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Quality of Life among Individuals with HIV in Lahore: The Role of Resilience

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ABSTRACT

Resilience is the ability to bounce back in difficult situations such as trauma, stress, and adversity. Being diagnosed with Human immunodeficiency virus (HIV) is an extremely traumatic and stressful experience that can also lead to stigma and discrimination. **Objectives:** To find any significant association between resilience and Quality of Life (QOL) among individuals with HIV. **Methods:** This cross-sectional study was conducted in Forman Christian College from June 2020 to December 2020. The participants were mainly selected from the 3 different HIV rehabilitation centers based in Lahore (n=300) with age ranges from 18 to 65 years (Mean=32.7, SD=7.93). **Results:** The findings of the study illustrate that there is a positive association between resilience and QOL among individuals with HIV; Resilience is also positively associated with demographic variables like income, education, and gender. Furthermore, study findings demonstrate that resilience predicts a direct positive effect on individuals with HIV's QOL. **Conclusions:** It was concluded that by cultivating resilience, individuals with HIV can improve their physical and mental health and effectively manage their illness.

INTRODUCTION

Around 4000 young individuals in many parts of the world are infected with HIV every day, 40% of all new cases are among young people aged 15–24 years [1]. In some communities, the reaction to the HIV pandemic has demonstrated remarkable resilience in adverse times, which has helped prevent the worst effects. The process of adopting positivity within any given environment is known as resilience. In addition, resilience is the result of an individual's attitudes, beliefs, and abilities taken together, allowing them to remain resilient in the face of adversity. A balance of risk and protective factors is what determines resilience in individuals [2]. It is ascertained that resilience has a genetic or biological element [3]. However. resilience is not one characteristic of personality [4]. It is associated with the outcomes of experiences in many environmental factors that contribute to resilience growth in individuals. Therefore, myriads of studies have supported that resilience is strengthened through psychosocial support [5], psychological adjustment [6], coping abilities [7], and personal belief [8]. According to the resilience theory, the collaborative model of resilience, community contribution, family, and significant others assist in developing resilience among sufferers and can help support their psychological and physical health [9]. Resilience is reported as a buffer against stress among individuals with HIV and maintains health-related issues [10]. Numerous studies support that resilience is a term widely used for survivors to cope and adopt a healthy lifestyle. Also, Peccoralo *et al.*, reported that resilience is a sufferer's capacity to bounce back from difficulties and move on with better Health [11]. QOL can be described as "mental, physical, role and social functioning, including relationships, and perception of health, fitness, life satisfaction, and well-being [12]. Therefore, an influential

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and better QOL of individuals with HIV indicates the acceptance of the disease, establishment of a safe sexual relationship, medicine adherence, and even again start of routine life. Around .19 million sufferers are living with HIV in Pakistan in 2021, and 55% of sufferers are taking Antiretroviral therapy/medicine (ART) to fight the disease and adopt a healthy lifestyle. However, many factors can positively affect sufferers' QOL, like individuals' age, education, gender, living area, family systems, monthly income, marital status, regular taking of ART, and emotional and social support from significant others [13]. The power of Resilience can challenge epidemic diseases for any sufferer. Resilience is an actual positive weapon to resist against HIV infection among different age groups and genders. However, resilience plays a significant role in stopping the spread of HIV infections in others and helps them to live a balanced life. Although previous literature has explored resilience in individuals living with HIV, there was very little information regarding resilience with QOL among individuals with HIV. The study hypothesized that there was a positive association between resilience and QOL among individuals with HIV.

This study aims to explore any association between resilience and QOL among individuals with HIV. Also, to identify any demographic factors significant association that exists between resilience and sufferers' QOL.

