



## Patients Perceived Autonomy Support Affecting Treatment Motivation, Depression, Anxiety and Stress in CHD and Diabetes Mellitus

Saba Idrees<sup>1</sup>, Shazia Hafeez<sup>2</sup>, Muhammad Azam<sup>3</sup>, Sarfraz Hader Bhatti<sup>4</sup>

### Abstract

The study was aimed to investigate the impact of perceived autonomy support on treatment motivation, depression, anxiety and stress among patients of coronary heart disease and diabetes mellitus. Study was completed through correlational research design and 310 patients were selected as sample of study by applying convenient sampling technique. Three questionnaires were utilized as research instruments to measure variables; Health Care Climate Questionnaire (Ryan, 1995), Treatment Motivation Questionnaire (Ryan, 1995), and DASS (Lovibond, 1995). Findings revealed that treatment motivation was positively correlated with perceived autonomy support. Results suggest that there was negative correlation among depression, anxiety, stress and perceived autonomy support. Perceived autonomy support is significant positive predictor of treatment motivation. In addition no difference was investigated between gender on PAS and TM. Level of depression anxiety and stress was reported higher among female as compared to male patients of CHD and DM. It was suggested that treatment motivation must be explored as mediator between PAS and DAS among patients in future.

**Keywords:** CHD, DM, perceived autonomy support, treatment motivation, psychological burden

### 1. Introduction

Coronary Heart Disease (CHD) and mental illness are among the leading causes of morbidity and mortality worldwide. Coronary heart disease (CHD) and depressive disorder are two major diseases that pose a great threat to public health. Patients with CHD are more likely to suffer from mental disorders because they usually endure unpleasant symptoms like angina without warning and are required to take several kinds of medications for their whole life, resulting in negative emotions like anxiety or depression (Wu et al., 2021).

#### 1.1. Coronary Heart Disease, Depression, Anxiety and Stress

The prevalence of depression is, compared with the general population, significantly higher in patients with CHD (Whooley & Wong, 2013). More than one fifth of all patients with CHD are depressed (with the risk of depression highest in the most severe CHD cases), and up to one third of them report elevated depressive symptoms. These are prevalence figures that are at least 4 times greater than in the general population (Cohen et al., 2015). Although the prevalence of depression in established CHD is higher in women than men, depression is more strongly related to a worse cardiac prognosis in men than in women (Doyle et al., 2015). The role of anxiety in CHD risk has been less studied (Tully et al., 2013). Although anxiety has been clinically linked with CHD for more than 100 years, the association between these conditions remains to be clarified (Caldirola et al., 2016). Findings suggest that anxiety symptoms (commonly referred to as psychological distress) or disorders (excluding posttraumatic stress disorder, which will be discussed in a separate section) are common in patients with CHD (for example the prevalence of panic disorder in CHD populations can be as high as 22%), and may be associated with a substantial increase in cardiovascular morbidity and mortality (Roest et al., 2010). This association holds across the spectrum of anxiety disorders. Of all anxiety disorder subtypes, generalized anxiety disorder in particular may increase the risk for major adverse cardiac events in CHD patients. Stress disorder in patients with existing coronary heart disease Sudden cardiac events, followed by an intrusive experience of treatments such as coronary surgery, can be potentially traumatic, leading to the development of posttraumatic stress disorder (PTSD). Evidence is accumulating that experiences of persistent or intense stress and PTSD may be independently associated with an increased risk of developing CHD over a relatively short period (Cohen et al., 2015).

#### 1.2. Diabetes Mellitus, Depression, Anxiety and Stress

Diabetes Mellitus (DM) is emerging as a major health problem and prevalence is reported to be higher in urban than in rural areas (Gyawali et al., 2015) Diabetes is typically a manageable disease through lifestyle modifications and treatment. However, it can create added stress to the diabetes patients due to the never-ending demands of diabetes care, such as eating and maintaining physical health, exercising, monitoring blood glucose, regular follow-up, and management of symptoms and fears about or the reality of complications. As a result, they experience feelings of depression, anxiety, and stress, which affect their health and overall quality of life (Sharma et al., 2021). Poor glycemic control and functional impairment due to increasing diabetes complications may cause or worsen depression and anxiety in patients (Khan et al., 2019). Anxiety and depression are common among patients suffering from type II diabetes, and their prevalence has been summarized in a number of studies (Alzahrani et al., 2019). Patients with diabetes had significantly higher anxiety and depression than general population (Rajput et al., 2016).

