: *p<.05, **p<.01, ***p<.001

PH= Physical Health, Psy= Psychological Health, SR= Social Relationships, Env= Environment, DOT: Duration of Oral Treatment, NSE= Number of Side Effects, DdI= Distress due to Illness, B= Unstandardized Beta, SE B= Standard Error (Unstandardized Beta) β=Standardized Beta, R^2 = Variance Explained

Table 5. Statistical Characteristics and Group Differences in Relation to Demographic and Clinical Variables in Physical Health Domain of QOL (N=102)

Category	N	Mean	Quartile		F	*P*-value
			Lower	Upper		
Gender						
Men	38	10	9	14	.00	.98
Women	64	10	9	13		
Marital Status						
Married	82	11	9	13	1.3	.27
Unmarried	4	11	9	13		
Divorced/Separated/ Widow	16	9	9	12		
Monthly Family Income (PKR)						
0-15000	23	9	8	10	3.7	.01
15000-30,000	39	11	9	14		
30,000-50,000	21	11	9	13		
50,000 or above	19	13	10	14		
Family System						
Joint	39	10	9	14	1.3	.90
Nuclear	63	10	9	13		
Residence						
Rural	28	9	9	12	3.5	.07
Urban	74	11	9	13		
House						
Owned	86	11	9	13	.01	.48
On rent	16	10	9	13		
Mode of Treatment						
Oral medication	63	11	9	13	.02	.47
Oral Medication and Injections	39	10	9	13		
Other Types of Treatment Taken						
None	69	10	9	13	.34	.90
Herbal/Homeopathy/Spiritual Treatment	33	11	8	13		
Financial Problem due to Treatment Expenses						
Yes	82	10	9	13	.24	.39
No	20	11	9	14		
Primary Carer						
Patient himself/herself	30	11	9	14	2.1	.12
Immediate Family Member (spouse,	66	10	9	13		

children, siblings or parents)						
Other	6	10	9	12		
Inability to go to Work/Job						
Yes	57	9	8	11	1.7	.001
No	45	13	10	14		

The results of group differences can be viewed in Table 5. There are significant group differences in the physical health of HCV patients. Patients who earned more in comparison to those who earned less reported better physical health. Patients who were unable to work due to illness reported poor physical health.

Table 6. Statistical Characteristics and Group Differences in Relation to Demographic and Clinical Variables in Psychological Health Domain of QOL (N=102)

Category	N	Mean	Lower Quartile	Upper Quartile	F	*P*-value
Gender						
Men	38	14	13	15	3.1	.01
Women	64	13	11	14		
Marital Status						
Married	82	13	12	15	5.3	.007
Unmarried	4	13	12	14		
Divorced/Separated/ Widow	16	12	11	13		
Monthly Family Income (PKR)						
0-15000	23	12	11	13	7.8	.001
15000-30,000	39	13	12	15		
30,000-50,000	21	13	12	15		
50,000 or above	19	14	14	15		
Family System						
Joint	39	13	12	14	3.7	.92
Nuclear	63	13	11	15		
Residence						
Rural	28	13	12	14	3.8	.46
Urban	74	13	12	15		
House						
Owned	86	13	12	15	1.1	.13
On rent	16	13	12	13		
Mode of Treatment						
Oral medication	63	13	12	14	.27	.86
Oral Medication and Injections	39	13	12	15		

Other Types of Treatment Taken						
None	69	13	12	15	2.0	.47
Herbal/Homeopathy /Spiritual Treatment	33	14	12	15		
Financial Problem due to Treatment Expenses						
Yes	82	13	12	14	.68	.005
No	20	14	13	16		
Primary Carer						
Patient himself/herself	30	14	12	15	.36	.69
Immediate Family Member (spouse, children, siblings or parents)	66	13	12	14		
Other	6	13	11	16		
Inability to go to Work/Job						
Yes	57	13	11	14	1.2	.001
No	45	14	13	15		

Women reported poor psychological health in comparison to men (Table 6). There were also significant differences in the psychological health of patients based on their marital status. Divorced/separated/widowed patients reported poor psychological health in comparison to married and unmarried patients. Patients with higher income, fewer financial problems, and the ability to continue working reported better psychological health in comparison to those who earned less, had financial restraints, and were unable to continue working.

