

# HOPE AND DEPRESSION IN CORONARY ARTERY DISEASE PATIENTS WITH AND WITHOUT CORONARY ARTERY BYPASS GRAFTING

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## ABSTRACT

### OBJECTIVE

To investigate the differences in hope and depression between Coronary Artery Disease (CAD) Patients with and without Coronary Artery Bypass Grafting (CABG).

### STUDY DESIGN

Cross-sectional research design

### PLACE AND DURATION OF STUDY

Punjab Institute of Cardiology, Lahore and Fauji Foundation Hospital Islamabad. The participants were recruited over a period of 6 months.

### SUBJECTS AND METHODS

The sample comprised of 60 patients (N=60), n=30 CAD patients having undergone CABG and n=30 CAD patients not having undergone any surgery. Hope was assessed through Hope Index Test and Depression was assessed by Centre for Epidemiologic Studies Depression Scale.

### RESULTS

There was no significant difference in hope between CAD patients with and without CABG. There was no significant difference in depression between CAD patients with and without CABG. There was a significant negative relationship between hope and depression in CAD patients.

### CONCLUSION

No significant differences in hope and depression are found between CAD patients with and without CABG (surgery).

### KEY WORDS

Hope, Depression, Coronary Artery Bypass Grafting.

## INTRODUCTION

Coronary Artery Disease (CAD) occurs because of the blockage of blood supply to the heart muscle due to build up of a material called plaque inside the blood vessels. Severe blockage can cause chest pain, shortness of breath, and, in some cases, heart attack can occur. Revascularization or Coronary artery bypass grafting (CABG) is a major surgical procedure in which blood flow to the heart of the patients with severe coronary artery disease (CAD) is improved. Coronary artery bypass grafting (CABG) has become a standard method of treatment of significant coronary artery stenosis since 1967<sup>1</sup>. About 800,000 patients over the world undergo CABG every year which stabilizes ventricular functions and reduces angina<sup>2</sup>. In CABG, the veins or arteries of the individuals usually from the legs are used to bypass narrowed areas to restore blood flow to heart muscle<sup>3</sup>. A belief in the connection between the heart and the emotions is many hundreds of years old. William Harvey noted that "every affect of the mind that is attended with pain or pleasure, hope or fear is the cause of agitation whose influence extends to the heart"<sup>4</sup>. Both positive and negative psychological correlates are involved that affect CAD patients<sup>5,6</sup>.

Depression is among the emotional conditions from which heart can be affected and it is one of the most important and common one<sup>7</sup>. The word depression refers to symptoms, such as, gloominess, sadness, dejection, low spirits, and so forth<sup>8</sup>. It may be viewed as abnormal when it occurs under inappropriate circumstances and normal under predictable circumstances<sup>9</sup>. The word depression also refers to a syndrome in mood change that can cause the occurrence of signs and symptoms<sup>10</sup>.

Hope can be defined as a goal directed thinking in which the person utilizes agency thinking and pathways thinking<sup>11</sup>. Hope may be approach oriented or preventive<sup>12</sup>, researchers suggest that in coping with illness related problems hope confers advantages to people<sup>13</sup>. Studies relating to hope and health reported higher levels of hope were related to better coping and to less depression in the recovery process following spinal cord injury<sup>14</sup>.

In a study on young female nurses with high levels of hope, it was found that they were less likely to report burn out<sup>15</sup>. High levels of hope in adolescent with burn injuries correlated with engaging in fewer behaviors that would undermine recovery<sup>16</sup>. High preoperative depression state and trait anxiety scores appeared to be predictors of postoperative psychological outcome. Preoperative assessment can identify patients at risk for clinical levels of postoperative anxiety and depression. Psychological preventive counseling and psychiatric intervention can reduce not only patients' emotional distress, but also medical and economic costs<sup>17</sup>. Abbreviated instrument Results from a study on 416 patients scheduled for CABG reported that presence of depressive symptoms before or after surgery was positively correlated with the rate of readmission for cardiac problems within 6 months after CABG. Women were more likely than men to experience postoperative depression, attributable to their overall poor health. Depression one year post-CABG was

predicted by non-cardiac chronic illnesses, postoperative fatigue and shortness of breath and socioeconomic status<sup>16</sup>. From the above literature review we can conclude that in CAD patients with and without CABG researchers have focused on negative psychological variables such as depression, anxiety and stress and less importance is given to the positive psychological correlates i.e. hope. Mostly the research evidence existing in this regard has been from researches conducted in developed countries. In Pakistan, focus of researchers has been to unravel the medical aspects related to CAD and very few researches have covered the psychological impact of the illness.

