

Anxiety and Well-being among Acute Coronary Syndrome Patients: Overtime

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Life has become, despite technological and other advancements, so complicated that a strain free life cannot be thought of. To put it simply, tension and stresses are the boon of present era. This creates various psychological problems in individual's life such as anxiety, depression etc which can prove to be major risk factors for various types of diseases. Acute coronary syndrome is one of them. All these problems have negative impact on one's life in general and well being in particular. The purpose of the present study is to investigate the anxiety and well-being among acute coronary syndrome patients. Initially a sample of 60 subjects was randomly selected (30 were having Myocardial Infarction and 30 were having Unstable Angina). State-Trait Anxiety Inventory and PGI general well-Being scale were administered on these 60 subjects at baseline i.e. 4th-5th day of angina /attack and again at the time of follow-up i.e. after 1-2 months of the angina / attack making a total sample of 120 subjects. Findings reveal that significant differences exist between baseline and follow-up of acute coronary syndrome patients on state anxiety, trait anxiety and well being.

Keywords: Anxiety, Well being, Acute Coronary Syndrome, Myocardial Infarction, Unstable Angina.

Human heart is still a mystery even after years of research into the biological processes underlying its specific actions. In addition to controlling and co-coordinating vital life processes, it also regulates various physiological and psychological functions. It is the human body's hardest working organ. Throughout life, it continuously pumps blood enriched with oxygen and vital nutrients, through a network of arteries to all parts of body tissue. Heart is merely not a pump – it is the headspring of every feeling and emotion, whether it is delight and excitement or gloominess and frustration. Mental and emotional tenseness disrupts the emotional heart, where as junk diet, insalubrious lifestyle and absence of physical exercise weakens the physical heart.

Cardiovascular diseases (CVD) are major causes of mortality and disease in Indian

subcontinent causing more than 25% of deaths. The World Health Organization (WHO) has drawn attention to the fact that CHD is our modern 'epidemic' i.e. a disease that affects populations, not an unavoidable attribute of ageing.

Patients with ischemic heart disease fall into two large groups: patients with Coronary Artery Disease (CAD) who most commonly present with stable angina and patients with Acute Coronary Syndromes (ACS), which is composed of patients with acute myocardial Infarction (MI) with ST Segment elevation and those with unstable angina and non-ST segment elevation MI (Cannon and Braunwald, 2008). Acute Coronary Syndrome (ACS) is a set of signs and symptoms, usually a combination of chest pain and other features, interpreted as being the result of abruptly decreased blood flow to

the heart (cardiac ischemia); the most common cause for this is disruption of atherosclerotic plaques in an epicardial coronary artery. ACS results from a sudden blockage in coronary artery. People who experience an ACS usually have chest pressure or ache, shortness of breath and fatigue. Acute Coronary Syndrome is classified into two parts: Unstable Angina and Non-ST-Elevation Myocardial Infarction, and ST-Elevation Myocardial Infarction

UA/NSTEMI is most commonly caused by reduction in oxygen supply and by an increase in myocardial oxygen demand superimposed on an atherosclerotic coronary plaque, with varying degrees of obstruction. STEMI usually occurs when coronary blood flow decreases abruptly after a thrombotic occlusion of a coronary artery previously affected by atherosclerosis.

The present era in which we live has been called the "age of anxiety" and anxiety manifestations are certainly widespread. Anxiety is common, even more so than depression among persons with chronic cardiovascular disease and among those coping with recovery from acute cardiac events or intervention (Kubzansky, Kawachi, Wiess & Sparrow, 1998, Crowe, Runions, Ebbesen, Oldridge & Striner, 1996, Malan, 1992, Januzzi, Stern, Pasternak, & Desantis, 2000, Moser, Mckinley, Riegel, Doering, & Garvin, 2002, Moser & Dracup, 1996, Sirois & Burg, 2003). The prevalence of anxiety is high at approximately 70% to 80% among patients who have experienced an acute cardiac event; anxiety persists over the long term in about 20% to 25% of patients with cardiovascular disease (Crowe, Runions, Ebbesen, Oldridge, & Steiner, 1996, Moser, Mickinley, Riegal, Doering, & Garvin, 2002, Moser & Dracup, 1996). David Barlow (1991) thought of anxiety as complex blend of emotions and cognitions that is much more diffuse than fear. At the cognitive/ subjective level, anxiety involves negative mood, worry