METHODS

This cross-sectional study was conducted in Forman Christian College after getting an ethical approval letter (ref no IRB-233/06-2020). The study duration was from June 2020 to December 2020. This study adopted a non-parametric purposive sampling strategy to select the registered participants from three different renowned HIV rehabilitation centers in Lahore, Pakistan. All the selected participants were registered with The Punjab Aids Control Program Department (PACP) and had records of regularly taking ART. The sample size was comprised of 300 individuals with HIV based on the previous literature, with age ranges from 18 to 65 years (M=32.7, SD=7.93). Under inclusion criteria those participants were selected who were taking ART, already registered with PACP, had no history of substance abuse, and did not possess any other physical illness like Hepatitis B/C and Tuberculosis. A total of 498 participants participated in this research study, and only 300 participants met the inclusion criteria. A demographic questions sheet was used to collect general information like age, marital status, number of children, participants' education, profession, family monthly income, regularly taking ART, and any other physical disease like Hepatitis B/C and tuberculosis. The Adult Resilience Measure-Revised (ARM-R) tool was used to measure individuals with HIV resilience levels. The scale had 17 items, and it was a 5-point Likert scale ranging from 1 = low to 5 = high. The test-retest reliability of ARM-R was 0.74, and Cronbach's alpha was 0.86 [14]. World Health Organisation-HIV Quality of Life (WHOQOL-HIV BREF) was used to assess the QOL of individuals with HIV. This scale had 31 items and a 5-point Likert scale from 1=strongly disagree to 5=strongly agree. WHOQOL-HIV BREF had six different domains (physical, psychological, level of independence, social relationships, environment, and personal beliefs), and every domain had different items, like 4, 5, 4, 4, 8, and 4 statements, respectively. The test-retest reliability in all 6 domains was 0.54, 0.77, 0.71, 0.76, 0.78, and .48, respectively [15]. Firstly, the pilot study was performed to ensure that the questionnaire items were conceptually simple and to rule out the average time taken to complete the questionnaires. For the piloting (n=5), respondents were selected. The study informed the participants, confidentiality and anonymity, and the expected findings. Furthermore, the participants were encouraged to provide feedback on whatever problems they faced or encountered during the administration. After the piloting, the primary study was carried out. Formal permission was taken from the Project Director of PACP to collect the data from the targeted participants without any hurdles. The written permission was submitted to all three heads of the PACP's HIV/AIDS rehabilitation centers. Also, verbally explained the study's significance to the Head of Department and other staff members of the PACP's selected rehabilitation centers. Furthermore, written and verbal informed consent were obtained and explained to the participants regarding the aim of the research study, its importance, the expected outcome, and participants' confidentiality. The data collection took almost four months to complete. Descriptive and inferential statistics were used to explore the data of 300 individuals with HIV. To begin, the psychometric properties of the study's measures were computed. Descriptive statistics were used to find out the frequencies and percentages of the study's supporting variables. Pearson product-moment correlation was run to explore the positive or negative association in resilience, QOL, education, gender, and family income. Finally, regression analysis was run to predict the resilience effect on QOL. The level of significance was set to below 0.05 for all analyses, which were all carried out using IBM SPSS version 23.0. To begin with, formal permission to conduct the research work was obtained from all concerned authorities. The authors of the assessment instruments were contacted via email for permission to use the original versions of the tools. Verbal and written permission were taken from both participants and informed participants, including research participation rights and withdraw their participation at any point without any reason. Moreover, the participants were informed about their privacy and confidentiality, and

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informed that the data sheets of the data collection were saved and coded, due to which only the researcher and supervisor had access to confidential material. Debriefing of research was provided, and it was discussed with participants to seek psychological assistance just in case they experienced any emotional difficulty after filling out questionnaires. Also, two professional clinical psychologists were kept on board for this purpose.

RESULTS

To analyze data, the psychometric properties of the study's measures were computed. The table illustrates the reliability analysis of the scales and their subscales that were used for the present study. The mean, standard deviation, and Cronbach's alpha reliability value were calculated. The first scale, Adult Resilience Measures-Revised scale (ARM-R), Cronbach's alpha reliability value was 0.76, which was a suitable reliability for the study. Lastly, the results also revealed that the WHO-HIV Quality of Life scale (WHOQOL-HIV BREF) comprised six subscales. The alpha values for the physical and personal beliefs subscales were observed to be low as compared to the other four subscales, which ranged from 0.71 to 0.78 and were in an acceptable range. Firstly, reliability analysis was executed to compute the mean, standard deviation, and Cronbach's alpha values of measuring tools (Table 1).