**SUBJECTS AND METHOD**

**Participants**

The sample comprised of 60 patients (N=60); n=30 CAD patients having undergone CABG and n=30 CAD patients not having undergone any surgery. The sample was drawn from two cities in Pakistan namely Islamabad and Lahore. Data was collected from two hospitals, Punjab Institute of Cardiology, Lahore and Fauji Foundation Hospital Islamabad. Demographic information includes age, education, gender, marital status and family history of cardiovascular disease.

**Measures**

**Herth Hope Index Test**

The Herth Hope Index Test<sup>17</sup> is a 12 item and 4 point Likert type instrument where 0 indicates strongly disagree and 3 indicates strongly agree. Item numbers 3 and 9 are negatively stated and require reverse coding for analysis. The lowest possible score is 12 and the highest is 48 which indicate the highest level of hope. The reliability of the scale is 0.85.

**Center for Epidemiologic Studies Depression Scale (CES-D)**

The CES-D18 is a freely available and widely used 20 item self-report scales which measure the current level of depressive symptomatology in the general population, with an emphasis on depressed mood during the past week.<sup>19,20</sup> The CES-D incorporates the main symptoms of depression and was derived from five validated depression scales including the Beck Depression Inventory (BDI). It is freely available in the public domain, has been validated in community and primary care populations, in cardiac patients and older populations and has good test-retest reliability. Scores range from 0 to 60, with higher scores indicating more symptoms of depression. CES-D scores of 16 to 26 are considered indicative of mild depression and scores of 27 or more indicative of major depression<sup>18</sup>. The Cronbach's alpha for CES-D is found to be  $\alpha = .8720$ .

**Procedure**

An authority letter explaining the nature of the study was taken from the Institute of Applied Psychology, University of the Punjab, Lahore. Data was collected from two hospitals, Punjab Institute of Cardiology, Lahore and Fauji Foundation Hospital Islamabad. The scales were translated into Urdu through process of forward and backward translation. For forward translation, the scale was given to two Applied Psychology M. Phil scholars. Consensus was developed

on target language version. Back translation was done by two other M. Phil scholars in Applied Psychology. Comparison of the source questionnaire with the backward translation was done by a team of three professionals to check the conceptual content of forward consensus versions. A final translated version was developed at the end. The questionnaires were administered after brief instructions. The questionnaires were required to be completed in 20-30 minutes in the researcher's presence. The results of pilot study showed high reliability of scales and population was appropriate. After that, following same procedure, the original study was conducted. These questionnaires were administered to patients of CAD men and women with and without CABG. A formal institutional consent was taken from the authorities of the concerned hospital before the data collection. Each participant was provided with a written consent form and the questionnaires. The participants were told about the study and also they were allowed to quit the study if they wanted. Data was entered in SPSS for analysis.

**RESULTS**

Results have shown that the average age of CAD patients without CABG was 50 years and that with CABG was 48 years. Most of the patients (75%) without CABG had acquired 12 or more years of education, whereas majority of the patients (80%) with CABG had 10 or less years of education. 25% of women comprised the group of CAD patients without CABG whereas 29% were with CABG. Except for 2% of the CABG group all patients were married. 21% CAD patients without CABG and 10% with CABG reported family history of cardiovascular diseases in blood relatives.

**Table 1**  
Difference in Hope Scores between Surgical and Non -Surgical CAD patients

Patients	N	M	SD	T	p	95% CI		Cohen's d
						LL	UL	
CAD patients non surgical group				1.40	.83	-.52	2.98	.36
CAD patients surgical group	30	25.8	3.49					

Note. N = 60 CI = confidence interval. LL = lower limit. UL = upper limit. M = Arithmetic Mean. SD = Standard Deviation.

**Table 2**  
Difference in Depression Scores between Surgical and Non -Surgical CAD patients

Patients	N	M	SD	T	p	95% CI		Cohen's d
						LL	UL	
CAD patients non surgical group	30	22.7	9.89	-1.42	.80	-.84	1.36	-.37
CAD patients surgical group	30	26.2	8.90					

Note. N = . CI = confidence interval. LL = lower limit. UL = upper limit. M = Arithmetic Mean. SD = Standard Deviation.

**Table 3**  
Relationship between Hope and Depression

Variables	1	2 M	SD
Hope	-	-.327*	
Depression		26.4 -24.4	3.42 9.49

Note. *N* = . *CI* = confidence interval. *LL* = lower limit. *UL* = upper limit. *M* = Arithmetic Mean. *SD* = Standard Deviation.

