

Research Article

Investigating Gender Disparities in the Relationships between Psychological Hardiness and Subjective Well-being in Cardiac Patients: The Mediating Role of Resilience

Muhammad Zohaib Khan,¹ Syeda Shahida Batool²

¹⁻²Department of Psychology, Government College University, Lahore

Abstract

Background: Health psychologists are constructively playing their role to help us know the causes of psycho-biological disorders that affect human physical and psychological health.

Objective: The existing study was designed to investigate the gender differences among cardiac patients in terms of psychological hardiness, subjective well-being, and resilience in cardiac patients.

Methods: Gender differences among cardiac patients were investigated using a cross-sectional study approach. The research comprised 75 cardiac patients (43 male and 32 female) ranging in age from 27 + to 65 years. Participants were briefed about the significance of the research, informed consent was obtained, and data were collected using valid, indigenously translated research instruments. Patient anonymity was maintained, and responses were evaluated using SPSS-23 and AMOS-20 statistical tools.

Results: Results from the independent sample t-test revealed that male cardiac patients exhibited a significantly higher level of psychological hardiness ($t=4.46, p<.05$) and resilience ($t=7.51, p<.05$) compared to their female counterparts. However, the study found no statistically significant gender differences in subjective well-being. ($t=.08, p>.05$). Moreover, path analysis was conducted through structure equational modelling, unveiled that resilience played a significant role in the connection between psychological hardiness and subjective well-being in the patients ($\chi^2=1.82, p<.05, RMSEA=.07, RMR=.20, CFI=.97, GFI=.98, \text{ and } TLI=.93$). The determined value of chi-square (χ^2/df) 1.82 is acceptable for model fit indexes parameters. The multiple linear regression analysis findings revealed that resilience and psychological hardiness were significant ($p<.05$) predictors of subjective well-being in cardiac patients.

Conclusion: This research emphasizes the vital role of psychological hardiness in cardiac patients' lives, showcasing its adaptive function. The study's findings will contribute to the existing literature, providing valuable guidance for medical professionals, health/clinical psychologists, and the families of patients. This information aims to enhance rehabilitation strategies and promote improved well-being for individuals with cardiac patients.

Corresponding Author | Muhammad Zohaib Khan, PhD Scholar, Department of Psychology, Government College University, Lahore Email: mzohaibalikh@gmail.com

Keywords | Cardiac Patients, Psychological Hardiness, Subjective Well-being, and Resilience.



Production and Hosting by KEMU

<https://doi.org/10.21649/akemu.v30i1.5056>
2079-7192/© 2024 The Author(s). Published by Annals of KEMU on behalf of King Edward Medical University Lahore, Pakistan.
This is an open access article under the CC BY4.0 license
<http://creativecommons.org/licenses/by/4.0/>

Introduction

Health psychologists are constructively playing their role to help us know the causes of psycho-biological disorders that affect human physical and psychological health. They also propose ways to cure

patients diagnosed with psychobiological diseases and terminal illnesses by enhancing patients' subjective well-being.¹ Our health behaviors can help us improve the results for one person and the whole community. Individuals experience mental and emotional distress when undergoing treatment for chronic diseases like heart disease, cancer, or kidney disease. Enhancing the psychological well-being of the patients can contribute to an improved quality of life, enabling them to address challenges without enduring unnecessary suffering or distress. It also improves the mental health of patients by providing strength and endurance. Furthermore, knowledge about the disorders can help us identify potential causes, health problems, and the importance of psychological hardiness in common and significant diseases.²

Around the world, Pakistan includes those countries that have the highest risk of cardiac diseases among both males and females. As indigenous research showed, 30 to 40 percent of deaths in Pakistan are due to cardiac diseases.³ The number of deaths per year in low and middle-income countries due to cardiac diseases has reached about 80 percent.⁴

In the present research, psychological hardiness, subjective well-being, and resilience have been studied due to the importance of these factors in cardiac patients in terms of their gender because prior research has examined the quality of life and well-being of cardiac patients, mainly in males.

