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Perceived Stress and Coping Strategies among Patients with Myocardial Infarction at a Tertiary care Hospital

Manveer Kaur*, Suresh Chand Gocher, Rohit Yadav, Sumeet Kaur Madaan, Chanendra Sablania

Department of Psychiatry, RNT Medical College and M.B. Hospital, Udaipur, Rajasthan, India.

Abstract

Background: Stressful life events have strong etiological significance in myocardial infarction (MI). However, perceived stress and coping strategies in MI patients are not fully elucidated. We assessed perceived stress and coping strategies in MI patients.

Methods: This cross-sectional study from June 2023 to June 2024 included 156 MI patients. Data on psychosocial stressors, perceived stress, and coping strategies were collected using structured questionnaires: Presumptive stressful life events scale (PSLES), perceived stress scale (PSS), and proactive coping inventory (PCI). Statistical analyses assessed the relationship between perceived stress and coping strategies.

Results: Most patients (69%) were over 45 years old, predominantly male (85%), and from rural areas (53%). High levels of perceived stress were reported in 44% of patients. The most common psychosocial stressors were financial, marital, and workplace issues. Coping strategies varied significantly, with those having higher mean scores on instrumental support-seeking, emotional support-seeking, and avoidance strategies showing significantly higher perceived stress (p <0.001).

Conclusion: Psychosocial stressors and perceived stress are important etiological factors of MI, and the type of coping strategy employed plays a crucial role. Proactive, reflective, strategic and preventive coping strategies aid in reducing stress levels and improving patient outcomes. This study highlights the need to educate individuals on effective coping strategies to improve stress management.

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***Correspondence:**
Manveer Kaur
manveershergill007@gmail.com
Department of Psychiatry, RNT Medical College and M.B. Hospital, Udaipur, Rajasthan, India.

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Introduction

The concept of stress, although popularized in the 1970s, has roots in scientific literature since the 1930s. Stress can be defined as a process in which individuals perceive and respond to events appraised as overwhelming or threatening to their well-being. Stressors can be chronic or acute, including traumatic experiences, major life changes, and daily irritations.[1]

With the turn of the century, cardiovascular diseases (CVDs) have become the leading cause of mortality in India, with the most common form being myo-

cardial infarction (MI). Indians were affected by CVDs at least a decade earlier than people of European ancestry. The burden of CVD in India is substantial, with higher age-standardized death rates compared to the global average.[2] Key risk factors for MI include dyslipidemia, smoking, alcohol consumption, hypertension, diabetes, obesity, physical inactivity, diet, and psychosocial stress.[3]

Psychological stress impacts MI through behavioral changes, such as increased smoking and reduced exercise, and physiological responses, including activation of the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic-adrenal-medullary (SAM) system.[4]

Perceived stress is the subjective experience of stress that varies greatly among individuals. It encompasses feelings of being overwhelmed, anxious, and unable to cope with the demands of one's life. In the context of MI, perceived stress can significantly affect recovery and rehabilitation. High levels of perceived stress have been linked to poorer health outcomes, including slower recovery, increased risk of subsequent cardiac events, and reduced adherence to medical regimens.[5] Understanding the sources and levels of perceived stress in patients with MI is essential to developing effective support and intervention strategies.

Coping strategies are the methods that individuals use to manage and mitigate the effects of stress. According to Folkman and Lazarus, coping can be defined as 'the combined cognitive and behavioral efforts individuals make to handle, endure, or alleviate external and internal demands and conflicts'.[6] Coping can be categorized into proactive, reflective, preventive, and supportive approaches.[7] Thus it is important to assess an individual's coping strategies and enable them to bring into practice more effective and adequate coping strategies so as to mitigate the effect of stress to reduce the occurrence as well as reoccurrence of MI.

The relationship between stress and MI underscores the need for adequate stress management coping strategies. This study aimed to assess psychosocial stressors and coping strategies in MI patients in southern Rajasthan, bridging the gap in existing research and providing insights into the prevention and management of MI.

Material And Methodology

Study Design

The present cross-sectional study was conducted in a tertiary care hospital after the approval from the institutional ethics committee (Reference number RNT/ACAD./IEC/2023/585), between June 2023 and June 2024. To fulfill the objectives of the present study, we recruited patients of MI by purposive sampling technique from the Department of Cardiology. Diagnosis of MI was made based on World Health Organisation (WHO) criteria and confirmed by the consultant cardiologist. The following criteria were used for the further recruitment of patients in the study:

Inclusion Criteria

- Participant willing to give informed consent.
- Age 25 to 65 years.
- Diagnosed as MI according to WHO criteria by the cardiologist.
- Patients are able to read and understand the Hindi/English language.

