ORIGINAL ARTICLE
IMPACT OF SPIRITUAL WELLBEING ON HEALTH PROMOTING LIFESTYLES IN CORONARY HEART DISEASE PATIENTS: MEDIATING ROLE OF PERCEIVED HEALTH STATUS

Hina Sultan[1], Muhammad Naeem Javed[1], Ghulam Ishaq[1]
[1]Lahore Leads University, Lahore, Pakistan

Objectives: To find out the role spiritual and existential wellbeing in health promoting lifestyles that are mediated through perceived health status in Coronary Heart Disease (CHD) Patients.

Methodology: After obtaining approval (reference #331) from Institutional Review Board of the affiliated university as sample of 257 males and 228 females consecutive CHD patients (age range 18-65 years; M = 47.56, SD = 2.30) meeting the inclusion criteria were recruited in the study. Patients who suffered from strokes or other chronic diseases like hypothyroidism, cancer, liver or renal malfunctioning were excluded from the study. Participants were requested to complete three scales (and a demographic form) that included Spiritual Wellbeing Scale (SWBS), Short Form 12 Health Survey (SF-12HS), and Health Promoting Lifestyle Profile-II (HPLP-II). Data was collected from outdoor patients at a public hospital in Lahore, Pakistan between November 5 and March 31, 2021-22, and correlations were run across constructs using a macro-process (version 3.3) in SPSS (version 26.0).

Results: Results indicated that spiritual (religious and existential) wellbeing had a significant direct effect on health promoting lifestyles significant at p < 0.001. Further, results showed a significant direct and indirect path coefficients of physical and mental health components of perceived health status with spiritual, religious, existential wellbeing, and health promoting lifestyles but not for physical functioning and bodily pain, p >0.05.

Conclusion: Spirituality and positive health perceptions for cardiac patients can maintain their health through engaging in healthy lifestyles. Study highlighted the importance of adopting such perceptions to relieve cardiac symptoms to avoid further complications.

Keywords: spiritual wellbeing, perceived health status, health promoting lifestyles

INTRODUCTION

Coronary Heart Disease (CHD) is caused by atherosclerosis where arteries in the heart get hardened and become narrowed due to the accumulation of fatty substances and plaques that block the flow of blood to the heart resulting in heart failure. This disease is characterized in four stages, 1 through 4, ranging from high risk to advance levels of heart failure requiring, "… proper medical treatment.[1] Vital factors that contribute to CHD include, hypertension, obesity, high cholesterol, drugs, physical inactivity, unhealthy diet, and stress.[2] Heart failure is a chronic illness that gets worse with the passage of time. Recent (2017) statistics reported 17.8 million people die from CHD each year worldwide (2 out of 10 adults $\leq$ 70 years old die from CHD), while 485.6 million individuals suffer from cardiovascular disease (CVD), which refers to diseases that affect the blood vessels or heart, including CHD.[3] According to WHO, 240,720 people died from CHD in Pakistan in 2020, accounting for 16.5 percent of all fatalities. In the world, men and women of Asian origin are more vulnerable to CHD therefore it is not surprising that CHD (29%) has become the major cause of death in Pakistan.[4]

The current study focuses on spiritual and existential forms of wellbeing vital to improving health of a person and are fundamental components of human experience. These experiences encompass purpose and meaning in life and the understanding of the transcendent, which translates as human interaction and consecrated realms, inside and outside traditional religion. In addition, spirituality helps combat illness, achieve a sense of lucidity, experience healing and adjust with ailment.[5] An Irani study found, spirituality helped patients to take healthy diet and to follow

treatment regimens.[6] Another study carried out in Chakwal, Pakistan indicated that spiritual people are more likely to be happy and have healthier hearts.[7] These studies suggest, spirituality mediates through perceived health status (PHS), which refers to perceptions of health and affects a person emotionally and physically and enhances the motivational level for adopting healthy lifestyles. PHS indicates a complete state of perceived wellbeing including physical, mental and social health. Recently, researchers in Pakistan found that spiritual people have better health outcomes and also had positive perceptions regarding their general health status.[8]