Psychological hardiness is defined as responding to a stressful situation with commitment (vs. alienation), control (vs. powerlessness), and challenge (vs. threat). Psychological hardy personality consists of three key factors: control, commitment, and challenge. Together, these three factors allow the individual to succeed in stressful situations. (a) Control is described as the first attribute and the feeling that an individual is influential in the cases in which they are involved. (b) Commitment makes the individual become involved in situations and remain devoted to them. They find meaning in things and feel a sense of purpose in their daily activities. (c) Challenge allows the individual to believe that change is regular and positive. These individuals view changes as opportunities to grow and learn. In summary, hardy myocardial infarction patients think they can control their fate, do not ignore pressing issues, and are inspired by challenges.⁵

Subjective well-being is a complete physical, psychological, and social well-being, not merely the absence of disease and infirmity. The well-being of individuals holds significant importance in human life. Historically, psychological well-being has also been prominently emphasized other than physical health. The theoretical structure of psychological well-being encompasses self-acceptance, positive interpersonal relationships, environmental mastery, autonomy, a sense of purpose in life, and personal growth.⁶ Studies showed an association between life satisfaction, well-being, and hope in cardiac patients. Findings showed that well-being and hope are vital in the patients' life satisfaction and psychological adjustment. Further, it explored that the patients with chronic illness had a high amount of well-being, accounted for more pleasure in life, and higher levels of meaning and peace, even during exhaustion or painful conditions.⁷

Resilience refers to the capacity of a man to secure or recover their psychological well-being regardless of the presence of target challenges. Resilience is not a single element of the individual, rather, it is a consequence of the interaction between numerous identity attributes and natural elements.⁵ Research conducted in Pakistan revealed that resilience is beneficial in coping and expediting healing for heart disease. Resilient individuals demonstrate the ability to rebound from stressful events, thereby enhancing their overall subjective well-being. Moreover, individuals with higher resilience levels tend to experience better recovery outcomes from cardiovascular disease compared to those with lower resilience level.⁸

The purpose of the research is to examine gender disparities in psychological hardiness, subjective well-being, and resilience among patients with heart disease. The study is significant as it can provide insights into the distinct psychological needs and challenges faced by each gender group among cardiac patients. This information can assist families, clinical psychologists, and medical professionals in developing more effective rehabilitation and support plans. This research contributes to the existing literature and has practical implications for the well-being cardiac of the patients.

Methods

A cross-sectional research design investigated the gender differences between male and female cardiac patients. Additionally, an independent sample t-test

was run through the statistical software SPSS version 21 to investigate the gender differences in psychological hardiness, subjective well-being, and resilience among cardiac patients. Further, the mediational role of resilience in the relationship between psychological hardiness and emotional well-being was explored through structure equational modelling (SEM).

A purposive sampling technique, a type of non-probability sampling, was followed to recruit the sample of N=75 cardiac patients, including both inpatients and outpatients (males =43, females =32) (age range from 27 to 65 (M=52.0, SD=7.38)) from different and private cardiac hospitals/cardiac centers of Lahore. Furthermore, sample participants volunteered to participate in the research after giving their informed consent by ensuring the confidentiality of their identity and responses.

Individuals diagnosed with myocardial infarction and taking any heart treatment with the age range from 18 to 70 years were included in the study. However, patients with other comorbid diseases or chronic diseases like Alzheimer's, Dementia, Arthritis, Asthma, Tuberculosis, Chronic Obstructive Pulmonary Disease, AIDS, Cancer, etc., were excluded from the study.

Scales were translated into Urdu through Brislin's forward-backwards translation method in the first study.⁹ Dates from outpatients and inpatients were collected using versions of the scales and demographic sheets that had been translated indigenously.

A short Psychological Hardiness Scale was used to assess the cardiac patient's capacity to bear the pain of the disease and other health-related problems through three different components: commitment, control, and challenge. The scale consists of a 15-item Likert-type 4-point rating scale with responses from 0 to 3 (where 0 is not true, 1 is a little true, 2 is quite true, and 3 is completely true). The reported reliability of the scale is $\alpha = .70$ to $.87$.^{5,9}

The subjective Well-being scale measured the patient's complete well-being, including purpose in life, relationship strengths, optimism, and self-esteem. It is an 8-item, 7-point Likert rating scale. The reported reliability of the scale is $\alpha = .80$ to $.90$.^{5,9}

A brief resilience scale with six items (rating from 1 strongly disagree to 5 strongly agree) that determined the patient's capacity to bounce back after chronic illness was used in the existing study. The alpha reliability for this instrument is ranging from $\alpha = .60$ to $.71$.^{5,9}

The priority of ethical issues and concerns were

closely maintained and mentioned during the research. Permission was given to formally commence the study from the institute's Board of Studies. Indigenously translated research instruments were used for data collection.⁹ Before data collection, formal permission was obtained from the target population's authorities to administer the research questionnaires. Before starting data collection, participants were informed and explained about the purpose and nature of the research; they were assured that no physical or psychological harm was involved in the data collection process. They were also ensured about the confidentiality of the data, and any crucial need for further exploration of information was only restricted for research purposes.