about possible future threat or danger, self preoccupation and a sense of being unable to predict the future threat or to control if it occurs (Barlow, 1988, 1991a). Benninghoven, Kaduk, Wiegand, Specht, Kuzendorf and Jantschek (2006) studied whether anxiety serves a risk factor or protective function on the course of heart disease after Acute Myocardial Infarction. Results indicated that cardiac events occurred in 24 patients during the follow-up period of 31 months. The group of anxious patients suffered more often from cardiac events and these events also occurred a bit earlier in them as compared to non-anxious patients. Age, gender, partner status, level of anxiety and co-morbid diabetes at the time of first assessment discriminate between patients suffering from cardiac events and those who are free from such events.

In recent years, both in scientific as well as in popular literature, there is an increased interest in the well being, the attributes that describe well being and the events that affect well being (Hoorn,2008). There are three conceptual terms related to well being viz. general well being, psychological well being and subjective well being. Diener and Diener (1996), and Lykken and Tellegen (1996) defined general well-being as the subjective feeling of contentment, happiness, satisfaction with life experiences and of one' role in the world of work, sense of achievement, utility, belongingness and no distress, dissatisfaction or worry etc. Psychological well-being is a malleable concept which is concerned with individual's feelings about his daily life experiences. Subjective Well Being is a broad category of phenomenon that includes people's emotional responses, domain satisfactions and global judgments of life satisfaction (Diener, Suh, Lucas & Smith, 1999). Brink, Karlson and Hallberg (2002) investigated the health experiences of first time myocardial infarction patients. Results show that women differed from men and reported significantly poorer physical health.

Depression and health complaints also impacted quality of life. Perers, From, Caidahl, Herlitz, Karlsson, Wohrborg and Hartford (2006) studied the quality of life at three month follow-up in patients with acute coronary syndrome. Results indicated that quality of life was mainly influenced by patient characteristics and previous history. Patients with unstable angina pectoris are more likely to experience poorer quality of life following an acute hospitalization than patients with other types of acute coronary syndrome.

Studies related to depression among acute coronary syndrome patients are found in abundance. (Chris, Linda, Carol, & Jane, 2005, Bunde, & Rene, 2006, Frasure Smith & Francois, 2005, Lauzon, Beck, Huynh, & Dion, 2003, Naqvi, Naqvi, & Marz, 2005, Carney, Freedland, & Sheps, 2004). However, the studies directly investigating anxiety and especially well-being among patients are just too little. There is lack of clarity concerning the effect of anxiety on course of cardiac events following myocardial infarction. Some studies have identified anxiety as a risk factor for further cardiac events. Therefore, the present research was designed in this manner. Present research was conducted to study the Anxiety and Well-being among Acute Coronary Syndrome (ACS) patients: overtime and following hypotheses were formulated:

- i. Acute coronary syndrome patients would have high anxiety at base level as compared to follow-up.
- ii. Acute Coronary syndrome patients would have low well-being at base level and better well being at follow-up.
- iii. Patients of age group 35-54 years would have high anxiety and low well-being as compared to patients of age group 55-74 years.
- iv. State and trait anxiety of myocardial infarction patient would differ significantly.
- v. State and trait anxiety of unstable

angina patients would differ significantly.

Design:

A 2 x 2 x 2 factorial group design was employed on 120 subjects to study the anxiety and well being of Acute coronary syndrome (ACS) patients. The two types of ACS patients i.e. Myocardial Infarction (MI) and Unstable Angina (UA) were taken for the study. These patients were diagnosed as MI and UA by the physician of the Medicine Department, Unit-IV, PGIMS, Rohtak. There are total three factors; one factor was (A) Type of patient having two levels i.e. myocardial infarction and unstable angina, the other factor was (B) Age varied at two levels i.e. 35 to 54 years and 55 to 74 years and the last factor (C) Time was varied at two levels i.e. baseline and follow-up. Each cell contains 15 subjects.