In the last few decades, emotional, physical, and social health has become a popular topic, especially in chronic long-term diseases where a full recovery is usually impossible or uncertain. Many patients consider the quality of additional life years equally important just like the length of life. Positive self-assessment of perceived health predicts the long-term better clinical outcomes in CHD patients.[9] Thus health promoting lifestyles, which consist of physical and mental functions, promote life-giving strategies through physical activity, diet, health responsibility, spiritual growth and management, which is necessary to escape chronic diseases like heart problems.[10]

The current study inspired the researchers to study the role of spirituality in uplifting the health status of CHD patients. Spiritual wellbeing with two components, religious wellbeing and existential wellbeing researchers believe lead patients to concentrate on their health status (physical functioning etc.) and make them pursue healthy lifestyles, which should extremely important for their cardiac functioning. Spirituality and perceived health status dictates whether a person will engage in health promoting behaviors or not. The current study also looks at spirituality and perceived health as unique factors less studied among CHD patients, and fills the gap in literature by providing latest and exclusive findings, especially in Pakistan. The present study is aimed at the direct and indirect mediating influence (perceived health status) of spirituality on health promoting lifestyles in CHD patients.

METHODOLOGY

After obtaining approval (reference #331) from Institutional Review Board of the affiliated university, and after taking consent from 257 male and 228 female ($N = 485$) CHD patients (age range 18-65 years; $M = 47.56$, $SD = 2.30$). The sample was determined through G* Power 3.0,[11] analysis that suggested 400-500 participants at $\alpha = 0.05$ (power of 0.95) would express medium to large (0.20 - 0.35) effect sizes.

Patients who suffered from strokes or other chronic diseases like hypothyroidism, cancer, liver or renal malfunctioning were excluded from the study. Heart disease patients are categorized by four stages (1-4) of CHD caused by genetics, hypertension, diabetes, high lipid etc. The current sample comprised of 99 (20.41%) CHD patients in stage 1, 122 (25.15%) from stage 2, 135 (27.83%) from stage 3, and 129 (26.59%) from stage 4 of CHD with several causes like genetics, hypertension, diabetes, high lipid etc. of developing it.

A demographic form and three scales, i.e., Spiritual Wellbeing Scale (SWBS), developed by Bufford, Paloutzian, and Ellison (1991),[12] 12-Item Short Form Health Survey (SF-12HS) developed in 1996 by Ware Jr, Kosinski, and Keller,[13] and Health Promoting Lifestyle Profile-II (HPLP-II) developed by Walker, Kerr, and Penderin 1990,[14] were used. We translated SWBS in Urdu using Brislin translation method[15] that consisted of 20 items. Each item was scored on a 6-point rating scale that ranged from strongly agree (1) to strongly disagree (6). Items 1, 2, 5, 6, 9, 12, 13, 16, and 18 were reversed scored and a composite score for *religious* and *existential* wellbeing could be calculated. We measured, Religious Wellbeing (RWB, odd items) and Existential Wellbeing (EWB, even items) separately, where higher scores denoted greater wellbeing. In the current study, Urdu version had moderately high reliability ($\alpha = 0.86$). To measure heath status SF-12HS with 12 items was used, responses to the items ranged from yes-no to 6-point rating responses (see Ware Jr et al., 1996 for details). The health survey is divided into four physical components that include general health (GH), bodily pain (BP), role physical (RP), and physical function (PF); and four mental components that consists of mental health (MH), role emotional (RE), social functioning (SF) and vitality (V) where higher scores denote better physical and mental health. The scale had significant convergent validity (0.73 in Italian sample of COVID patients[16] and other studies also suggested adequate validity ($\alpha = 0.77$).[17] In the current study, scale was translated in Urdu and had significant alpha reliability (see Table 1). To measure health promoting lifestyle HPLP- II (52 items), [14] was used. Each item was scored from 1 (Never) to 4 (Routinely) and composite high score denote better health lifestyle. In Sri Lanka, researchers computed a significant concurrent validity ($r = 0.63$), and very high reliability ($\alpha = 0.98$) of HPLP-II.[18] In the current study, Urdu version of HPLP-II also exhibited high reliability (see Table 1). Participants were thanked after completing the scales and this data was collected from outpatient department of a public hospital in Lahore, Pakistan between November 5 and March 31, 2021-22; and correlations were run using a macro-