Results

The results of the independent sample t-test indicate that there were significant gender differences observed

Table 1: Frequency Distribution of Demographic Characteristics of the Sample (N=75)

Variables	M (SD)	f	Percentage (%)
Age	52.0 (7.38)		
Gender			
Male Patients		43	57.3
Female Patients	32	42.7	
Age Groups			
Early Age (18-40)		5	6.7
Middle Age (41-50)		25	33.3
Old Age (51-70)		45	60.0
Marital Status			
Married		72	96.0
Unmarried		03	04.0
Monthly Income			
Lower Income (≥ 25000)		18	24.0
Middle Income ($\geq 60,000$)		26	34.7
Upper Income ($\leq 61,000$)		31	41.2
Hospital Sector			
Government		45	60.0
Private		30	40.0
Education			
Primary		13	17.3
Middle		30	40.0
Higher		32	42.7
Duration of Illness in Patients			
Short Duration (1 to 24 mon)		42	56.0
Middle Duration (25 to 42 months)		28	37.3
Long Duration (43 to present)		05	6.7

Note. f = Frequency of the data.

Table 2: Reliability of the Research Instruments (N=75)

Measures	k	α
Psychological Hardiness Scale	15	.80
*Commitment	7	.75
*Control	5	.72
*Challenge	3	.56
Subjective Well-being Scale	08	.92
Resilience Scale	06	.71

Note. k=Number items of the scale, α= Alpha reliability estimates, *= sub-scales of hardiness. The research instruments have acceptable Cronbach's alpha reliability coefficient estimates.

between male and female cardiac patients concerning psychological hardiness ($t=4.46, p<.01$) and resilience ($t=7.51, p<.01$). Specifically, male patients exhibited significantly higher levels of psychological hardiness and resilient as compared to female cardiac patients. However, the study found no statistically significant gender differences in subjective well-being ($t=.08, p>.05$). This suggests that male and female cardiac patients had similar levels of subjective well-being, and there was no significant distinction between them in these aspects. The values of Cohen's d also showed a significant effect size for psychological hardiness and resilience in both male and female cardiac patients (see Table 3).

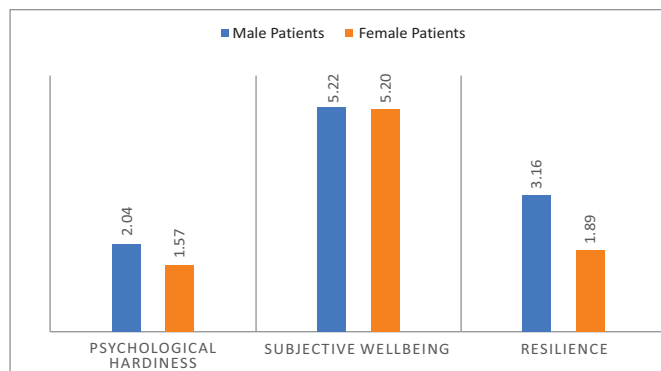
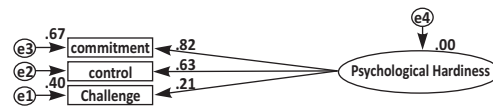
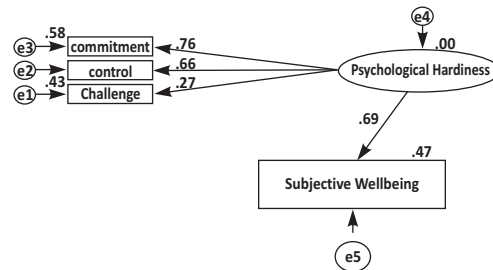