Method

Sample:

Initially a sample of 60 subjects was randomly selected for the present study on the basis of availability (30 were having Myocardial Infarction and 30 were having Unstable Angina) within an age range of (35-54) and (55-74) years. Both the tests were administered again on these 60 subjects at the time of follow-up i.e. after 1-2 months of the Angina / attack making a total sample of 120 subjects. These patients having MI and UA were randomly selected on the basis of availability and on voluntary bases from Department of Medicine, UNIT-IV of PGIMS, Rohtak. Patients who had undergone surgery to restore blood flow to the heart-bypass surgery for example or who were suffering from other heart diseases that might cause heart attack or death were excluded. Individuals with additional chronic illnesses were also excluded from the study. In addition to this a personal data sheet was also employed for controlling the Socio-demographic variables such as age, socio-economic status etc. Both the groups were mixed sex groups.

Tools:

State-Trait Anxiety Inventory: It was developed by Spielberger, Gorsuch, Lushene, & Vagg Jacobs, 1970). It comprises of separate self-report scale for measuring state and trait anxiety. The S-Anxiety scale (STAI – Form Y-1) consists of twenty statements that evaluate how respondents feel “right now at this moment”. The T-anxiety scale (STAI Form Y-2) consists of twenty statements that assess how people generally feel. The test-retest correlations for the T-Anxiety scale were reasonably high for college students, ranging from 0.73 to 0.86 for the six subgroups, but some what lower for the high School students, ranging from 0.65 to 0.75.

PGI general well-Being: It was developed by Verma and Verma in 1989. It consists of 20 items and subject has to respond by putting a (/) mark before the statement that applies on him. The inter-rater reliability of the scale was 0.86 and inter scorer reliability was 1.0. Internal consistencies ranged from 0.16 to 0.84. It's correlation with Bradburn well-being scale was 0.56, with General Satisfaction Level Rating was 0.235 with Learned helpless scale was 0.49, with PGI quality of life scale was 0.54.

Procedure:

After finalization of the experimental design the sample of 60 patients selected are diagnosed patients labeled as Acute Coronary Syndrome by Katyal. After the sample Selection each Patient was attended and interviewed separately in the presence of medical staff. Now, the Anxiety and well-Being Scales were administered on those patients individually in the ward on the day of discharge. These subjects were again tested after a period of 4-6 weeks, when they were called by the doctor for follow-up. This way anxiety and well-being of same patients were measured at the time of follow-up. Manual scoring is done for every response of both the scales.

Results and Discussion

Table 1: Mean, SD of scores obtained by Acute Coronary Syndrome patients on state anxiety, trait anxiety and well-being at baseline and follow-up.

Variables	Acute Coronary Syndrome	
	(baseline)	(follow-up)
State Anxiety	49.55 ± 5.88	44.33 ± 4.26
Trait Anxiety	52.21 ± 7.86	46.63 ± 6.65
Well-Being	12.75 ± 3.41	16.00 ± 2.23

In state and trait anxiety, lower scores are the indicators of better performance or condition and in well-being, higher scores indicate better performance. The results in table 1 reveal that the mean scores on state anxiety for acute coronary syndrome (ACS) patients at the time of discharge i.e. baseline (49.55) were higher than the mean for state anxiety at the time of follow-up (44.33). Similarly the scores on trait anxiety were higher in case of acute coronary syndrome patients at baseline (52.21) as compared to mean scores (46.33) of ACS patients at the time of follow-up. But, the mean scores on well-being for ACS patients at follow-up (16.00) were higher than the mean for ACS patients at baseline (12.75) which can clearly be seen in figure 1.

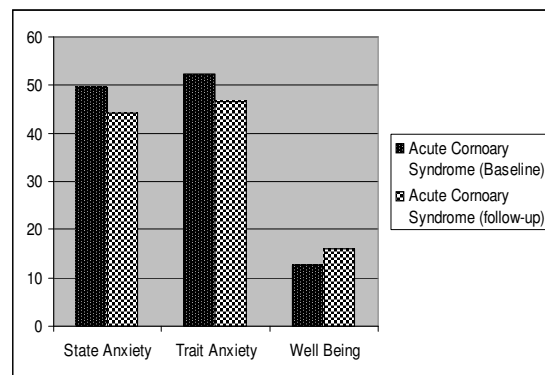


Figure 1: Mean scores of state anxiety, trait anxiety and well being of Acute Coronary Syndrome patients at base line and follow up

Table 2: Mean and SD obtained by Myocardial Infarction and Unstable Angina patients on state anxiety, trait anxiety and well-being at baseline and follow-up.