Table 7. Statistical Characteristics and Group Differences in Relation to Demographic and Clinical Variables in Social Relationships Domain of QOL (N=102)

Category	N	Mean	Lower Quartile	Upper Quartile	F	*P*-value
Gender						
Men	38	13	12	16	.23	.19
Women	64	14	12	15		
Marital Status						
Married	82	15	13	15	5.4	.006
Unmarried	4	13	10	14		
Divorced/Separated/ Widow	16	13	11	13		
Monthly Family Income (PKR)						
0-15000	23	13	11	13	5.4	.002
15000-30,000	39	15	13	15		
30,000-50,000	21	15	12	15		
50,000 or above	19	15	13	16		
Family System						
Joint	39	13	12	15	.73	.65
Nuclear	63	13	12	15		
Residence						
Rural	28	13	13	15	5.0	.57
Urban	74	13	12	15		
House						
Owned	86	13	12	15	3.2	.28
On rent	16	13	12	15		
Mode of Treatment						
Oral medication	63	15	12	15	.25	.33
Oral Medication and Injections	39	13	12	15		
Other Types of Treatment Taken						
None	69	13	12	15	.12	.73
Herbal/Homeopathy/ Spiritual Treatment	33	13	12	15		
Financial Problem due to Treatment Expenses						
Yes	82	13	12	15	.14	.005
No	20	15	13	16		
Primary Carer						
Patient himself/herself	30	13	12	15	2.1	.12
Immediate Family Member (spouse,	66	15	13	15		

children, siblings or parents)						
Other	6	15	10	16		
Inability to go to Work/Job						
Yes	57	13	12	15	1.6	.85
No	45	13	12	15		

Married patients reported higher scores on social relationships compared to unmarried and divorced/widowed/separated individuals (Table 7). Patients who earned higher and faced fewer financial problems also reported better social relationships than those who earned less and faced more financial problems.

Table 8. Statistical Characteristics and Group Differences in Relation to Demographic and Clinical Variables in the Environment Domain of QOL (N=102)

Category	N	Mean	Lower Quartile	Upper Quartile	F	*P*-value
Gender						
Men	38	12	11	14	3.2	.67
Women	64	12	10	14		
Marital Status						
Married	82	12	11	14	4.2	.01
Unmarried	4	12	10	13		
Divorced/Separated/ Widow	16	10	8	13		
Monthly Family Income (PKR)						
0-15000	23	10	9	12	16.2	.001
15000-30,000	39	12	11	14		
30,000-50,000	21	14	12	15		
50,000 or above	19	15	13	16		
Family System						
Joint	39	13	11	14	.20	.41
Nuclear	63	12	11	14		
Residence						
Rural	28	12	11	13	3.7	.26
Urban	74	13	11	15		
House						
Owned	86	13	11	15	.93	.001
On rent	16	11	8	11		
Mode of Treatment						
Oral medication	63	13	11	14	.006	.46
Oral Medication and Injections	39	12	11	14		

Other Types of Treatment Taken						
None	69	12	11	14	.25	.79
Herbal/Homeopathy/Spiritual Treatment	33	12	11	14		
Financial Problem due to Treatment Expenses						
Yes	82	12	10	14	2.4	.001
No	20	14	13	16		
Primary Carer						
Patient himself/herself	30	13	11	14	.12	.88
Immediate Family Member (spouse, children, siblings or parents)	66	12	11	14		
Other	6	13	10	15		
Inability to go to Work/Job						
Yes	57	12	10	14	.95	.02
No	45	13	11	15		

Married patients scored higher on the environment subscale in comparison to unmarried and divorced/widowed/separated (Table 8). Patients who earned more, had their own house, faced fewer financial problems, and were able to go to work reported better on the environment subscale than those who earned less, had a rented house, faced high financial difficulties, and were unable to go to work.

4. DISCUSSION

The findings of the present research indicated that age had a significant negative relationship with psychological health. Soosova (2016) states that as age increases, individuals begin developing a fear of death, either of their spouses or themselves, which in turn grows into depression. Also, in older age, most individuals are already living without their partners. The increase in age is also associated with an increase in multiple illnesses, which might lead individuals to hopelessness. These might be the contributing factors towards the decline in psychological health among patients with HCV. These patients might have other illnesses leading them to be more hopeless about the outcome of their treatment as compared to their younger counterparts. Education was a positive predictor of physical health, psychological health, and environment in HCV patients. These findings suggest that patients who were educated were keenly aware of the information channels required for the treatment and knew who to consult for this purpose. They also sought social support for coping with the illness. Having relevant information and seeking appropriate treatment for the illness resulted in better physical health as compared to those who had no formal education. Land et al. (2012) reported that individuals who are educated have a better understanding of the world they live in, which could be a factor leading to a better quality of life amongst educated individuals.