Figure 1. SEM Process Model Steps-wise

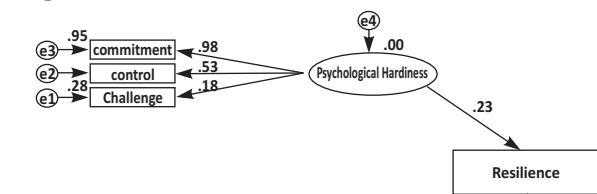
Step 1: Predictors of Psychological Hardiness



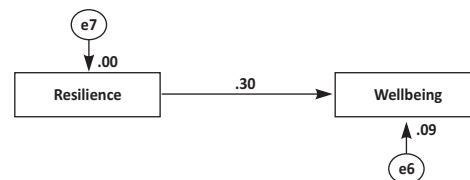
Step 2: Hardiness effects on Subjective Wellbeing



Step 3: Direct Hardiness effects on Resilience



Step 4: Direct Resilience Effects on Wellbeing



Step 5: Hardiness Effects on Resilience and Wellbeing at the same time

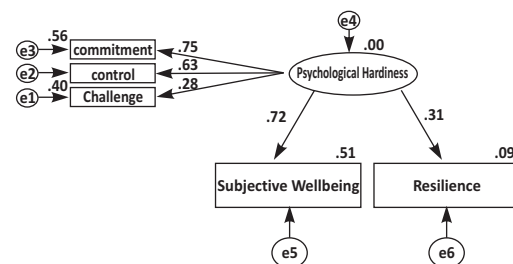


Table 3: Mean Differences in Psychological Hardiness, Subjective Well-being, and Resilience between Males and Females (N=75)

Variable	Male (n=43)		Female (n=32)		t(73)	p	95 % CI		Cohen's d
	M	SD	M	SD			LL	UL	
PH	2.04	.52	1.57	.34	4.46	.01	.26	.68	1.06
SW	5.21	1.18	5.19	.94	.08	.92	-.48	.53	.01
RES	3.16	.74	1.88	.70	7.51	.01	1.61	.93	1.77

“Note: ** $p<.01$, * $p<.05$; PH = Psychological Hardiness; SW=Subjective Wellbeing; RES=Resilience; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.”

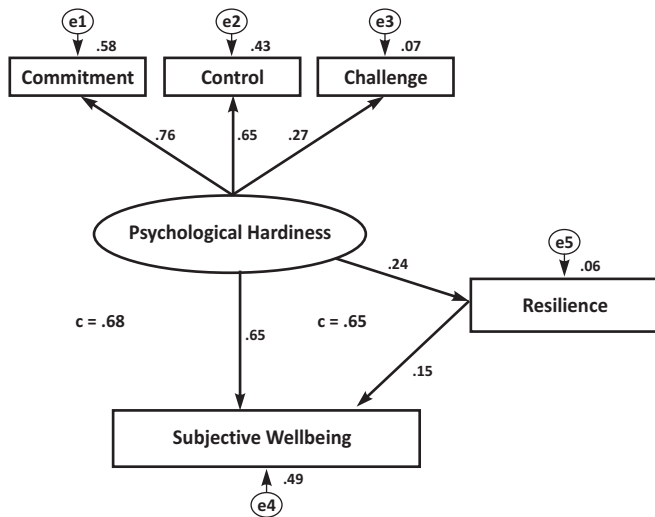


Figure 2. Mediation of Resilience in the Relationship Between Psychological Hardiness and Subjective Well-being in Cardiac Patients.

Table 4: Standardized Mediation Effect of Resilience between the Relationship of Psychological Hardiness and Subjective Well-being (N=75)

X to Y	Mediator	Indirect Effect	β	95% CI	
				LL	UL
Psychological Hardiness → Well-being	Resilience	(.15*)	.65**	-.01	.68

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

Note: ** $p < .01$, * $p < .05$, \hat{c} = direct effect, c = total effect of the model

The indirect path coefficients showed that resilience significantly mediated the relationship between cardiac patients' psychological hardiness and subjective well-being. The direct effect is $\hat{c} = .65$, and the total effect of the model is $(.24 \times .15 + .65) c = .68$ (see Figure 2). It means one standard deviation increase in patients' hardiness increases their subjective well-being through the mediation of resilience.