#### 1.3. Perceived Autonomy Support and Treatment Motivation

Studies have shown that the perception of support induces patients to better adjust emotionally to their diagnoses and this therefore manifests as increased motivation and adherence to treatment plans. This has been shown not just for cardiovascular health but also in patients with chronic obstructive pulmonary disease, cancer, and inflammatory bowel disease (Wenn et al., 2022). One cause of depression is an absence of PSS. In fact, lack of social support is significantly correlated with depression as evidenced by a study that concluded that early detection and treatment of depressive symptoms can help improve healthcare quality (Su et al., 2018).

<sup>1</sup> Department of Applied Psychology Bahauddin Zakariya University, Multan, Pakistan, [sabaidreesheikh@gmail.com](mailto:sabaidreesheikh@gmail.com)

<sup>2</sup> Government of Punjab Specialized Health Care and Medical Education Department, Pakistan, [romaileprince@gmail.com](mailto:romaileprince@gmail.com)

<sup>3</sup> Corresponding Author, Ph.D Scholar, Department of Sports Sciences and Physical Education Gomal University, Dera Ismail Khan, [azambucha555@gmail.com](mailto:azambucha555@gmail.com)

<sup>4</sup> Government of Punjab Primary and Secondary Health Care Department Lahore, Pakistan, [sarfrazhader@gmail.com](mailto:sarfrazhader@gmail.com)

Recent literature has highlighted the finding that social support has been shown to decrease hospital readmission, improve mortality, and decrease reported levels of depression in patients with heart failure (Shumaker et al., 2017).

#### **1.4. Rationale of study**

Coronary heart disease and diabetes mellitus is perceived chronic. These diseases are growing rapidly in developed as well as underdeveloped countries. Physical or psychological health is negatively affected. Psychological burden is positively predicted by these two diseases. In hospitals, practitioners or physician are considered as rich source of perceived autonomous support for patients but lack or scarcity of this support causes less motivation or poor confidence for treatment among patients, due to absence of autonomous support patients suffer in depression, anxiety and stress. The purpose of study was to investigate how perceived autonomous support enhance confidence toward patient's motivation associated with treatment because it enable the ill persons to motivate that they do not become hopeless about their ailment, so the researcher was ambitious to explore this phenomenon among patients of Coronary Heart Disease and Diabetes Mellitus.

#### **1.5. Objective of study**

- To investigate the impact of perceived autonomy support on treatment motivation, depression, anxiety and stress among patients with Coronary Heart Disease and Diabetes Mellitus
- To compare the difference of mean scores of perceived autonomy support, treatment motivation, depression, anxiety and stress with respect to gender of the patients

#### **1.6. Hypotheses of study**

- There will be significant impact of perceived autonomy support on treatment motivation, depression, anxiety and stress among patients of CHD and DM
- There will be significant difference of mean scores of perceived autonomy support, treatment motivation, depression, anxiety and stress between male and female patients

## **2. Method**

### **2.1. Participants**

The current study was based on correlational research design. As a sample, 310 patients were selected through convenient sampling from Multan Institute of Cardiology (Coronary Heart Disease) and District Head Quarter Hospital Rajanpur (Diabetes Mellitus). Participants demographic characteristics includes, gender (male patients female patients), type of disease (coronary heart disease, diabetes mellitus) their marital status (married, unmarried), occupation of patients (employed, unemployed), level of education (illiterate, literate, undergraduate, graduate and postgraduate), and socio-economic status (low, middle and high).

### **2.2. Instruments**

For measuring study variables, three instrument were used as followed

- Health Care Climate Questionnaire (HCCQ-15)
- Treatment Motivation Questionnaire (TMQ-26)
- Depression Stress Anxiety Scale (DASS-21)

### **2.3. Health Care Climate Questionnaire**

It was developed by Ryan (1995) to assess the degree perceived autonomous support and was consisted on 15 items. Responses are rated on 7-point Likert format in following categories: for strongly disagree is (1), moderately disagree indicates (2), for responding to slightly disagree (3), for neutral response (4), for responding to slightly agree (5), moderately agree is (6), but strongly agree represents.

### **2.4. Treatment Motivation Questionnaire (Ryan, 1995)**

Treatment motivation questionnaire was developed by Ryan (1995) for assessing motivation related to treatment. It is recognized as self-report questionnaire with comprising on 26 items. This questionnaire has three dimensions such as first on is External Motivation (EM), following are those items that represent to external motivation (12, 3,10, and 6), the second dimension is the Internal Motivation (IM) which consists on these items (23, 11, 15, 4, 5, 1, 2, 7, 8, 9, 20), third one is Interpersonal help seeking (IPHS) having such number of questions (19, 26, 22, 17, 25 and 18), furthermore four items are associated to confidence in treatment ( 13,21, 14,16).