An Independent sample t-test was used to analyze the difference in depression between CAD patients with and without CABG. The values given in Table 1 revealed that results were not significant. There was no significant difference in depression between CAD patients with Coronary Artery Bypass Grafting ( $M= 26.2, SD= 8.90$ ) and without Coronary Artery Bypass Grafting ( $M= 22.7, SD= 9.89$ ),  $t(1.42), p=.80$  (two tailed). Independent sample t-test showed that there was no significant difference in hope between CAD patients with ( $M= 25.8, SD= 3.49$ ) and without ( $M= 27.0, SD= 3.29$ ) Coronary Artery Bypass Grafting,  $t(1.40), p=.80$  (two tailed). A correlation analysis was carried out to find the relationship between hope and depression in CAD patients. The results in Table 3 indicated a significant weak negative relationship between hope and depression  $r= -.33^*, n=60, p<.05$ . This suggested that as hope increases, depression decreases or vice versa.

## DISCUSSION

The study aimed to investigate differences in CAD patients with and without CABG (surgery). Current study is a preliminary study that highlights whether CABG and non CABG groups differ on these psychological factors. Results were not significant; this points towards the fact that it is not the CAD patient's surgical or non surgical status that is associated with positive or negative psychological correlates. Hope is not much affected by current state of an individual because hope is conceptualized as relatively a stable characteristic<sup>21</sup>. Overall within our indigenous culture people enjoy a lot of social support as research highlights that social support is positively correlated with hope<sup>22</sup>.

Overall within our indigenous culture people enjoy a lot of social support and social. In another study conducted<sup>23</sup> significant correlation among self-care behavior, social support and hope were observed. Social support was the best predictive factor for self-care behavior and hope. Social skills, hope, happiness were consistently and positively associated with quality of life<sup>24</sup>. Thus, people who enjoy more social support have more hope and are more satisfied with life. CAD patients in our society enjoy social support from family and friends; and living in close knit families provides them hope that acts as a buffering factor to recover from diseases even if they have undergone a major surgery like CABG. Social support is available from families, friends and significant others. According to Pakistan Demographics Survey<sup>25</sup>, the average Pakistani family size is 7 and in rural areas it is 14, not only the size but the actual psychological support of the family is helpful in dealing with disease and illness<sup>25</sup>. People who enjoy greater social support have fewer chances to develop depressive thoughts about the future and found to be less depressed<sup>26</sup>. Non significant difference on depression between CABG and non CABG, CAD patients can be attributed to low literacy rate.

Overall, literacy rate in Pakistan is 60 % and very few patients are knowledgeable about their disease's etiology, course, debilitating and life threatening after effects<sup>27</sup>. Another reason for non significant difference between surgical and non surgical CAD patients can be due to the fact that mostly patients attributed hope and depression not to their illness or to the fact that they had undergone CABG but with issues related to their families and economic conditions. 38% of the patients in our study irrespective of their illness were over all very hopeful and when asked about their disease and how they cope with it, they reported the use of religious coping strategies. A negative relationship between hope and depression in CAD patients was found, these results are in line with already available research evidence<sup>28</sup>. Results of another study revealed that hope was negatively associated with depression and it was found to facilitate adjustment across various stages of coping with illness. The people who were found to be more hopeful were less depressed and thus reported better coping skills with their illness<sup>29</sup>.

## LIMITATIONS AND SUGGESTIONS

It was difficult to find the sample that fulfilled specific criteria as it was difficult to find patients who were able to read and write indigenous language within our population. Conditions in which questionnaires were administered were not ideal because extraneous variables like noise, rush of people, visit of doctors, nurses, fatigue etc could not be controlled. For results generalization, large sample can be recruited from other hospitals of different cities of Pakistan. The present study is a preliminary research and provides foundation for further research in Pakistan. It is recommended that some other factors such as gender differences, stress, coping strategies etc. should be included for further research in this arena. Research could be designed that focus on other positive as well as negative constructs usually reported in CAD patients. Training programs and seminars can be organized to educate patients about psychological aspects of CAD besides the much known medical aspects of the illness.

## IMPLICATIONS

This study was designed with a notion to tailor psychological assessment and interventions according to the disease status, i.e. surgical and non surgical status. There is a strong need to conduct further research on CAD patients to view how psychological aspects of CAD affect health. It would be worthwhile to investigate how quality of life along with productivity of patient with CAD can be enhanced. The study will lay grounds for further researches to be carried out in Pakistan to focus on both positive and negative psychological constructs that can be associated with CAD patients besides looking for biological determinants of disease.

## CONCLUSION

The results of the study have reflected that there were no significant differences in hope and depression in CAD patients with and without CABG (surgery). Past researches have not focused much on finding differences on positive psychological correlates i.e. hope as well as negative psychological correlates i.e. depression. Mostly the research evidence existing in this regard has been from researches conducted in developed countries. In Pakistan, focus of researchers has been on the medical issues of the CAD patients and not on the psychological impact of the illness. A significant negative relationship between

hope and depression in CAD patients was found. These results were consistent with the past research evidence existing in this regard.

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