Exclusion Criteria

- Patients who have unstable vitals and are uncooperative for evaluation.
- History of psychiatric disorders over the last six months.

Procedure

Patients with MI were diagnosed according to the WHO criteria and confirmed by a consultant cardiologist. After the initiation of treatment and stabilization of vitals, patients were recruited for the study according to the inclusion and exclusion criteria. The purpose of the study was explained to the patients and informed consent was obtained. All patients were assessed according to a self-designed proforma to collect sociodemographic details. Socioeconomic status was assessed using the modified Kuppuswamy scale. The study participants were evaluated for psychosocial stressors over the course of the previous six months using the presumptive stressful life event scale (PSLES). Additionally, the

perceived stress experienced within the last month was measured using the perceived stress scale (PSS-10). To further understand the coping mechanisms, the proactive coping inventory (PCI) was administered to all participants.

Assessment Tools

Self-designed performance

A self-designed prototype was prepared for this study. The proforma included:

Sociodemographic data included age, sex, religion, education, marital status, occupation, place of residence, type of family, past history, and family history of any psychiatric disorder, past history, and family history of MI.

Presumptive stressful life events scale (PSLES)[8]

The PSLES is in the form of semi-structured interviews. It covers 51 defined life events and is scored 0 or 1 for the absence or presence of particular life events, respectively. PSLES has been well-standardized in the Indian population. It has been well validated in India, with a reliability of 0.80

Perceived stress scale (PSS)[9] The The. The PSS was developed by Cohen *et al.* PSS measures the degree to which an individual perceives a particular situation in the previous month as stressful. There are various versions of the PSS (PSS-4, PSS-10, and PSS-14). In our study, we used the ten items (PSS-10). The Hindi version of PSS-10 is also available. PSS-10 classifies participants into low stress (0–13), moderate stress (14–26) and high stress (27–40).

Proactive coping inventory (PCI)[7]

Coping is multidimensional and occurs at several levels, including attitudinal, cognitive-reflective, emotional, and behavioral. The PCI was developed to assess the various aspects of coping proactively and consists of 55 items. Psychometrically, the PCI yielded seven subscales (proactive coping, preventive coping, reflective coping, strategic planning, instrumental support seeking, emotional support seeking, and avoidance coping) with good construct validity, homogeneity, and acceptable reliability.

Statistical Analysis

The data obtained were entered into Microsoft Excel for Windows and analyzed using IBM SPSS version 23. Categorical variables were expressed as percentages and continuous variables were expressed as mean (± standard deviation). Statistical significance was set at $p < 0.05$. ANOVA, chi-square test, unpaired t-test, and Pearson's correlation coefficient were used according to the data distribution.

Results And Observations

The study involved 156 MI patients, with a significant portion (69%) being over 45 years of age. Males constituted 85% of the participants, reflecting a higher prevalence of MI among men. The majority of patients were married (88%) and residing in a nuclear family (45%).

Table 1 shows the socio-demographic profile and clinical profile of MI patients in two age groups (<45 and >45 years). Most of the socio-demographic variables were similar for both age groups and thus comparison between the two groups was found to be statistically insignificant except for education ($p = 0.002$) and past history of MI ($p = 0.001$)

Table 2 shows psychosocial stressor was reported by 87% of patients. 41% of patients reported two stressors followed by one stressor in 33% and three or more stressors in 13%. The majority of participants (44%) experienced a high level of perceived stress followed by a moderate stress level (32%). A similar trend was followed in both age groups.

Figure 1 shows that the most common type of stressor identified was financial loss or problems followed by marital conflict and trouble at work with colleagues, superiors, or subordinates

Figure 2 shows that those who reported no stressors experienced low perceived stress and as the number of stressors increases the level of perceived stress also increases. This finding was statistically significant with *p-value* = 0.000.

Figure 3 shows that there is a decreasing trend in mean scores of proactive, reflective, preventive and strategic coping as the level of perceived stress increases from low to high. Conversely, there is an increase in the mean score of instrumental support

Table 1: Comparison of socio-demographic profile between young and elderly population

