

Coping Strategies Adopted by Motor Vehicle Accident Survivors from a Hilly State of North India

Deeksha Arora¹, Xavier C. Belsiyal¹  and Vikram Singh Rawat²

ABSTRACT

Background: Dealing with trauma has always been challenging for people from all walks of life. Moreover, traumas like Motor Vehicle Accidents (MVA) are sudden and can be life-threatening, which further raises the concern and thus requires healthy adaptation. Considering the lack of data on the coping strategies of accident survivors in India, this study was undertaken to assess the coping strategies adopted by MVA survivors.

Methods: Cross-sectional survey was conducted at tertiary care institution in Uttarakhand (India) during 2019–2020. A total of 250 MVA survivors were selected through total enumerative sampling and assessed for posttraumatic stress disorder (Posttraumatic Stress Disorder Checklist (PCL)-5), depression (Zung self-rating depression scale), and coping strategies (Brief COPE questionnaire).

Results: The mean score was highest for emotion-focused coping mechanism (32.84 ± 5.18) and lower for dysfunctional (26.18 ± 10.59) and problem-focused (18.47 ± 3.12) coping mechanisms. Religion (96.87%) and emotional support (87.25%)

were among the frequently adopted coping styles, whereas denial and self-blame were the least adopted. A high correlation was found between depression and the three coping mechanisms ($r = 0.83$ [emotion-focused coping], 0.68 [problem-focused coping], 0.62 [dysfunctional coping]). Among the participants, 133 crossed the threshold for PTSD and/or depression.

Conclusions: A commonly adopted coping strategy among MVA survivors is emotion-focused coping mechanism. Religion and emotional support are most prevalent because of family dynamics prevalent in countries like India.

Keywords: Coping, adaptive, collision, posttraumatic stress disorder, depression, motor vehicle accident survivors

Key Messages: The study assessed the coping mechanism frequently adopted by survivors of a motor vehicle accident. An emotion-focused coping mechanism is commonly adopted by survivors who have PTSD and/or depression. All three domains of coping were found to be strongly correlated with depression.

Motor vehicle accidents (MVA) affect the lives of an individual in many domains, including physical, social, spiritual, and psychological, leading to social isolation and reactions like fear toward vehicles.¹ Escape and avoidance are often used as coping mechanisms in stressful situations, but they are not effective in the long run.² Any difficult situation needs to be dealt with with perseverance. Thus, stress and sadness that occur after traumatic events must be coped with effectively. Coping has been viewed as a buffer that may assist an individual in psychosocial adaptation during traumatic events. Coping mechanisms are “direct, active tendencies aimed at eliminating a stressful event.”³ Different individuals may use various coping strategies, and adoption of a coping style may depend on the individual’s background, personality, preference, and social status.⁴

Nonacceptance of disease and consideration of it to be uncontrollable have been linked to frequent use of emotion-focused coping, whereas

¹Dept. of Psychiatric Nursing, College of Nursing, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India. ²Dept. of Psychiatry, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.

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Address for correspondence: Xavier C. Belsiyal, Dept. of Psychiatric Nursing, College of Nursing, AIIMS, Rishikesh, Uttarakhand 249203, India. E-mail: xavier.nur@aiimsrishikesh.edu.in

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acceptance of the disease and the ability to control it lead to more active and problem-related coping, as per a global assessment of 205 chronic patients. Problem-focused, active coping, changing the individual's perception of a situation, is frequently used as concrete coping mechanisms after road traffic accidents.⁵ As per various studies, people who met with a traumatic event at some point of time in their life did not need any intervention to overcome the stress caused by the trauma. However, many people face immense difficulty adapting to the circumstances, including psychological, social, physical, legal, and financial challenges.⁶⁻⁸

Although there is high burden of MVA and even higher paucity of psychological treatment, the literature on the prevalence of coping strategies adopted by survivors of MVA, especially in developing countries, is still insufficient. Moreover, increased industrialization and motorization in developing countries like India require further research to assess the psychological consequence of MVA. The roads and infrastructure are constantly being upgraded with improved highways, for managing increasing vehicular traffic from other states. Uttarakhand, being a hilly terrain, has MVA compounded by the effects of vehicles slipping and falling from heights. Seeking help following MVA can be difficult in times of disruption of road connectivity due to landslides, cloudbursts, and incessant rains. These factors can contribute to more severe trauma, physical and, possibly, psychosocial. The present study will add to the existing literature and also assist in spreading awareness about the healthy coping mechanisms among the general population, which will further reduce the psychiatry comorbidity among survivors of MVA. Hence, we assessed the prevalence of various coping strategies and screened the survivors for any depressive and PTSD symptoms.

