ROLE OF POSTTRAUMATIC GROWTH BETWEEN TREATMENT ADHERENCE AND DEATH ANXIETY IN INDIVIDUALS WITH MYOCARDIAL INFARCTION

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ABSTRACT
This study explored the role of posttraumatic growth between treatment adherence and death anxiety in individuals with Myocardial Infarction. It is also known as heart attack which is generally caused by the blockage of blood supply to the heart of an organism human being. This blockage of blood supply is generally made up of bad cholesterol as well as fate and some further substances of the like to produce plaque in those coronary arteries of a person that carries oxygenated blood to the heart (Werdan et al., 2012). *It is a quantitative study in which cross sectional research design was used. It was hypothesized that post traumatic growth would significantly predicted by treatment adherence among individuals with Myocardial Infarction. In the same way it was also hypothesized that there would be a significant relation between post-traumatic growth and treatment adherence and death anxiety. Sample size comprised of 500 (N=500) patients with Myocardial Infarction which was selected from different public and private hospitals in Punjab. The sample selected through multistage sampling technique. The variables of interest assessed by using the Posttraumatic Growth Inventory (Tedesechi & Calhoun, 2014), The General Medication Adherence Scale(Naqvi et al, 2020), and Death Anxiety Scale (DAS)(Donald & Templer 1970). In statistical section, Pearson Product Moment Correlation and Multiple Regression analysis were used respectively. Findings of the correlational analysis showed that there is statistically significant relationship exist among posttraumatic growth treatment adherence and death anxiety in individuals with this cardiac condition. Moreover regression analysis showed that treatment adherence and death anxiety are the significant predictors of posttraumatic growth.*
Keywords; Post-traumatic growth, Treatment adherence, Death anxiety, Hierarchical Regression, Myocardial Infarction.

INTRODUCTION
Human beings are emotional in nature which affect their physiology that further influences their well-being subsequently. When they face a trauma in the form of heart attack early in their life it compels them to experience positive or negative change when they recovered. This situation leads the concept of posttraumatic growth which may be understood as an individual's capacity to extract positivity after having experience of a long time period in constant struggle to face traumatic event. Whereby the resultant change in the philosophy of life of the person let him or her not only achieve their previous milestones where they were earlier but beyond that to experience their hidden potential maximally in almost all spheres of life (Hosseini, Ghaemian, Mehdizadeh, & Ashraf, 2014). People change their perception, interpersonal relations even philosophy of life in this way. Those who experience such a nice transformation after trauma are now further strong than rest of people in recovering from chronic illness like cardiovascular diseases and vice versa (Norekval et al., 2008).

Posttraumatic growth can be defined as a person's experience of positive psychological change after having highly negative life event. These changes consist of increase in personal abilities, formation of close interpersonal relationships, appreciating one's life, revised preferences as well as adopting spiritual lifestyle respectively (Tedesechi & Calhoun, 1999). Post traumatic growth is surprisingly common that has been acknowledged scientifically after facing a series of trauma and challenging life circumstances (Ramos & Leal, 2013). Treatment adherence can be defined as individual's commitment

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to take prescribed medicine after diagnoses of any chronic illness. Patient's compliance to medicine is always considered an important factor of treatment plan by clinicians (Geest & Sabate, 2003). Death anxiety may describe as a psychiatric condition in which a person is more feared of his own death having reactions like apprehension of lest what happen if he or she dies all of a sudden. This thought pattern goes on almost all the times in their mind. That's the reason this sort of anxiety accelerates the realization of any risk whether it is something involves a daily routine it doesn't matter to them, but they thought that their life could have been ended due to that reason. This faulty perception further propels them to eventually avoid those activities essentially involved their fully function being. It affects compliance to medical advice that ultimately lowers the treatment outcome in patients with myocardial infarction (Christina & Christiane1996).

Literature looked into this medical phenomenon like myocardial infarction in relation to different psychological factors to know how they are related to each other. Researchers (Senol-Durak & Ayvasik, 2010) investigated factors related to posttraumatic growth among patients suffering from myocardial infarction patients. Sample size was consisting of 148 patients diagnose with myocardial infarction. Finding of the study revealed significant relationship of perceived social support with post traumatic growth. Moreover, there were significant relationship found between coping and post traumatic growth. Another study conducted regarding heart failure whereby intended to know that whether Medication Adherence serve the role of a Mediator between Ethnicity and Event-Free Survival of individuals suffering from heart attack. It was considered as longitudinal research whereby Medication Adherence Scale (MAS) was being taken to measure medication adherence. Series of regression model as well mediation analysis applied. The major finding of the investigation proved medication adherence as mediator between the links of predictor and outcome variable (Wu et al., 2010).Another study in which a group of researchers(Dias et al., 2014)conducted a research on 250 patients diagnosed with Ischemic heart disease. Questionnaire of adherence to treatment and beliefs about medication were used to collect data respectively. Findings of the enquiry showed that around half of the patients having no adherence to the treatments. Women were found in strong beliefs about having particular need for prescription of medication while male have strong beliefs about long term adverse effects of prescription of relevant medication.