Furthermore, the model fit indices showed partial mediation of resilience between the relationship of psychological hardiness and subjective well-being $\chi^2 = 7.31$ ($df = 4$, $N = 75$), $p < .05$, $RMSEA = .07$, $RMR = .20$, $CFI = .97$, $GFI = .98$ and $TLI = .93$. The value of chi-square is significant because of the greater degree of freedom; therefore, by dividing the degree of freedom with chi-

Table 5: Regression Analysis Identifying Predictors of Subjective Well-being (N=75)

Variables	Subjective Well-being		95% CI		
	Model 1 β	p	t	UP	LL
Constant	2.27**	.01	9.45	25.99	16.94
Resilience	.37**	.02	3.1	.68	.15
Psychological Hardiness	.31**	.01	2.67	.45	.06
R^2	.06*	.01			
Adjusted R^2	.37				
F	7.16**	.01			

Note. ** $p < .01$, *** $p < .001$, CI= Class Interval

square (χ^2/df), the determined value is 1.82, which is acceptable for model fit indexes parameters (see Table 4).^{10,15}

Multiple linear regression analysis was conducted to explore the predictors of subjective well-being among cardiac patients. Results demonstrated that resilience and psychological hardiness significantly ($p < .05$) predicted subjective well-being in patients. Moreover, these variables accounted for 7.1% of the variance.

Discussion

The contemporary study demonstrated innovative findings regarding the gender differences between males and females regarding study variables. The reliability analysis findings showed that all research instruments have statistically significant validity and reliability coefficient estimates on the population of male and female cardiac patients (see Table 2).⁹ Further, the findings of the t-test revealed a significant mean difference between males and females concerning psychological hardiness and resilience. Male cardiac patients have higher psychological hardiness and resilience scores than female patients. However, it was revealed that both genders scored equally on subjective well-being (see Table 3). Our research findings are in concordance with studies where it has been reported that males are harder (physically/psychologically) and have a solid ability to cope better with health issues as compared to females. In contrast, they have a higher rate of cardiac illness along with the capacity to bear the pain during disease as compared to females.^{11,12}

The indirect path coefficients were found between psychological hardiness, subjective well-being, and resi-

lience. The overall impact of the mediation model proved to be statistically significant (see Table 4). Prior studies have investigated the indirect effect of psychological hardiness and subjective well-being on the mediation of resilience. The research findings validated the current study's results, affirming that psychological well-being protects against chronic heart disease.^{5,13} Likewise, resilience is a positive human trait having a significant role in the coping mechanism, and these factors enable an individual to cope better in adverse situations by avoiding depressive risk factors and enhancing their well-being. Moreover, resilience is an important component of the coping mechanism. This element facilitates enhanced coping mechanisms for patients grappling with the illness, contributing to improved health and well-being.¹⁴ Similar work underlined the significant mediational role of resilience between psychological hardiness and subjective well-being. Following the study's findings, individuals' capacity to rebound resiliently and express gratitude for various aspects enhances motivation and increases their overall well-being.⁵ The findings of mediation analysis were further validated by employing the multiple linear regression analysis, indicating that resilience and psychological hardiness significantly predicted subjective well-being in cardiac patients. Multiple research investigations have shown the significance of these positive characteristics in assisting cardiac patients in efficiently coping with their disease. Individuals with resilience can adapt and recover from adversity, whereas psychological hardiness develops a sense of control and commitment, helping patients deal with and resolve problems. These characteristics support cardiac patients' psychological and emotional well-being and play an important part in their recovery and capacity to live healthy lives.^{16,17,18}

The sample was taken only from four major hospitals in Lahore. It restricted the study's scope and generalizability; hence, it is suggested that a sample can be collected from different rural hospitals in Punjab to compare patient's well-being and healthcare facilities. Secondly, the study's main focus was to measure cardiac patients' selective personality characteristics and their direct and mediating effects on well-being through a quantitative sampling technique. Still, many other variables are affecting their well-being. For the sake of in-depth analysis, it is recommended that a mixed-method research design would be used to get detailed information. The existing

study is only about the patients with myocardial infarction; hence, it is recommended to have a cross-sectional survey in future comparison, both the cardiac patients and the patients with cancer or HIV.