Materials and Methods

A cross-sectional study was conducted at a tertiary care institute in India from 1st September 2019 to 31st May 2020. All the MVA survivors visiting the tertiary care institution in Uttarakhand were asked to fill the screening measures of PTSD and depression. After that, the prevalence of

coping strategies among MVA survivors who have PTSD and/or depression was studied. The Institutional Ethics Committee granted ethical clearance.

Sample Size and Sampling

Total enumerative sampling was adopted to select the participants. A total of 380 consecutive MVA survivors were identified, of which 250 were assessed with the study tools. The study population consisted of patients visiting various departments of the tertiary care center, aged between 19 and 65 years, who had survived an MVA 1-12 months before data collection. Patients with a history of mental illness, with any intellectual disability/delirium sequelae of head injury, or admitted in critical units with significant medical/surgical comorbidity were excluded.

To recruit participants, screening instruments for PTSD and depression were applied. The participants who crossed the screening threshold for PTSD and/or depression, filled out the Brief-COPE questionnaire (**Figure 1**).

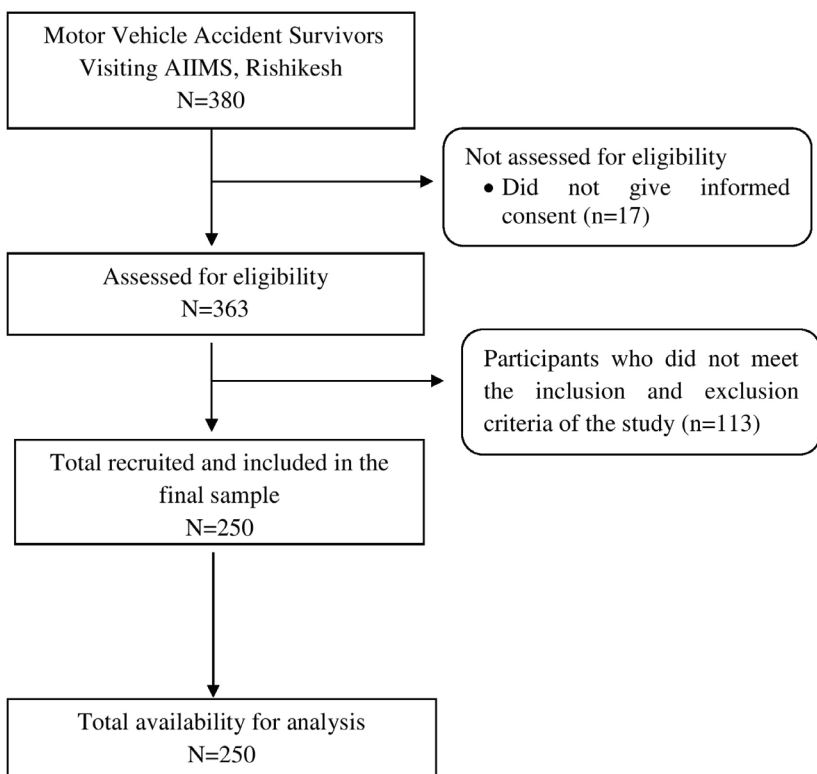
Questionnaires

Initially, informed consent was received from the participants. After assessing and qualifying for eligibility, screening instruments, namely the Posttraumatic Stress Disorder Checklist (PCL-5 Checklist)⁹ and Zung self-rating depression scale,¹⁰ were handed over, with an explanation if required. Screening questionnaires were rated as per standardized scoring, and those who crossed the threshold were then introduced to the Brief-COPE instrument. Psychometric properties were assessed for all the tools used in the study. PCL-5 Checklist, Zung Self-Rating Depression Scale, and Brief-COPE questionnaire were translated to the local language (Hindi) and back-translated by another independent translator. Following this, they were validated by experts and found to have high reliability of 0.75, 0.70, and 0.72, respectively, using the split-half method for internal consistency.

Other data were collected via an interviewer-administered questionnaire, which contained two main sections. These were the sociodemographic

FIGURE 1.

STROBE Sampling Flow Chart.



details (sociodemographic, accident, and clinical profiles), and the prevalence of coping strategies.