Table 1: Psychometric Properties of Questionnaires (Resilience and Quality of Life) in the Present Study

Measures	*K*	Mean ± SD	α
ARM-R	17	65.61 ± 7.88	0.76
WHOQOL-HIV BREF	31	116.31 ± 10.78	0.75
Physical	4	12.52 ± 1.92	0.54
Psychological	4	16.09 ± 2.3	0.77
Level of Independence	5	15.54 ± 2.51	0.71
Social Relationship	4	12.72 ± 2.79	0.76
Environment	4	28.11 ± 4.28	0.78
Personal Beliefs	8	13.19 ± 3.39	0.48

Note. K=Number of scales and subscales items; α=Cronbach's alpha; ARM-R=Adult Resilience Measures-Revised scale; WHOQOL-HIV BREF=World Health organization HIV quality of life scale.

Most of the participants living with HIV were men (77%). The participants' mean age was 32.7 ± 7.93. The majority of the participants were married and living with their spouses. Whereas, unmarried/single participants were noted to have the second-highest percentage (45%). Most of the participants had 1-3 children, and 7 males had 7-8 children. The majority of participants were uneducated or under-matriculated. A large percentage of the transgender and female participants were under-matriculated or uneducated. This can be seen that the majority of the participants were employed and doing jobs in the private sector and the government sector too. Furthermore, a countable number of participants were self-employed and running their own businesses. Whereas, around 86% of transgender people were dancing and begging to earn money for food and clothes. The majority of participants' monthly family income was low. All participants are registered with PACP and regularly take ART. Furthermore, all the participants had no significant illness other than HIV infection (Table 2).

Table 2: Demagraphic Analysis (n=300)

Variables	Male	Female	Transgender	Total
	Frequency (%)			
Age	232 (77%)	52 (17%)	16 (5%)	300 (100%)
Marital Status				
Single	117 (52.3%)	2 (3.8%)	16 (100%)	135 (45%)
Married	112 (46.5%)	26 (49.9%)	–	138 (46%)
Divorced	1 (0.4%)	3 (3.8%)	–	4 (1.3%)
Widowed	-	19 (36.4%)	–	19 (6.3%)
Separated	2 (0.8%)	2 (3.84%)	–	4 (1.3%)
Number of Children				
None	140 (60.2%)	4 (7.6%)	16 (100%)	156 (52%)
1-3 Children	59 (25.3%)	46 (88.6%)	–	105 (36%)
4-6 Children	30 (12.9%)	2 (3.8%)	–	32 (10%)
7-8 Children	7 (3%)	–	–	7 (2%)
Education				
Uneducated	46 (19.9%)	13 (24.5%)	5 (31.3%)	64 (21.3%)
Primary-Matriculation	120 (51.9%)	36 (67.9%)	11 (68.9%)	167 (55.6%)
Intermediate	31 (13.4%)	2 (3.8%)	–	33 (11%)
Graduation	29 (12.7%)	1 (1.9%)	–	30 (10%)
Professional Degree	5 (2.1%)	1 (1.9%)	–	6 (2%)
Occupation				
Unemployment	36 (15.6%)	12 (22.6%)	1 (6.3%)	49 (16.3%)
Government Job	8 (3.5%)	–	–	8 (2.6%)
Private Job	83 (35.9%)	4 (7.5%)	1 (6.3%)	88 (29.3%)
Retired	6 (2.6%)	1 (1.9%)	–	7 (2.3%)
Housewife	–	29 (54.7%)	–	29 (9.9%)
Self-Employed	53 (22.9%)	6 (11.3%)	1 (6.3%)	62 (20.7%)
Driver	13 (5.6%)	–	–	13 (4.3%)
Labor	27 (11.7%)	1 (1.9%)	–	28 (9.3%)
Dancer	–	–	9 (56.3%)	9 (3%)
Begging	–	–	5 (31.3%)	5 (1.7%)
Doctor	2 (0.8%)	–	–	8 (0.6%)
Monthly Family Income				
Bellow 25000	108 (36%)	38 (12.5%)	10 (3.3%)	156 (52%)
25001-50000	29 (9.6%)	10 (3.3%)	5 (1.7%)	44 (14.7%)
50001-75000	35 (11.7%)	9 (3%)	1 (0.3%)	45 (15%)
Above 75000	50 (16.6%)	5 (1.7%)	–	55 (18.3%)
Duration of Illness				
Less Than 1 Year	104 (47%)	21 (39.6%)	6 (37.5%)	131 (43.7%)
Above 1 Year	127 (53%)	32 (60.4%)	10 (62.5%)	169 (56.3%)
Duration of Taking ART				
Less Than 1 Year	109 (47.2%)	23 (41.5%)	7 (37.5%)	139 (45.7%)
Above 1 Year	122 (52.8%)	30 (58.5%)	9 (62.5%)	161 (54.3%)