Variables	Baseline		Follow-up	
	Myocardial Infarction	Unstable Angina	Myocardial Infarction	Unstable Angina
State Anxiety	50.50 ± 6.84	48.60 ± 4.65	44.00 ± 4.69	44.60 ± 3.84
Trait Anxiety	53.46 ± 8.50	50.96 ± 7.08	47.30 ± 7.13	46.63 ± 6.26
Well-Being	13.00 ± 3.10	12.50 ± 3.93	16.26 ± 2.39	16.10 ± 2.10

Table 2 reveals that the mean scores on state anxiety for myocardial infarction patient (50.50) were higher than the mean for unstable angina patients (48.60). Even the mean for trait anxiety was also higher in case of myocardial infarction patients (53.46) as compared to mean score (50.96) of unstable angina. The higher mean score on state and trait anxiety for myocardial infarction patients suggests that patients having myocardial infarction experience more anxiety than unstable angina patients at the time of discharge (baseline). At the time of discharge

The mean value of state anxiety for unstable angina (44.60) was more or less equal to the mean for myocardial infarction (44.60). However; the mean value of trait anxiety for myocardial infarction (47.30) was higher than the mean for unstable angina (46.63). But, the mean value on well being for myocardial infarction (16.26) was higher as compared to the mean for UA (16.00). Graphical representation in figure 3 clearly shows that there is not much difference in the mean of both MI and UA. The higher mean of MI in well-being as compared to UA probably suggests that after recovery, the feeling of wellness was more in the patients who had an attack but unstable angina patients did not show as much wellness at the follow-up. They may be having a fear of pain for which they were anxious earlier.

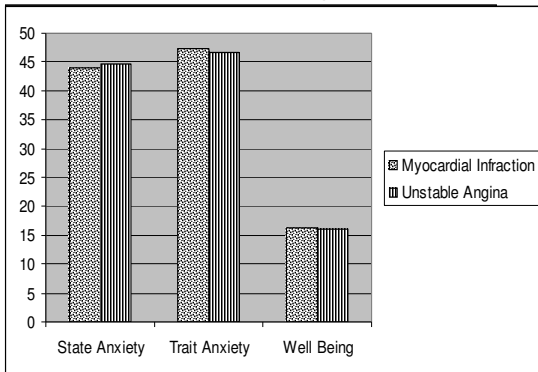


Figure 2: Mean scores of state Anxiety, trait anxiety and well being of Myocardial Infarction and Unstable Angina patients at base line

Figure 3: Mean scores of state anxiety, trait anxiety and well being of Myocardial Infarction and Unstable Angina patients at follow up

Table 3: Mean, SD on state anxiety, trait anxiety and well-being for age group 35-54 years and 55-74 years at baseline and follow-up.

Age Variables	Baseline		Follow-up	
	35-54 Years	55-74 Years	35-54 Years	55-74 Years
State Anxiety	48.60 ± 5.34	50.32 ± 6.32	43.93 ± 3.71	44.73 ± 4.78
Trait Anxiety	50.73 ± 8.27	52.83 ± 7.03	46.66 ± 6.61	46.60 ± 6.80
Well-Being	12.83 ± 3.25	12.86 ± 3.12	16.23 ± 2.14	15.76 ± 2.32

Table 3 reveals that the mean score on state anxiety for age group 55-74 years was higher (50.32) than the mean scores on state anxiety for age group 35-54 years (48.60). Similarly, the mean score for trait anxiety was higher in case of elders (55-74 years) i.e. 52.83 as compared to that of younger age group (35-54 years) i.e. 50.73. The obtained mean difference of both age groups in state as well as trait anxiety supports the view that patients of elder group showed higher anxiety at the time of discharge. The greater anxiety may be because they were more aware of responsibilities in the life. Immediately after discharge, the high anxiety shown by patients suggests that they had apprehensions about the recovery of illness. Even the mean scores for well-being were also higher among elders (12.86) than the mean of younger age group (12.83) at the time of discharge or it can be said that after 3-4 days of having an attack. It shows that elderly people have better well-being than younger ones. The scores on state anxiety (44.73) of patients in the age group of 55-74 years were slightly higher than the mean for age group of 35-54 years i.e. 43.93. But the mean scores on trait anxiety (46.66) for age group 35-54 years were equal to the age group of 55-74 years (46.60). It can be explained in a way that anxiety for MI and UA patients is observed to be same irrespective of age at the time of follow-up. Thus, the observed results suggest that the ACS patients of different age group experience equal anxiety level at the time of follow-up. The apprehension attached with fear seems to be equal for elders as well as youngsters.