Researchers (Sahan et al., 2017) concluded that patients diagnosed with acute myocardial infarction had many much more death anxiety as compared to those patients living their lives having been diagnosed with cancer or normal healthy people without any sort of medical ailment. Moreover, there is a cross sectional study in which face to face interviews were conducted. Sample size consists of 347 patients with ischemic heart disease. The results of the study shown merely 2% patients having good medication adherence while rest of the patients were in poor medication adherence(Nobre & Domingues, 2017).

Pakistan is one of the developing countries around the globe where people suffering from cardiac diseases in majority. Heart disease is on increasing rate since people have no knowledge initially that whether they are developing this serious medical condition which is chronic as well. Perhaps this is the reason that high blood pressure is known as silent killer over here in this country. It is estimated that Pakistan is one of the largest countries around the globe where people suffering from heart diseases maximally. In this context, cardiac patients appear to be facing a lot of psychological issues along with cardio pathology (Yohannes, Willgoss, Baldwin,& Connolly, 2010). Because of these psychological issues cardiac patients may have poor compliance to treatment, lesser post traumatic growth that results in death anxiety. According to WHO cardiac diseases are responsible 31% of death while having classified as the main cause of death around the globe. In the year of 2012 a big rate of mortality such as 17.5 million out of 56 million deaths reported due to heart disease (Lam et al., 2011).

Hence this study is an attempt to explore these psychological factors among cardiac patients as well as its findings will provide important information regarding the well-being of heart patients. Moreover finding of this study will help general practitioners (GP's), clinical psychologist, cardiologist and psychiatrics to rule out psychological issues associated with physiopathology and to develop expertise of psychotherapy and counseling in their general practice. It will help policy makers to make health related policies accordingly as well.

Objectives
Following are the main objectives of study

1. To evaluate the relation among posttraumatic growth, treatment adherence and death anxiety in individuals with Myocardial Infarction.
2. To highlight predictors of posttraumatic growth among individuals with Myocardial Infarction.
3. To determine the gender differences on posttraumatic growth, treatment adherence and death anxiety among individuals with Myocardial Infarction.
4. To evaluate the differences of socioeconomic status on posttraumatic growth, treatment adherence and death anxiety among individuals with Myocardial Infarction.

Hypotheses:
Following are the hypotheses of study:

1. There would be a significant relationship between posttraumatic growth, and treatment adherence in individuals with Myocardial Infarction.
2. There would be a significant relationship between posttraumatic growth, and death anxiety in individuals with Myocardial Infarction.
3. There would be a significant relationship between treatment adherence and death anxiety in individuals with Myocardial Infarction.
4. Post traumatic growth would significantly predicted by medication adherence and death anxiety among individuals with Myocardial Infarction.

METHODOLOGY
Participants
Sample size comprised of 500 (N=500) including men (n=250) and women (n=250) with Myocardial Infarction which selected from different public and private hospitals in Punjab. The sample selected through multistage sampling technique.
Inclusion criteria

- All patients who suffered myocardial infarction were included.
- Age range of patients will be 35 to 65 years.
- Both genders were included in equal proportion
- Patients experienced heart attack at least once a time in their past, were included.

Exclusion criteria
- Patients behind or beyond prescribed age range were excluded.
- Patients other than Myocardial Infarction were excluded.

Research Design:
Research design is a step-by-step guideline how to conduct a study. In the present research the aim is to find out relationship among variables. So, the current study is a correlational study in which cross-sectional research design will be used.
Operational Definition
Posttraumatic growth:
Posttraumatic growth would be the individuals' scores on posttraumatic growth inventory (Tedesechi & Calhoun, 1999).
Treatment Adherence
Treatment adherence refers to the individuals' score on General Medication adherence Scale (GMAS) (Naqvi et al, 2020).
Death anxiety
Death anxiety refers to the individuals' score on Death Anxiety Scale (DAS). (Donald, I. Templer 1970).
Tools for data collection
Following are the instruments that were administered in this study:
Posttraumatic Growth Inventory (PTGI).
Tedeschi and Calhoun (1996) originally developed this inventory which involved 21-items. To administer it participants are being asked by the researcher to respond on a 6-point Likert scale where 0 taken as no change while 5 if selected by the participant meant that a big transaction of change. It ranges from 0 to 105. The greater the scores higher would be the level of PTG which means that person

experienced positive changes in response to the major stressors he or she encountered with. There are three subscales named as: 1. "changes in the relationship with others" 2. Is "changes in the philosophy of life" as well as 3. which is "changes in self-perception" (Tedeschi, Park & Calhoun 1998). There are five constructs that were known to be contributed to this phenomenon of interest: first is New Possibilities, second is Relating to Others, third is Personal Strength, while fourth is Spiritual Change, as well as fifth is Appreciation for Life. Factor analysis used to extract them statistically. It has shown a strong internal consistency as mentioned here such as ($\alpha = .90$).