A validated version of the Brief-COPE questionnaire¹¹ was used to measure effective and ineffective ways to cope with a stressful event and ascertain how patients respond to a serious event. It was developed as a short version of the original 60-item COPE scale; the shorter version includes 28 items. The scale is divided into two comprehensive coping styles: adaptive and maladaptive coping. Out of the three domains of the scale, the problem-based and emotion-focused domains belong to adaptive coping, whereas the dysfunctional domain falls under the maladaptive coping style. The 28 items of the scale are divided into 14 subscales comprising two questions each. The reliability of Brief-COPE was calculated by the split-half method for internal consistency and found to be 0.72.

Problem-focused coping is represented by the subscales of active coping, instrumental support, and planning. The emotion-focused coping domain includes subscales of emotional support, positive refraining, acceptance, humor, and religion. The dysfunctional coping domain is represented by subscales of substance abuse, behavioural disengagement, venting, self-distraction, denial, and self-blame. Each item is scored on a scale of 1–4 as “I have not been doing this at all” (1), “a little bit” (2), “a medium amount” (3), and “I have been doing this a lot” (4) (Table 1).

Analysis

Data were coded and then entered into Excel sheets, and Statistical Product and Service Solutions (SPSS) version

23.0 developed by International Business Machines Corporation (IBM) was used for statistical analysis. Sociodemographic, accident-related, and clinical profiles were assessed using frequency distributions. Coping scores were non-normally distributed and prevalence of coping was presented with a 95% confidence interval. Pearson's correlation coefficient was calculated to assess the relationship between PTSD, depression, and coping using statistical significance at $P < 0.05$.

Results

Sociodemographic Characteristics

A total of 380 consecutive MVA survivors were identified, of which 17 declined consent and 113 did not meet the study criteria. Thus, 250 survivors were assessed with the study tools. A total of 133 participants crossed the screening threshold for PTSD and/or depression, as represented in the STROBE flowchart (Figure 1). Their mean \pm SD age was 39.14 ± 12.11 years. There was a clear preponderance of males (77.2%). The majority were married (78.8%) and belonged to the Hindu religion (83.6%). The demographic, accident, and clinical profiles are shown in Table 2.

Prevalence of Coping Strategies

Domain-wise mean and mean percentage scores of coping strategies showed that emotion-focused coping was most commonly adopted, with a mean score of

32.84 ± 05.18 ; 82.10%, followed by problem-focused coping (18.47 ± 3.12 ; 76.95%). Dysfunctional coping was adopted by a lesser number of participants (26.18 ± 10.59 ; 65.45%) (Table 3). Prevalence of coping was presented with a 95% confidence interval.

Among the coping styles, religion (7.75 ± 0.74) and emotional support (6.98 ± 1.33) were the maximally adopted styles (Figure 2). They were followed by acceptance, active coping, and instrumental support. Behavioural disengagement (03.05 ± 1.45), denial (2.82 ± 1.2), and self-blame (2.52 ± 0.91) were amongst the least adopted coping styles.

Comorbid depression and PTSD were present in 20 subjects (8%). The coping styles were not significantly different in the comorbid group compared to those without comorbidity.

Correlation between PTSD, Depression, and Coping

Although emotion-focused and problem-focused coping mechanisms did not correlate with severity of PTSD, dysfunctional coping correlated with PTSD ($r = 0.33$). All three domains of coping strongly correlated with severity of depression (Table 4).

Discussion

In the present study, coping strategies were divided into three domains: problem-focused, emotion-focused, and dysfunctional. Emotion-focused coping was the most commonly adopted, followed by problem-focused and dysfunctional coping. On the contrary, the literature showed problem-focused coping as the most adaptive strategy, followed by social seeking support.^{5 12} Emotion coping strategies are found to be quickly adopted by the victims as it focuses on dealing with the emotional reactions/responses of the problem rather than dealing with the actual cause of the stressor. Some commonly used emotion-focused strategies could be availing emotional support and positive reframing of the situation.¹³

The current study revealed that religion, emotional support, and acceptance were among the top three coping styles, whereas substance use, behavioural disengagement, denial, and self-blame were the least adopted ones. This could be due

TABLE 1.