However, these differences don't indicate the significance of mean differences. Since, the design employed was factorial; three-way ANOVA was employed for further analysis. The present researchers were also interested in seeing the significance of interaction effects also. Moreover, three-way ANOVA provides a clear picture of significance of mean differences by providing the F-values for different variables.

In case of State anxiety, F value of 'type of patient' (A) i.e. 0.44 is not significant. This shows that whether the patient is suffering from myocardial infarction or unstable angina experience same level of state anxiety. For a normal person, the severity of condition does not carry much importance, whether it is MI or UA, it is a form of heart attack for them. The F-value for between 'age' (2.11) is also not significant. It means that either a patient is 35 year old or 70 year old does not make any difference in the level of state anxiety. Patients belonging to either of the age group experiences approximately same level of state anxiety. F-value for time (baseline and follow-up) i.e. 92.87 is highly significant, which means that state anxiety experienced by patients at the time of baseline and follow-up differs significantly. Even the interactions among different variables i.e. between 'type of patient' and 'time' and between 'type of patient', 'age' and 'time' are found to be significant. Rest of the interactions is not significant.

These results are in accordance with the studies conducted earlier. Michael, Krishnaswamy, Muthuswamy, Khalid and

Jamaludin (2005) conducted a study to determine the relationship between stress related psychosocial factors like anxiety, depression and life events and temporally cardiac events specified as acute myocardial infarction and unstable angina. Results indicated that patients who had significant levels of depression or life events were ten times more likely to have reoccurrence of cardiac events as compared to those without risk for either of these psychological symptoms. Anxiety, depression and stress levels are significantly increased after the onset of ischemic heart disease and could be contributing or predisposing factors for the reoccurrence of cardiac events for these patients.

Similarly, the three way ANOVA for trait anxiety was also applied, in case of trait anxiety, F value for Between type of patient (0.31) is not significant, which implicates that whether the patient is diagnosed with myocardial infarction or unstable angina does not put any impact on the trait anxiety experienced by the MI and UA patients. Between Age F-value i.e. 0.47 is also not significant, which means that age group does not effect the trait anxiety level of patient. Patients belonging to either 35-54 years of age group or to 55-74 years of age group do not make any difference. The trait anxiety level remains the same in both the age groups. It does not show any difference in the trait anxiety. F-value for baseline-follow-up (25.78) was found to be highly significant which shows that the trait anxiety at baseline differs significantly from trait anxiety at the time of follow-up. The interactions were also not significant, only, the three-way interaction i.e. interaction between Type of patient, age and time is also significant i.e. 29.14. Thus the first hypothesis that acute coronary syndrome patients would have high anxiety at base line as compared to follow-up has been verified here. These results are partially in relation to studies conducted earlier. Benninghoven,

Kaduk, Wiegand, Specht, Kuzendorf and Jantscheck (2006) studied whether anxiety serves a risk factor or protective function on the course of heart disease after acute myocardial infarction. Results indicated that cardiac events occurred in 24 patients during the follow-up period of 31 months. The group of anxious patients suffered more often from cardiac events and these events also occurred a bit earlier in then as compared to non anxious patients. Age, gender, partner status, level of anxiety and co-morbid diabetes at the time of first assessment discriminate between patients suffering from cardiac events and those who are free from such events.