Conclusion

Heart diseases are on the rise, and cardiac patients grapple with various physical and psychological challenges that directly impact their well-being. This research examines the relationship between patients' well-being, psychological hardiness, and resilience. The results underscore the adaptive role of psychological hardiness as a cognitive and reflective defence mechanism that enhances the flexibility and well-being of cardiac patients. This study suggests that female cardiac patients may exhibit lower levels of psychological hardiness and resilience compared to their male counterparts throughout their illness. Furthermore, these findings hold potential implications for cardiac rehabilitation, where targeted interventions can be employed to enhance the well-being of cardiac patients while addressing their specific challenges.

Ethical Approval: The Institutional Bioethics Committee of GC University Lahore approved the study vide letter No. GCU-111B-139.

Conflict of Interest: The authors declare no conflict of interest.

Funding Source: None

Authors' Contribution:

MZK: Conception and design, acquisition of data, analysis and interpretation of data, manuscript writing

SSB: Revising the article critically for intellectual content, final approval of version to be published

References

1. Friedman HS. Neuroticism and health as individuals age. *Pers. Disord.: Theory Res. Treat.* 2019;10(1):25-32.
2. Gronholm PC, Henderson C, Deb T, Thornicroft G. Interventions to reduce discrimination and stigma: the state of the art. *Soc Psychiatry Psychiatr Epidemiol.* 2017;52(3):249-58.
3. Siddiqui M, Hameed R, Nadeem M, Mohammad T, Simbak N, Latif A, et al. Obesity in Pakistan; current and future perceptions. *J Curr Trends Biomed Eng Biosci.* 2018;17(2):01-4.

4. Ali M, Butt UM, Khan RS, Qureshi MA, Akram Z. Coronary Artery Disease in Young Pakistanis: Risk Factors and Pattern of Disease. *Ann. King Edw. Med. Univ.* 2021;27(1):30-6.
5. Khan MZ, Batool SS. Fate Control, Hardiness, and Well-being among the Patients of Myocardial Infarction: The Mediating Role of Gratitude and Resilience. *Pak Heart J.* 2020 ;53(2):149-54.
6. Lindert J, Bain PA, Kubzansky LD, Stein C. Well-being measurement and the WHO health policy Health 2010: systematic review of measurement scales. *Eur. J. Public Health.* 2015;25(4):731-40.
7. Park CL, Sacco SJ. Heart failure patients' desires for spiritual care, perceived constraints, and unmet spiritual needs: relations with well-being and health-related quality of life. *Psychol Health Med.* 2017; 22(9): 1011-20.
8. Puspawatie E, Prawesti A, Sutini T. The description of resilience in post-acute attack patients with coronary artery disease. *BNJ.* 2018; 4(3):312-22.
9. Khan MZ, Batool SS. Urdu Translation and Validation of Fate Control, Short Hardiness, Psychological Well-being, Gratitude, and Brief Resilience Scales. *PJSCP.* 2020;18(1):28-36.
10. Morrison TG, Morrison MA, McCutcheon JM. Best practice recommendations for using structural equation modeling in psychological research. *Psych.* 2017; 8(9): 1326-41.
11. Bartone PT, Hystad SW, Eid J, Brevik JI. Psychological hardiness and coping style as risk/resilience factors for alcohol abuse. *Mil Med.* 2012;177(5):517-24.
12. Virani SS, Alonso A, Benjamin EJ, Bittencourt MS, Callaway CW, Carson AP, et al. Heart disease and stroke statistics update: A report from the American Heart Association. *Circulation.* 2020; 141(9):139-596.
13. Sultan S, Kanwal F, Kanwal S. Caregiving End-Of-Life Experiences and Well-being of Caregivers of Cardiac Patients: Mediating Role of Caregiving Self Efficacy. *Pak Heart J.* 2020; 53(1):28-34.
14. Kim GM, Lim JY, Kim EJ, Park SM. Resilience of patients with chronic diseases: A systematic review. *Health Soc. Care Community.* 2019; 27(4):797-807.
15. Kline RB. Principles and Practice of Structural Equation Modeling. 4th ed. Guilford Press; 2015.
16. Smith JR, Johnson AB, Williams CD. Resilience and Subjective Well-being in Cardiac Patients: A Mediation Analysis. *J Health Psychol.* 2022;45(3):215-230.
17. Anderson LM, Davis RM, Thompson KS. Psychological Hardiness and its Impact on Cardiac Patients' Subjective Well-being. *J Cardiol Behav Sci.* 2023; 12(1): 78-90.
18. Thompson MH, Roberts PQ, Green SJ. Positive Perso-