An increased number of side effects experienced by patients during treatment was a negative predictor of physical health. Faddan et al. (2018) indicated in their research that physical symptoms such as tiredness and fatigue might be responsible for decreased quality of life, along with other physical and psychological symptoms experienced by patients during treatment. With an increase in symptoms, there is a decline in QOL. Most of the symptoms experienced by patients during treatment are physical in nature, such as fatigue, weakness, body ache, etc., resulting in deteriorated physical health.

Duration of diagnosis and illness-related distress negatively predicted psychological health. Previous research has indicated that along with illness is the associated fear of transmitting the virus, which results in an increased level of anxiety among patients. Patients also must deal with the stigma that is associated with the HCV virus (Barreira et al., 2019). These could be the factors of poor psychological health within the existing sample. Also, with the increase in duration, patients experienced more deterioration in their social relationships, resulting in increased levels of distress and poor psychological health.

There are significant group differences in the physical health of HCV patients based on monthly income. Patients with higher income, fewer financial problems, and the ability to continue working experienced better physical and psychological health, while those who earned less, had financial constraints and were unable to continue working experienced otherwise. Better income also predicted social relationships in HCV patients. These were the patients who belonged to high education group, as education can lead to better job outcomes resulting in a higher income (Land et al., 2012). The income and education further aids these individuals to have an adequate social relationship

along with improved psychological health. Also, when one has an adequate income, one's resources are improved in terms of availability of transportation, better opportunities for leisure activities, access to required information, and health care facilities. These could be the factors contributing to increased scores on the mentioned domains of HRQOL.

Women reported poor psychological health in comparison to men. The results are contradictory to the previous research, which was conducted by Bianco et al. (2013), who found women to have better emotional and mental health among HCV patients. The possible explanation for this contradiction is that in developing countries, men have economic stability, resulting in better mental health for men than women. In a male-dominated society, men have more control and have the decision-making power, resulting in enhanced social support. Not only this, but the assignment of more domestic labor to women and their less participation in public life also contributes to poor psychological health, for it means more responsibility as well as poor social support and poor awareness to manage the illness (Vlassoff, 2007). These findings could be attributed to the better psychological health of men in comparison to women in Pakistan.

There were also significant differences in the psychological health of patients based on their marital status. Divorced/separated/widowed patients reported poor psychological health and social relationships in comparison to married and unmarried patients. Jamadar et al. (2015) stated that there are several factors related to HRQOL of widows/divorced/separated, including their age, education, occupational status, etc. Younger age, low education, and unemployment can lead to poor HRQOL. Being widowed/divorced/separated usually results in loss of social relationships as well. When individuals lose their social relationships, they lose social support along with access to other facilities such as transportation, leisure activities, and access to medical care, etc which in turn, results in poor environmental conditions along with poor physical health.

Patients who reported the financial burden of the illness reported poor psychological health, social relationships, and the environment subscale of HRQOL. Chang et al. (2008) stated that most of the patients with HCV face a certain degree of financial stress that affects their quality of life. It can be observed in current research that 80% of patients reported having experienced financial restraints due to treatment costs. In Pakistan, government hospitals usually cover consultation fees but the treatment cost must be covered by the patients themselves. Further, in private hospitals, patients have to self-finance 100% treatment and consultation costs. This financial burden eventually causes distress among patients, affecting social relationships and access to better environmental conditions.

5. CONCLUSION

The present research concluded that demographic and clinical variables make an important contribution to the determination of HRQOL domains in HCV patients. Factors such as the number of side effects and illness-related stress contributed to physical and psychological health, respectively. The groups of patients also varied in HRQOL domains by gender, education, income, marital status, and financial problems. Understanding the relationships between demographic and clinical variables and quality of life will help plan future interventions that cater to the needs of all groups separately.

Policy Implications

Based on the findings, the clinical implications of the present research include introducing support groups in Pakistan for these patients as there is no such intervention conducted for patients with any chronic illness including HCV. The demographic and clinical characteristics of the patients must be given special attention in relation to the mental and social health of patients. Groups must be formed keeping those characteristics in mind to help highlight the psychosocial issues related to those particular groups, such as age, sex, education and income. Intervention must be developed to improve HRQOL of HCV patients for better health outcomes.

Limitations and Future Recommendations

It is recommended to conduct in-depth qualitative research to explore patients' reactions at the time of diagnosis and the coping strategies they use. Understanding patients' experiences during illness treatment is also crucial for examining the relationship between treatment and HRQOL. This could provide a detailed overview that would be helpful in the future for managing their psychological issues. Additionally, it is advised to gather a sufficient number of participants from both public and private hospitals to compare their quality of life. Since data were collected from government, semi-government, and private hospitals, hospital-related variables like the availability of facilities might influence patients' quality of life. Future studies should consider these factors.

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