Similarly, the three-way ANOVA for well-being was also applied, in case of well-being, F-value for between type of patient (0.002) is not significant, which implicates that whether the patient is diagnosed with myocardial infarction or unstable angina does not lay any emphasis on well-being experienced by the between MI and UA. Between Age, F-value i.e. 0.16 is also not significant, which means that age group does not effect the well-being of patients. Patients belonging to either 35-54 years of age-group does not make any difference as for as the wellness after recovery/follow-up as concerned. The well-being of the patients remains the same for both the age groups. However, the F-value for baseline and follow-up is highly significant i.e. 215.71, which implicates that well being at follow-up enhances a lot in comparison to the baseline. The interaction between 'type of patient' 'age' and 'time' is also significant (111.73). Thus, the second hypothesis stating that acute coronary syndrome patients would have low well being at baseline and better well-being at follow-up is verified.

These results are in line with the study conducted by Perers, From, Caidahl, Herlitz, Karlson, Wohrborg and Hartford (2006). The quality of life at 3 months follow-up in patients with acute coronary syndrome was observed in the study, which indicated that quality of life

was mainly influenced by patient characteristics and previous history. Patients with unstable angina pectoris are more likely to experience poorer quality of life following an acute hospitalization than patients with other types of acute coronary syndrome. The findings of the present study are in favor with the above said results as the quality of life remained poor for unstable angina patients. Same results are found here that the well-being of UA patients was not as good as MI patients at the follow-up i.e. after nearly two months, but the third hypothesis that patients of age group 35-54 years would have high anxiety and low well-being as compared to patients as of age group 55-74 years has not been verified here.

Only one F-value i.e. for time (baseline and follow-up) was found to be significant. Moreover, each factor has two levels, that why no DRT was employed for the post hoc analysis amongst the means for state anxiety, trait anxiety and well-being. In addition to this, the researcher was also interested in knowing whether the state and trait anxiety in both types of patients differs significantly or not. For this purpose, t-test was applied amongst those. The t-values for state and Trait anxiety of myocardial infarction patients have been shown in table 4.

Table 4: t-values for state anxiety and trait anxiety of myocardial infarction and unstable angina patients

Variables	Myocardial Infarction (State & Trait Anxiety) t-values	Unstable Angina (State & Trait Anxiety) t-values
Baseline	2.82**	2.21**
Follow-up	2.98**	2.78**

**p<0.01

The mean scores on state and trait anxiety for myocardial infarction patient at baseline was 50.50 and 53.46 respectively and

for state and trait anxiety at follow-up was 44.00 and 46.63 respectively. The obtained results are supporting the predicted results. When tested for t-test, all the values whether it is for baseline or follow-up was found to be significant at 0.01 level. The t-values are 2.82 and 2.98 for baseline and follow-up respectively. Significant results indicate that the state and trait anxiety of MI patients at baseline differs from each other. Thus, the fourth hypothesis that state and trait anxiety of myocardial infarction patient would differ significantly has been verified. The mean values for unstable angina on state anxiety and trait anxiety at baseline was 48.60 and 50.96 respectively and the mean values for state and trait anxiety at follow-up was 44.66 and 46.63 respectively. When t-test for correlated mean was applied, both the values were found to be significant. Thus, the last hypothesis that state and trait anxiety of UA patient would differ significantly is verified which shows that anxiety experienced by the person at the time of attack is different from the anxiety experienced by him in general life situations.

In nutshell, it can be concluded that whatever the type of patient is, whether the patient is suffering from MI or UA, it does not make any difference. It has been clearly seen from the results obtained by applying 3 way ANOVA that no significant differences were found there. Such results might be obtained because of the fact that both of them are types of a syndrome called Acute Coronary Syndrome. Moreover, age factor was also there but that too did not show any significant differences which means that whatever the age of a person is, whether he is a youngster or an elder does not make any differences. Both of them experience same level of anxiety and well being. The difference was only found among the patients at baseline and follow-up. It shows that time plays an important role in reducing the anxiety and enhancing the well-being of acute coronary syndrome patients. Time is an important factor for making a

person normal. Hence, the better well-being of acute coronary syndrome patients at the time of discharge (baseline) might have helped the patients in reducing their anxiety at the time of follow-up. Thus, wellness of human being plays a crucial role cognitively as well as clinically in understanding and accepting the disease. Beside all this much more information is needed to understand the impact of psychosocial background on the increased risk of mortality and morbidity in patients with cardiac disease.

Thus, clear evidence that 'pure' anxiety (as independent of depression) and well-being plays a role in CHD or in ACS has yet to be determined and future investigations should be designed to deal with this issue.

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