### **2.5. Depression Stress Anxiety Scale (Lovibond, 1995)**

This scale was developed by Lovibond (1995) for investigating the psychological burden during any stressful condition or circumstances. It has 21 items diving into three further subscales such as depression (21, 17, 16, 13, 10, 3 and 5) these items for it, stress (18, 12, 11, 1, 6, and 8 items), and additionally anxiety is denoted by some items (2, 4, 7, 15, 9, 20, and 19). Answering for did not apply to me at all is (0), response on applied to me to some degree, or some of the time (1), and giving answer for to a good part of time (2), but most of time experiencing a situation is numbered on (3). More score indicates severity of psychological burden in perspectives of anxiety, stress and depression.

### **2.6. Procedure**

A booklet was given to a participant that was comprised on three research instrument after taking legal permission from administration and with also informed consent as well. Researcher ensured participants for their information will be kept confidential and used regarding research purpose. Those patients who were illiterate researcher read questions for then because language understanding was considered as biasness in data collection. Educated patients provided responses by reading themselves. When data collection process was accomplished then it was coded for further procedure of analyzing it. Collected data was analyzed with the help of Statistical Package of Social Sciences (SPSS).

### 3. Results

**Table 1: Standard Regression Model showing impact of Perceived Autonomy Support on Treatment Motivation among patients of CHD and Diabetes Mellitus**

Predictor	B	Std. Error	Beta	t-test	p-value
(Constant)	16.851	3.043			
Perceived Autonomy Support	1.465	.047	.872	5.538	.000
				31.348	.000

$R^2=.761$ , Adjusted  $R^2 =.760$ , ( $F(1,165) =982.676$ ,  $p<0.05$ )

Results revealed that treatment motivation among patients is significantly predicted by perceived autonomy support. Findings indicate that perceived autonomy support enables patients to motivate for their treatment.

**Table 2: Standard Regression Model showing impact of Perceived Autonomy Support on Psychological Burden among patients of CHD and Diabetes Mellitus**

Predictor	B	Std. Error	Beta	t-test	p-value
(Constant)	79.236	1.786			
Perceived Autonomy Support	-.739	.027	-.837	44.356	.000
				-26.931	.000

$R^2=.701$ , Adjusted  $R^2 =.700$ , ( $F(1,165) =725.272$ ,  $p<0.05$ )

According to the findings of the study depression, anxiety and stress are negatively predicted through perceived autonomy.

**Table 3: Shows the Mean, Standard Deviation, t-test values for the comparisons of Perceived Autonomy Support, Treatment Motivation, Depression, Anxiety, Stress between Male and Female Patients with CHD and Diabetes Mellitus**

Variable	Sex	N	M	SD	Df	t-test	p-value
Perceived Autonomy Support	Male	170	63.15	20.225	309	1.356	0.176
	Female	141	59.93	21.618			
Treatment Motivation	Male	170	110.01	34.559	309	1.546	0.123
	Female	141	103.84	35.554			
Depression	Male	170	10.31	6.167	309	-2.348	0.020
	Female	141	11.95	6.080			
Anxiety	Male	170	10.62	6.388	309	-2.396	0.017
	Female	141	12.36	6.393			
Stress	Male	170	10.22	6.306	309	-3.028	0.003
	Female	141	12.38	6.242			

According to results there was no significant difference on perceived autonomy support and treatment motivation between male and female patients. Female patients have greater level of depression, anxiety and stress as compared to male.

### 4. Discussion

The study was designed to investigate the impact of patients' perceived autonomy support on their degree of motivation associated with treatment process. Perceived autonomy support is considered significant predictor of enhancing inspiration or degree of motivation for treatment as well as perceiving a factor of reducing patient's stress, depression and his or her anxiety because during illness he is confronting stressful conditions regarding health due to serious disease such as spreading fast diabetes mellitus or coronary heart disease. When patients are diagnosed with ailment or chronic illness they mostly need autonomy support otherwise they become depressive, anxious and experiences of stressful situation, these outcomes of illness make them less confident about treatment of disease. Several studies reported about these constructs that perception of support cause motivation and reduce psychological burden (Shumaker et al., 2017). In the light of results, treatment motivation was assessed as positively predicted by patient's degree of support from others in different ways. Finally it was suggested that autonomous support always considering as effective or efficient way of recovery or improving patient's health. Comparisons were founded as significant in the perspectives of demographic characteristics such as sex or gender on treatment motivation, depression, perceived autonomy support, stress and anxiety. As on gender basis, the degree of treatment motivation as wells as level of perceived autonomy support was almost same or differences were not significant between patients of these diseases (male and female) but on the dimension of psychological problems female were investigated with more degree or level as compared to male diabetic patient and coronary heart disease. Female are considered as emotional and sensitive to any issue or complication.