The General Medication Adherence Scale (GMAS)

This scale is to measure treatment adherence. It has 11-items. This self-reporting research tool further divided into three different dimensions. These three dimensions described as non-adherence due to patient's behavior that behavior could be un-intentional as well as intentional. Next dimension is referred to non-adherence due to additional disease and pill burden. Last dimension is known as non-adherence due to financial constraints. Cumulative grading for overall medication adherence has five categories. If a participant has score ranges from 30-33 its mean he or she has high adherence. In second category if a participant has score ranges from 27-29 its mean he or she has good adherence. In third category if a participant has score ranges 17-26 its mean he or she has partial adherence. Low adherence means the participant's score ranges from 11-16. In the final category those participant lies that have score ranges from 0-10 which showed the poor medication adherence. In the same way the cumulative grading for overall medication adherence can also be categorized into dichotomous that is adherent and non-adherent. If the score of a participant is 27 or above than this participant is labeled as medically adherent to treatment while on the other hand participant who have score less than 26 is labeled as non-medically adherent to treatment. The value of Cronbach's alpha is 0.77 while this scale secured good internal consistency reliability such as $\alpha = 0.75$. Moreover, this research tool predicts target behavior (non-adherence) maximally (Naqvi et al., 2020).

Death Anxiety Scale

Donald I. Templer (1970) originally developed this research tool. It is 15 items scale that uses format of likert type for rating the responses of the research participants. It records the responses from strongly disagree = 1, neutral = 3 and strongly agree = 5 respectively. It provides ranges of scoring from 15-75. Here the range of 15-35 indicates lower DA, 36-55 reflects moderate level of DA as well as the range of 56-75 tells high level of DA. So, if a person secured high score on this scale that's means he or she has high level of related anxiety. Urdu version of this scale has Alpha reliability .88 that indicates internal consistencies as high as needed to use it(Saleem, Gul & Saleem, 2015).

Procedure & Ethical Considerations

The present study is a part of a doctoral thesis that was approved from the Board of Studies of the Department and Institutional Review Board of the University. Firstly, the topic, variables, scales, and population finalized with the discussion of supervisor. Secondly the participants asked to participate in research voluntarily. The objective and the nature of the study discussed and shared with the respondents and by taking their informed consent all scales along with demographic sheets were given to the participants and requested them to fill. All information of participants was kept confidential. Any participant if intended to leave the study at any stage was allowed to quit. No physical or psychological harm inflicted to the participants. The researcher answered all queries and questions that asked by the participants. The participants had also been debriefed about the true nature and findings of the study. Formal permission from the head of the cardiology department had been taken to collect data. Urdu versions of above-mentioned scales given to the participants for data collection. In the end of the research, the researcher thanked and acknowledged the valuable participation of the participants.

Proposed Statistical Analysis

Data of the present study entered in Statistical Package for Social Sciences for related statistical analysis. Pearson Product Moment Correlation used to see the relationship among variables of interest. Multiple regression is used to see the prediction of post traumatic growth.

RESULTS

In this section the results are mentioned.

Before checking and finding the results of hypotheses descriptive statistics of the scales are mentioned here.

Table No. 1

Scale	M	SD	K	N	α
PTG	73.2	11.6	.34	500	.89
GMAS	25.6	5.4	.83	500	.91
DAS	39.8	11.6	.47	500	.94

Note; M= Mean, SD= Standard deviation, K= Kurtosis, N= number of participants, Alpha= reliability coefficient

The above table showed the mean, standard deviation, kurtosis number of participants and reliability coefficient.

Table No. 2

Inter-correlation between post traumatic growth, medical adherence and death anxiety scale

Variables	1	2	3
PTG	1		
GMAS	.105*	1	
DAS	-.183**	-.200**	1

Note: * $P<.05$; ** $P<.01$

The above table showed the relationship between variables of interest. The table showed that there is significant positive relation between post traumatic growth and medical adherence which means that higher the medical adherence higher will be the post traumatic growth and vice versa. Moreover, the same table showed that there is significant negative relation between post traumatic growth and death anxiety its mean that higher the medical adherence lower will be the death anxiety. Finally the same table showed that death anxiety is negatively associated with post traumatic growth.