process (V 3.3)[19] in SPSS (V 26.0).[20] The psychometric properties of assessment measures indicated that all scales had moderate to high reliability that ranged from α =0.59-0.90. Skewness values (-0.35-0.54) were near to zero and kurtosis was approximately symmetrical (0.03-0.93).

RESULTS

Also, the psychometric properties and descriptive statistics of assessment measures were sought. The results indicated that all scales had high alpha reliability ranged from α=0.59-0.90. Skewness values were near to zero and kurtosis were also in range, revealed normal distribution of data (see Table 1).

Results revealed SWBS scores significantly predicted RWB $\beta = 0.38$, $CI = 0.02$-0.56, $p < 0.001$; EWB, $\beta = 0.24$, $CI = 0.04$-1.12, $p < 0.001$; and HPLP-II, $\beta = 0.35$, $CI = 0.10$-0.90, $p < 0.001$. Further, results showed the significant direct path coefficients of different components of SF-12HS where GH, $\beta = 0.45$, CI = 0.10-1.17, $p < 0.001$; RF, $\beta = 0.34$, $CI = 0.04$-3.31, $p < 0.001$; MH, $\beta = 0.33$, $CI = 0.04$-2.21, $p < 0.001$; RE, $\beta = 0.53$, $CI = 0.03$-0.78, $p < 0.001$; SF, $\beta = 0.76$, $CI = 0.13$-4.87, $p < 0.001$ and V, $\beta = .025$, $CI = 0.02$-$.093$, p

< 0.001. The overall model explained 46% of variance in RWB, and EWB, and six components of SF-12, significant at $\beta = 0.68$, $CI = 0.36$-3.39, $p < 0.001$. Results also showed SWB, $\beta = 0.35$, $CI = 0.13$-2.14, $p < 0.001$; RWB, $\beta = 0.68$, $CI = 0.20$-3.36, $p < 0.001$; EWB, $\beta = 0.38$, $CI = 0.14$-1.19, $p < 0.001$ and mediating variables, GH, $\beta = 0.19$, $CI = 0.00$-0.56, $p < 0.001$; RP, $\beta = 0.20$, $CI = 0.04$-0.73, $p < 0.001$; MH, $\beta = 0.29$, $CI = 0.11$-1.11, $p < 0.001$; RE, $\beta = 0.48$, $CI = 0.15$-0.90, $p < 0.001$; SF, $\beta = 0.24$, $CI = 0.04$-1.98, $p < 0.001$ and V, $\beta = 0.53$, $CI = 0.22$-4.01, $p < 0.001$ were predicting the DV(HPLP-II). The entire model explained 27% variance in HPLP-II significant at $\beta = 0.52$, CI = 0.05-2.22, $p < 0.001$. However, results did not show any significant direct effects of BP and PF with SWB and HPLP-II (see Table 2).

The indirect effects via mediating variables GH, $\beta = 0.06$, $CI = 0.00$-0.22, $p < 0.001$; RP, $\beta = 0.06$, $CI = 0.02$-0.15, $p < 0.001$; MH, $\beta = 0.07$, $CI = 0.03$-1.11, $p < 0.001$; RE, $\beta = 0.06$, $CI = 0.00$-0.40, $p < 0.001$, SF, $\beta = 0.08$, $CI = 0.04$-0.68, and V, $\beta = 0.05$, $CI = 0.00$-0.30, $p < 0.001$ were significant between SWB and HPLP-II. The rest of the model also explained the indirect co-efficient paths via SF-12HS (subscales) between RWB, EWB and HPLP-II (see Table 3).