	<45 Years (n = 48) (n%)	*>45 Years (n = 108) (n%)*	*Total (n = 156) (n%)*	*p-value*
Gender				
Male	43 (90)	89 (82)	132 (85)	0.252
Female	05 (10)	19 (18)	24 (15)	
Educational distribution				
Primary	3 (6)	32 (30)	35 (22.4)	0.002
Middle	11 (23)	28 (26)	39 (25)	
High School	16 (34)	25 (23)	41 (26.3)	
Diploma	4 (8)	13 (12)	17 (10.9)	
Graduate	14 (29)	10 (9)	24 (15.4)	
Marital status				
Single	1 (2)	1 (1)	2 (1.28)	0.130
Married	45 (94)	93 (86)	138 (88.46)	
Divorced/Separated	2 (4)	3 (3)	5 (3.20)	
Widowed	0	11 (10)	11 (7.05)	
Type of family				
Nuclear	35 (73)	36 (33)	71 (45)	0.114
Joint	8 (17)	31 (29)	39 (25)	
Extended	5 (10)	41 (38)	46 (29)	
Past history of MI				
Present	2 (4.2)	28 (26)	30 (19)	0.001
Absent	46 (95.8)	80 (74)	126 (81)	
Family history of MI				
Present	6 (12.5)	12 (11)	18 (11.5)	0.802
Absent	42 (87.5)	96 (89)	138 (88.5)	
Substance use				
None	22 (45.8)	32 (29.5)	54 (34.6)	0.254
Smoking	13 (27.1)	48 (44.5)	61 (39.1)	
Alcohol	5 (10.4)	10 (9.3)	15 (9.6)	
Smoking & alcohol	8 (16.7)	18 (16.7)	26 (16.7)	

seeking, emotional support seeking and avoidance coping skills as the level of perceived stress increases. This finding was statistically significant with p <0.001

Figure 4 shows that there is a decreasing trend in mean scores of proactive, reflective, preventive, and strategic coping as the number of stressors increases. Conversely, there is an increase in the mean score of instrumental support seeking, emotional support seeking and avoidance coping skills as the number of stressors increases. This finding was statistically significant with p <0.001.

Table 2: Distribution according to perceived stress and number of psychosocial stressors between young and elder population

	<45 Years (n = 48) (n%)	*>45 Years (n = 108) (n%)*	*Total (n = 156) (n%)*	*p-value*
Number of stressful life events in past 6 months				
0 Stressor	4 (8.3)	16 (14.8)	20 (13)	0.273
1 Stressor	14 (29.2)	37 (34.3)	51 (33)	
2 Stressors	25 (52.1)	39 (36.1)	64 (41)	
3 or more stressors	5 (10.4)	16 (14.8)	21 (13)	
Perceived stress				
Low	7 (14.6)	30 (27.8)	37 (24)	0.201
Moderate	17 (35.4)	33 (35.4)	50 (32)	
High	24 (50)	45 (41.6)	69 (44)	

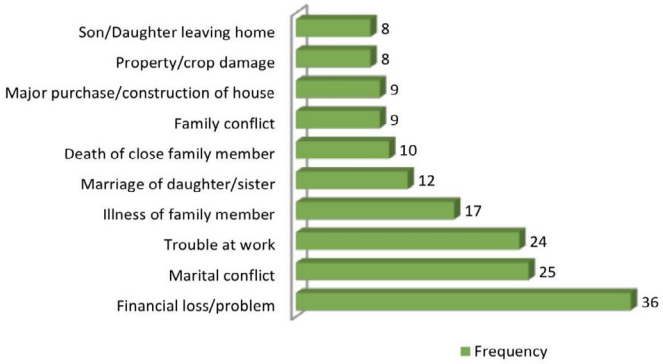
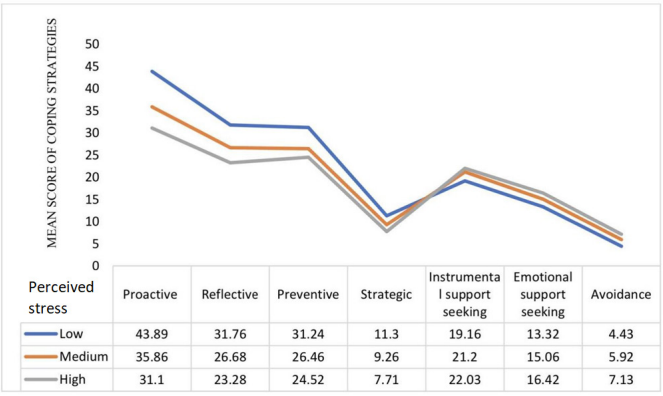


Figure 1: Type of psychosocial stressors among MI patients



Perceived stress	Proactive	Reflective	Preventive	Strategic	Instrumental support seeking	Emotional support seeking	Avoidance
Low	43.89	31.76	31.24	11.3	19.16	13.32	4.43
Medium	35.86	26.68	26.46	9.26	21.2	15.06	5.92
High	31.1	23.28	24.52	7.71	22.03	16.42	7.13

Figure 3: Comparison between mean score of coping strategies and perceived stress