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Significant Physical Illness Like Hepatitis/T.B				
Yes	0	0	0	0
No	222 (100%)	62 (100%)	16 (100%)	300 (100%)

To determine the association between research variables, their subscales, and demographic variables, Pearson Product-Moment Correlation was used. Resilience had a significant positive association with demographic variables such as education, gender, and family income. However, resilience had a low or weak association with the age, marital status, and occupation of the participants. QOL had a significant positive association with the education of the participants and monthly family income. Moreover, QOL was negatively associated with gender. However, low and weak associations were found with age, marital status, and occupation of the participants (Table 3).

Table 3: Correlation between Adult Resilience Measures-revised Scale (ARM-R) and WHOQOL-HIV BREF (n=300)

Variables	1	2	3	4	5	6
ARM-R						
Gender	0.15**	-	-	-	-	-
Age	-0.07	-0.01	-	-	-	-
Education	0.19**	-0.17**	-0.09	-	-	-
Marital Status	-0.03	0.16**	0.29**	-0.16**	-	-
Family Income	0.17**	-0.16**	-0.07	0.38**	-0.09	-
Occupation	-0.10	0.28**	0.19**	-0.16**	-0.04	-0.13*
WHOQOL-HIV BREF						
Gender	-0.15**	-	-	-	-	-
Age	0.03	-0.01	-	-	-	-
Education	0.25**	-0.17**	-0.09	-	-	-
Marital Status	-0.08	0.16**	.029**	-0.16**	-	-
Family Income	0.28**	-0.16**	-0.07	0.38**	-0.09	-
Occupation	0.03	0.28**	0.19**	-0.16**	-0.04	-0.13*

*p<0.05, **p<0.01

Further study indicates the result of Pearson's Moment Correlation between Adult Resilience Measure-Revised (ARM-R), World Health Organization HIV Quality of Life Scale (WHOQOL-HIV BREF) and its subscales. ARM-R had a highly positive association with WHOQOL-HIV BREF, Physical, Psychological, Level of independence, and Social relationships, It was a hypothesis that "There is a significant association between resilience and QOL in individuals with HIV". Thus, Hypothesis 1 was successfully accepted and indicated a highly positive association between resilience and QOL among individuals with HIV (Table 4).

Table 4: Correlation between Resilience and Quality of Life of Participants (n=300)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
ARM-R												
WHOQOL-HIV BREF	0.53**	0.45**	0.33**	0.22**	0.42**	-	-	-	-	-	-	-
Physical	0.41**	0.31**	0.25**	0.14**	0.20**	0.83**	-	-	-	-	-	-
Psychological	0.50**	0.42**	0.32**	0.20**	0.31**	0.89**	0.73**	-	-	-	-	-
Level of Independence	0.43**	0.35**	0.27**	0.18**	0.24**	0.75**	0.67**	0.63**	-	-	-	-
Social Relationships	0.42**	0.44**	0.28**	0.16**	0.44**	0.75**	0.49**	0.61**	0.48**	-	-	-
Environment	0.46**	0.46**	0.35**	0.22**	0.33**	0.84**	0.62**	0.74**	0.60**	0.55**	-	-
Personal Beliefs	0.29**	0.18**	0.09	0.15**	0.12*	0.67**	0.42**	0.50**	0.32**	0.49**	0.39**	-

*p<0.05; **p<0.01

In order to investigate the effect size in the group, Cohen's d was used. d=0.2 or bellow was considered a small effect size, d=0.5 or above was considered a medium effect size, and d=0.8 and above was considered a large effect size between the groups. Effect size varied from small to large effect size in all domains (Table 5).