## 5. Conclusion

Coronary heart disease and diabetes mellitus is perceived chronic. These diseases are growing rapidly in developed as well as underdeveloped countries. Physical or psychological health is negatively affected. Psychological burden is positively predicted by these two diseases. Perceived autonomous support was correlated positively significant with patient's treatment motivation but negative with their level of stress, depression and anxiety. No difference was explored on perceived autonomy support and treatment motivation with respect to gender. DAS was significant more among female as compared to male.

## References

- Alzahrani, A., Alghamdi, A., Alqarni, T., Alshareef, R., & Alzahrani, A. (2019). Prevalence and predictors of depression, anxiety, and stress symptoms among patients with type II diabetes attending primary healthcare centers in the western region of Saudi Arabia: a cross-sectional study. *International journal of mental health systems, 13*(1), 1-7.
- Caldirola, D., Schruers, K. R., Nardi, A. E., De Berardis, D., Fornaro, M., & Perna, G. (2016). Is there cardiac risk in panic disorder? An updated systematic review. *Journal of affective disorders, 194*, 38-49.
- Cohen, B. E., Edmondson, D., & Kronish, I. M. (2015). State of the art review: depression, stress, anxiety, and cardiovascular disease. *American journal of hypertension, 28*(11), 1295-1302.
- Cohen, B. E., Edmondson, D., & Kronish, I. M. (2015). State of the art review: depression, stress, anxiety, and cardiovascular disease. *American journal of hypertension, 28*(11), 1295-1302.
- Doyle, F., McGee, H., Conroy, R., Conradi, H. J., Meijer, A., Steeds, R., ... & De Jonge, P. (2015). Systematic review and individual patient data meta-analysis of sex differences in depression and prognosis in persons with myocardial infarction: a MINDMAPS study. *Psychosomatic medicine, 77*(4), 419-428.
- Gyawali, B., Sharma, R., Neupane, D., Mishra, S. R., van Teijlingen, E., & Kallestrup, P. (2015). Prevalence of type 2 diabetes in Nepal: a systematic review and meta-analysis from 2000 to 2014. *Global health action, 8*(1), 29088.
- Khan, P., Qayyum, N., Malik, F., Khan, T., Khan, M., Tahir, A., & Siddiqui, A. (2019). Incidence of anxiety and depression among patients with type 2 diabetes and the predicting factors. *Cureus, 11*(3).
- Rajput, R., Gehlawat, P., Gehlan, D., Gupta, R., & Rajput, M. (2016). Prevalence and predictors of depression and anxiety in patients of diabetes mellitus in a tertiary care center. *Indian journal of endocrinology and metabolism, 20*(6), 746.
- Roest, A. M., Martens, E. J., de Jonge, P., & Denollet, J. (2010). Anxiety and risk of incident coronary heart disease: a meta-analysis. *Journal of the American College of Cardiology, 56*(1), 38-46.
- Sharma, K., Dhungana, G., Adhikari, S., Bista Pandey, A., & Sharma, M. (2021). Depression and anxiety among patients with type ii diabetes mellitus in Chitwan Medical College Teaching Hospital, Nepal. *Nursing research and practice, 2021*.
- Shumaker, S. C., Frazier, S. K., Moser, D. K., & Chung, M. L. (2017). Psychometric properties of the multidimensional scale of perceived social support in patients with heart failure. *Journal of nursing measurement, 25*(1), 90-102.
- Su, S. F., Chang, M. Y., & He, C. P. (2018). Social support, unstable angina, and stroke as predictors of depression in patients with coronary heart disease. *Journal of Cardiovascular Nursing, 33*(2), 179-186.
- Tully, P. J., Cosh, S. M., & Baune, B. T. (2013). A review of the affects of worry and generalized anxiety disorder upon cardiovascular health and coronary heart disease. *Psychology, health & medicine, 18*(6), 627-644.
- Wenn, P., Meshoyrer, D., Barber, M., Ghaffar, A., Razka, M., Jose, S., ... & Makaryus, A. N. (2022). Perceived social support and its effects on treatment compliance and quality of life in cardiac patients. *Journal of Patient Experience, 9*, 23743735221074170.
- Whooley, M. A., & Wong, J. M. (2013). Depression and cardiovascular disorders. *Annual review of clinical psychology, 9*, 327-354.
- Wu, Y., Chen, Z., Duan, J., Huang, K., Zhu, B., Yang, L., & Zheng, L. (2021). Serum levels of FGF21,  $\beta$ -klotho, and BDNF in stable coronary artery disease patients with depressive symptoms: a cross-sectional single-center study. *Frontiers in Psychiatry, 11*, 587492.
- Zhou, Y., Zhu, X. P., Shi, J. J., Yuan, G. Z., Yao, Z. A., Chu, Y. G., ... & Hu, Y. H. (2021). Coronary heart disease and depression or anxiety: a bibliometric analysis. *Frontiers in Psychology, 12*, 669000.