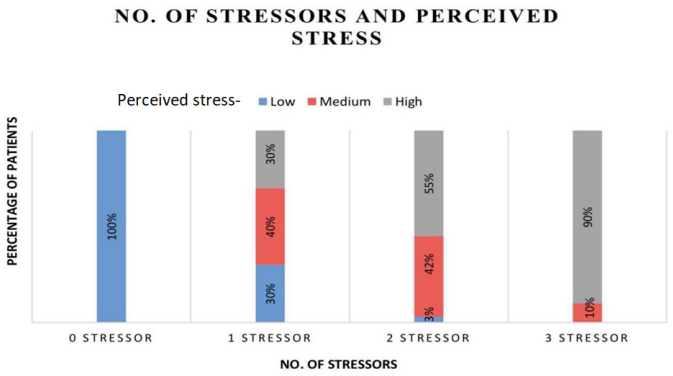


Figure 2: Comparison of perceived stress with the number of stressors

Discussion

The findings of this study highlight the significant role of psychosocial stressors in the onset and progression of MI. Financial difficulties, marital conflicts, and workplace troubles were the most common stressors among patients with MI. These stressors contribute to high levels of perceived stress, which in turn affects patients' overall health and recovery outcomes. The primary stressor identified by Suresh *et al.,* was determined to be the same as in our study, namely financial difficulties. However, Suresh KK *et al.,* observed that the second and third most common stressors were family conflicts and significant illness within the family.[10]

The majority (54%) of the patients had experienced two or more psychosocial stressors within the past six months. These finding also aligns with a study conducted by Suresh *et al.,* who observed that 64% of patients had two or more stressors.[10]

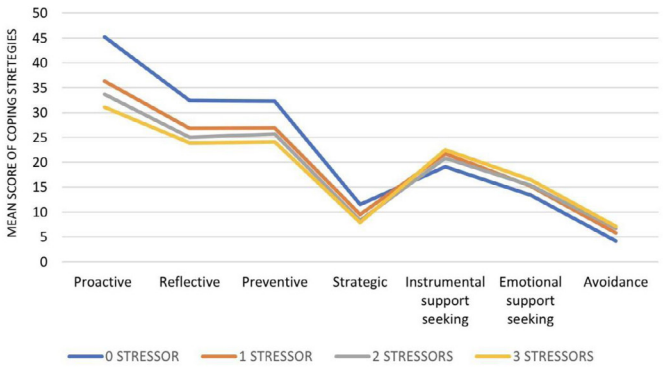


Figure 4: Comparison between mean score of coping strategies and number of stressors

Most patients (44%) experienced high levels of stress in the last month. Our findings were supported by the study conducted by Gupta *et al.,* where a majority of patients with MI had either severe (52.9%) or moderate stress (38.4%).[11] This is in contrast with the results of a study by Narang *et al.,* where the majority reported no stress (50%) followed by moderate stress in 24%.[12]

Those who reported no stressors experienced low perceived stress, and as the number of stressors increased, the level of perceived stress also increased.

Effective coping strategies play a crucial role in managing stress and improving the health outcomes of patients with MI. Proactive coping, reflective coping, preventive coping, and strategic planning were associated with lower stress levels, indicating their effectiveness in managing the psychological burden of MI. On the other hand, reliance on instrumental support seeking, emotional support seeking, and avoidance coping were linked to higher stress levels, suggesting that these strategies might be less effective in mitigating stress.

These findings aligned with a study conducted by Kumanova *et al.* and were also consistent with the study by Bafghi *et al.* where the majority (60.2%) of patients who had used an emotion-focused coping strategy suffered from very high levels of stress.[13,14]

However, above mentioned findings were inconsistent with a study by Chang *et al.,* where MI patients used problem-focused more than emotion-focused type of coping.[15]

As anticipated, patients who employed proactive coping mechanisms experienced less distress. Therefore, individuals who incorporate planning, goal-setting, organization, and mental simulation into their coping strategies are less likely to experience various symptoms of distress.

This correlation does not imply that proactive individuals encounter fewer stressful situations; rather, it suggests that proactive individuals perceive their stress as more of a challenge and less as a threat or loss in comparison to reactive individuals.

The results of the present study may not be generalizable to larger groups as the sample size was small. The cross-sectional study design limits comments on the cause-and-effect relationships. We must consider possible random misclassification, as coping is a dynamic variable, but here it was estimated at only one point. The PSS tool has a recall period of one month, so it is likely that their responses were inadvertently influenced by the occurrence of MI.

Conclusion

This study underscores the critical importance of addressing psychosocial stressors and promoting effective coping strategies in patients with myocardial infarction. Healthcare providers can develop targeted interventions to reduce stress and improve patient outcomes by understanding the specific stressors and coping mechanisms employed by patients with MI. Integrating psychological support into the standard care for MI patients can lead to better management of both the physical and psychological aspects of the disease, ultimately enhancing the quality of life and reducing the risk of recurrent cardiac events.

Conflict Of Interest

None.

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