Table 5: Mean ± SD and Comparison Groups (Cohen's d) (n=300)

Variables	Male	Female	Trans-Gender	Total	Cohen's d	Cohen's d	Cohen's d
	Mean ± SD				Male-Female	Male-Transgender	Female-Transgender
ARM-R	66.22 ± 7.78	64.02 ± 7.66	61.94 ± 8.69	65.61 ± 7.88	0.28	0.51	0.25
WHOQOL-HIV BREF	98.18 ± 15.88	90.77 ± 14.62	93.81 ± 15.97	95.66 ± 15.88	0.48	0.27	0.21
Physical	15 ± 3.74	13.58 ± 3.45	14.63 ± 4.24	14.73 ± 3.75	0.39	0.09	0.27
Psychological	17.32 ± 3.22	15.83 ± 2.91	17.38 ± 3.05	17.07 ± 3.20	0.48	0.02	0.52
Level of Independence	13.06 ± 2.30	12.79 ± 2.55	12.69 ± 2.09	13 ± 2.33	0.11	0.17	0.04
Social Relationships	12.94 ± 2.84	11.90 ± 2.48	12.19 ± 2.69	12.72 ± 2.79	0.39	0.27	0.11
Environment	28.41 ± 4.19	26.81 ± 4.59	28.06 ± 4.04	28.11 ± 4.28	0.36	0.08	0.29
Personal Beliefs	11.45 ± 3.73	9.87 ± 3.27	8.88 ± 2.75	11.04 ± 3.69	0.45	0.78	0.33

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Regression analyses was applied to investigate the impact of independent variables (Resilience) on the dependent variable (Quality of life). The model of regression was found to be a highly significant positive prediction ($F(1,298) = 115.76$, $p<.001$, $R^2=0.28$) and accounted for 28% of the variance in QOL. The Durbin-Watson value was 2.11, and the model was found to be significant (Table 6).

Table 6: Regression Resilience as Predictor of Quality of Life of Participants (n=300)

Variables	Model 1			
	A	B	*t*	*p*
(Constant)	26.71	–	–	–
Resilience	1.06	0.41***	10.76	0.0001
R^2	0.28	–	–	–
F	115.76	–	–	–
ΔR^2	0.28	–	–	–
ΔF	115.76	–	–	–

A=Predictors: Resilience. B=Dependent Variable, Quality of Life (QOL). ***p<0.001

DISCUSSION

The current research is one of the investigations on the role of resilience amongst individuals with HIV and their QOL; and how internal and external factors affect it. The study specifically examined the association between resilience and demographic variables to identify if any significant association exists. The findings of the study are discussed in light of recent literature, indigenous studies, and Pakistani culture. As a novel finding, analyses revealed that resilience is positively associated with QOL among individuals with HIV. The result of the present study supported the hypothesis as resilience was found to have a direct positive association with QOL among individuals with HIV. Similarly, Chmitorz *et al.*, and Shi *et al.*, found that higher levels of resilience were positively associated with better QOL [16, 17]. Our study has also examined the association between resilience and demographic factors such as gender, education, and income among individuals with HIV and found a significant association. This result can be related to previous research, such as a study conducted by Girma *et al.*, in Ethiopia and Moyo *et al.*, in South Africa, which found that resilience was significantly positively associated with higher education and income [18, 19]. For instance, a study conducted by Bärnighausen et al., found that resilience has a positive impact on QOL among HIV in Eswatini [20]. Similarly, a study by Rutter *et al.*, found that resilience was positively associated with better mental health among individuals with HIV who had experienced stressful life events [21]. Analysis revealed that the majority of the participants were male with low family income and education. Whereas, they registered with the Punjab AIDS Control Program (PACP) and regularly took ART to save their partners from HIV infections. According to WHO (2021), the prevalence of HIV infection among sex workers (3.8%), gay or other men who have physical contact with men, 3.7%), injection drug users (21%), transgender (5.5%), and prisoners (2%) in Pakistan [22]. Moreover, NACP established the Punjab AIDS Control Program (PACP) in Punjab province, and a total of 26 centers are working under the PACP in 16 districts of Punjab, as of March 2021 [23]. The prevalence of HIV/AIDS infection among high-risk groups, as well as preventing the epidemic from developing between the bridging communities and the general population. Therefore, research has suggested that ART/intervention aimed at enhancing resilience may be effective in improving QOL among individuals with HIV regardless of demographic factors. A study by Jiang *et al.*, found that intervention improved QOL and mental health among individuals with HIV in Iran, regardless of gender, education, and income level [24].

CONCLUSIONS

It was concluded that this study revealed a significant association between resilience and QOL among individuals with HIV that was determined by demographic factors.

Authors Contribution

Conceptualization: MA
Methodology: MA, AN
Formal analysis: AN
Writing review and editing: HY

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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