Table No. 3

Multiple Hierarchical regression of medication adherence and death anxiety as predictor of post traumatic growth

Predictors	B	SE	B	T	R^2	$\Delta R2$
Step-1						
Constant	84.6	11.18	-.15	14.3	.077	.093
Step 2						
GMAS	.193	0.09	0.09*	2.04	.138	.064
DAS	-.253	0.04	-0.25**	-5.34		

Note: Step 1: $F(df) = 5.605(9, 499)$, $p<.05$: Step 2: $F(df) = 8.260 (11, 499)$, $p<.01$

The above table showed the predictors of post traumatic growth. The above table showed two models both are significant. General medication adherence predicted 10 percent post-traumatic growth. In the same way death anxiety predicted 25 percent post-traumatic growth.

DISCUSSION

The present study was conducted to see the relationship among posttraumatic growth, treatment adherence and death anxiety in patients of myocardial infarction. It was quantitative study in which cross sectional research design was used. The total number of participants in the current study was 500 which further divided into males and females. The sample selected through multistage sampling technique. The variables of interest assessed by using the Posttraumatic Growth Inventory (Tedesechi & Calhoun, 2014), The General Medication Adherence Scale (Naqvi et al, 2020), and Death Anxiety Scale (DAS) (Donald & Templer 1970). In statistical section, Pearson Product Moment Correlation as well as Multiple Regression analysis used to measure relation and prediction respectively. The result of Pearson product moment correlation showed that there is significant positive relation between post traumatic growth and treatment adherence which means that higher the medication adherence higher will be the post traumatic growth and vice versa. Moreover, the same table showed that there is significant negative relation between post traumatic growth and death anxiety its mean that higher the medication adherence lower will be the death anxiety. Finally, the same table showed that death anxiety is negatively associated with post traumatic growth which means that higher the post-traumatic growth lower will be the death anxiety and vice versa. The result of multiple regression showed that treatment adherence predicted 10 percent post-traumatic growth. In the same way death anxiety predicted 25

percent post-traumatic growth. In this section the results are discussed under the light of previous researches.

The first hypothesis of the current study was that there would be a significant relationship among posttraumatic growth, and treatment adherence in individuals with Myocardial Infarction. To check this hypothesis Pearson product moment correlation was used. The result showed that there is significant positive relation between post traumatic growth and treatment adherence in individuals with myocardial infarction which showed that higher the medication adherence higher will be the traumatic growth in the same way lower the medication adherence lower will be the traumatic growth. There are different researches that produced the same result some of them are discussed here. Wu et al (2010) also concluded the same result that both variables (post-traumatic growth and medication adherence) are positively correlated with each other. Similar result also showed DiMatteo and others (2002) that there is positive significant relation between post-traumatic growth and medication adherence. Same findings as here in this analysis expressed other researchers (Senol-Durak,& Ayvasik, 2010).

The second hypothesis of the current study was that there would be a significant relationship among posttraumatic growth, and death anxiety in individuals with Myocardial Infarction. To check this hypothesis Pearson product moment correlation was used. The result showed that there is significant negative relation between post traumatic growth and death anxiety in individuals with myocardial infarction which showed that higher the post-traumatic growth lower will be the death anxiety in the same way lower the post-traumatic growth lower will be the death anxiety. There are different researches that produced the same result some of them are discussed here. Bluvstein et al., (2013) also found the same result that there is significant negative relation between post-traumatic growth and death anxiety. Senol-Durak and Ayvasik (2010) also shared the same result that there is significant negative relation between post-traumatic growth and death anxiety. Similar findings showed other researchers (Sahan et al., 2017).

The third hypothesis of the current study was that there would be a significant relationship among treatment adherence and death anxiety in individuals with Myocardial Infarction. To check this hypothesis Pearson product moment correlation was used. The result showed that there is significant negative relation between treatment adherence and death anxiety in individuals with myocardial infarction which showed that higher the medication adherence lower will be the death anxiety in the same way lower the treatment adherence lower will be the death anxiety. There are different researches that produced the same result some of them are discussed here. DiMatteo and colleagues (2002) said that there is negative significant relation between treatment adherence and death anxiety. In the same way Taylor and others, (2000) also shared the same result that there is significant negative relation between treatment adherence and death anxiety. Other researches supports this finding as well (Sahan et al., 2017).

The final hypothesis of the current study was that post traumatic growth would significantly predicted by treatment adherence and death anxiety among individuals with Myocardial Infarction. To check this hypothesis multiple regression analysis was used. The result showed that treatment adherence predicted 10 percent post-traumatic growth. In the same way death anxiety predicted 25 percent post-traumatic growth. There are different researches that produced the same result some of them are discussed here. Wu et al (2010) also concluded the same result that death anxiety and treatment adherence are significant predictors of post-traumatic growth. In the same way Dias et al (2014) also produced the same result that death anxiety and treatment adherence are the significant predictor of post traumatic growth. Moreover, Qiu et al (2019) also reported the same result that death anxiety is a significant negative predictor of post traumatic growth. Other researches goes parallel to the same findings as well (gholafshani et al., 2021).

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