Table 1: Descriptive and psychometric properties of scales

Variable	k	M	SD	α	S	K	Range Potential	Range Actual
SWBS	20	74.50	13.10	0.86	0.21	0.10	20-120	35-90
RWB	10	42.20	3.00	0.89	0.54	0.31	10-60	2-56
EWB	10	38.40	5.60	0.72	0.34	0.21	10-60	'10-52
SF-12HS	12	34.01	0.00	0.59	-0.25	0.93	12-58	23-57
GH	1	3.08	0.00	0.84	0.09	0.03	1-5	2-5
BP	1	2.91	0.31	0.82	0.40	0.08	1-5	1-5
RP	2	2.00	0.18	0.72	-0.35	0.12	2-4	'1-4
PF	2	3.20	0.01	0.78	0.20	0.92	2-6	5-6
MH	2	7.05	0.02	0.79	-0.01	0.50	2-12	3-12
RE	2	2.08	0.50	0.90	0.02	0.30	2-4	2-4
SF	1	3.63	1.00	0.85	0.41	0.14	1-6	2-6
V	1	4.00	0.40	0.74	0.00	0.20	1-6	1-6
HPLP-II	52	109.51	12.01	0.82	0.13	0.11	52-208	56-139

SWBS = Spiritual Wellbeing Scale; RWB = Religious Wellbeing; EWB = Emotional Wellbeing; GH = General Health; BP = Bodily Pain; RP = Role Physical; PF = Physical Functioning; MH = Mental Health; RE = Role Emotional; SF = Social Functioning; V = Vitality; HPLP-II = Health Promoting Lifestyle Profile-II, α = Cronbach alpha, S = Skewness, K = Kurtosis

Table 2: Standardized estimates of direct effects SWBS and subscales, SF-12HS and subscales and HPLP-II

Variable	SWBS B	SWBS SE	RWB B	RWB SE	EWB B	EWB SE	HPLP-II B	HPLP-II SE
SWBS	-	-	0.38†	0.02	0.24*	0.04	0.35†	0.00
RWB	0.38†	0.02	-	-	0.52†	0.10	0.68†	0.02
EWB	0.24*	0.04	0.27†	0.05	0.31†	0.09	0.38*	0.04
GH	0.45†	1.02	0.72†	0.06	0.73†	0.04	0.19*	0.03
BP	-0.05	0.00	-0.03	0.00	0.00	0.00	-0.05	0.02
RP	0.34†	0.05	0.43†	0.10	0.21*	0.01	0.20†	1.00
PF	0.00	0.03	0.02	0.50	0.04	0.00	0.02	0.03
MH	0.33†	0.34	0.44†	1.00	0.25†	1.93	0.29†	0.93
RE	0.53†	0.07	0.61†	0.03	0.65†	0.03	0.48†	0.09
SF	0.76†	0.03	0.18*	0.09	0.41†	0.03	0.24*	0.08
V	0.25†	0.04	0.54†	0.00	0.28†	0.07	0.53†	0.04

R	0.68†	-	0.59†	-	0.45†	-	0.52†	-
Total R²	0.46*	-	0.34†	-	0.20*	-	0.27†	-

SWB=Spiritual Wellbeing; RWB=Religious Wellbeing; EWB = Existential Wellbeing; GH = General Health; BP = Bodily Pain; RP = Role Physical; PF = Physical Functioning; MH = Mental Health; RE = Role Emotional; SF = Social Functioning; V = Vitality
*p < .01, †p < .001

Table 3: Standardized estimates of indirect effects through PHS and subscales between SWBS and subscales and HPLS

	HPLP-II															
	GH		BP		RP		PF		MH		RE		SF		V	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
SWB	0.06*	0.03	0.00	0.00	0.06*	0.01	0.00	0.00	0.07*	0.03	0.06*	0.01	0.08*	0.03	0.05*	0.01
RWB	0.09*	0.04	0.02	0.00	0.06*	0.03	0.00	0.00	0.11*	0.04	0.06*	0.03	0.09*	0.05	0.09*	0.07
EWB	0.05*	0.03	0.00	0.00	0.07*	0.04	0.01	0.00	0.09*	0.05	0.07*	0.01	0.12*	0.02	0.06*	0.03
R	0.49*	-	0.09	-	0.50*	-	0.13	-	0.58*	-	0.32*	-	0.76*	-	0.61*	-
R²	0.25*	-	0.00	-	0.25*	-	0.01	-	0.33*	-	0.11*	-	0.57*	-	0.37*	-

SWB=Spiritual Wellbeing; RWB = Religious Wellbeing; EWB = Existential Wellbeing; GH = General Health; BP = Bodily Pain; RP = Role Physical; PF = Physical Functioning; MH = Mental Health; RE = Role Emotional; SF = Social Functioning; V = Vitality
*p < .001

DISCUSSION

The present study revealed that perceived health status and its physical and mental components strengthened the relationship between spirituality and health promoting behaviors among CHD patients. The biopsychosocial-spiritual paradigm goes beyond the biopsychosocial model to put an emphasis on connection between the incremental value of spirituality showed as sense of direction and meaning in one's life and patients' perception of discrepancies in their biopsychosocial functioning, general health, and vitality which in turn persuade them to make efforts to take nutrition, promote physical activity, and manage stress. The role of spirituality in health promoting behaviors which stimulate people's own understanding of the reality in terms of complex, intelligible, and biological processes, has been studied worldwide.[21,22] Specifically, A Saudi Arabian and Pakistani study also revealed that perceived positive health states are closely related to increased exercises, spiritual growth, and the interpersonal relations for health improving lifestyles.[8,23] In fact, the present study is an interesting representation of ties of all dimensions of spirituality and health promoting style. These findings are confirmed by European and Irani studies that show empirical evidence that religion and spirituality form the basis of meaning and purpose for true healing through perceived beliefs and adopting healthy behaviors which result in greater satisfaction and lesser pain.[24,25] Interestingly, a few aspects of health like bodily pain and physical functioning did not predict health promoting style which needs further exploration.

This study lacked racial and cultural diversity and results weakly represent population of heart failure patients in our sample, any generalizations should be made with caution. In addition, a purposive sample that sets limits on inclusion and exclusion of patients, restricts generalization. Only physical and mental health promoting behaviors, other behaviors that would lead the patients to align them with their environment or behaviors that would promote spirituality need to be studied further. Other demographic variables like gender, age, income, and psychological constructs like optimism, resilience, wellness etc. could be easily added to list. Lastly, a qualitative study would provide in-depth understanding of healthy lifestyles in CHD patients.

CONCLUSION

There Spirituality and positive health perceptions for cardiac patients can maintain their health through engaging in healthy lifestyles. Study highlighted the importance of such life styles that would reduce cardiac symptoms, future complications and ill health.

AUTHORS' CONTRIBUTION

HS and GI: Concept and design, data acquisition, interpretation, drafting, final approval, and agree to be accountable for all aspects of the work. HS, MNJ, and GI: Data acquisition, interpretation, drafting, final approval and agree to be accountable for all aspects of the work.

Conflict of interest: Authors declared no conflict of interest.

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Address for Correspondence:

Dr. Hina Sultan, Assistant Professor at Department of Psychology, Lahore Leads University, Lahore, Pakistan.
Email: hina.sultan91@yahoo.com