Scoring and Interpretation of Brief-COPE.

| Domains | Categories | Scoring |
|------------------------|------------|---------|
| Problem-focused coping | Mild | <16 |
| | Moderate | 16-21 |
| | High | >21 |
| Emotion-focused coping | Mild | <18 |
| | Moderate | 18-34 |
| | High | >34 |
| Dysfunctional coping | Mild | <29 |
| | Moderate | 29-37 |
| | High | >37 |

TABLE 2.
Participants Demographic Information (N = 250).

| Sociodemographic Profile | N (%) | Accident Profile | n (%) | Clinical Profile | n (%) |
|--|--|---|---|---|--|
| Sex Male Female | 193 (77.2) 57 (22.8) | Witnessed death Yes No | 23 (9.2) 227 (90.8) | Past history of motor vehicle accident Yes No | 14 (5.6) 236 (94.4) |
| Religion Hindu Muslim Others ^f | 209 (83.6) 38 (15.2) 03 (1.2) | Speed of vehicle ≤30 km/h 31–59 km/h ≥60 km/h | 57 (22.9) 136 (54.4) 57 (22.8) | Time to reach the hospital <1 hour 1–2 hour >2 hour | 154 (61.6) 75 (30.0) 21 (8.4) |
| Marital status Married Unmarried | 197 (78.8) 53 (21.2) | Number of vehicles involved 1 2 ≥3 | 72 (28.8) 174 (69.6) 4 (3.2) | Perceived death threat Yes No | 76 (30.4) 174 (69.6) |
| Habitat Rural Urban | 166 (66.4) 84 (33.6) | Loss of valuables Yes No | 43 (17.2) 207 (82.8) | H/o disability Yes No | 07 (2.8) 243 (97.2) |
| Education Post-graduate & above Graduate Higher secondary High school Literate | 15 (6) 49 (19.6) 42 (16.8) 62 (24.8) 82 (32.8) | Type of accident group Vehicle driver Pillion rider Passenger Pedestrian | 141 (56.4) 69 (27.6) 25 (10) 15 (6.60) | Site of injury Upper limb Lower limb Trunk Spine | 169 (67.6) 146 (58.4) 24 (9.6) 11 (4.4) |
| Socioeconomic status Upper Upper middle Lower middle Upper lower Lower | 10 (4.0) 25 (10.0) 56 (22.4) 146 (58.4) 13 (5.2) | Memory of the accident Clear Patchy None | 181 (72.4) 56 (22.4) 13 (5.2) | Self-blame Yes Partly No | 17 (6.8) 29 (11.6) 204 (1.6) |

TABLE 3.
Level of Coping Strategies Adopted (N = 250).

| Level of Coping Strategies | f (%) | Mean ± SD | Mean % | Rank |
|-------------------------------|------------|---------------|--------|------|
| Emotion-focused coping | | | | |
| Low (<18) | 53 (21.2) | 32.84 ± 05.18 | 82.10 | 1 |
| Moderate (18–34) | 153 (61.2) | | | |
| High (>34) | 44 (17.6) | | | |
| Problem-focused coping | | | | |
| Low (<16) | 49 (19.6) | 18.47 ± 3.12 | 76.95 | 2 |
| Moderate (16–21) | 176 (70.4) | | | |
| High (>21) | 25 (10.0) | | | |
| Dysfunctional coping | | | | |
| Low (<29) | 59 (23.6) | 26.18 ± 10.59 | 65.45 | 3 |
| Moderate (29–37) | 143 (57.2) | | | |
| High (>37) | 48 (19.2) | | | |

participation in social activities decreases PTSD.^{18–20} Strong and supportive families, friends, and relatives help the victim deal with the stress more adaptively, provide comfort, and thus decrease the chances of psychological disorders. Reviewed literature showed that male and married participants adopt social seeking strategy more, whereas females and participants who are single use problem-focused strategy.¹²

The present study did not reveal significant differences in the coping styles for the comorbidity group, although the numbers were small ($n = 20$). Hence, this needs further exploration.

The study is limited by relying on enumerative sampling, due to the time-bound nature of data collection and no prior sample size estimation. Also, PTSD and depression were screened for but not confirmed with a structured interview.

In conclusion, emotion-focused coping strategies were highly adopted by the survivors of MVA. There was a

to Indian culture and the family type prevalent in Asian countries where family support helps speedy recovery from the trauma.¹⁴ The results agreed with a past study that showed a considerable benefit from spiritual beliefs and social support in dealing with the trauma.¹⁵ Similarly, in line with the current findings, a previous study concluded that substance use was

not a coping strategy among MVA survivors.^{12,16} An Indian study also proved that behavior disengagement as a coping strategy is a predictor of PTSD.¹⁷

There has been no controversy regarding the role of social support as a coping strategy and its relation to PTSD. A systematic review concluded that enhancing social support and increased

FIGURE 2.

Mean Percentage of Coping Styles.

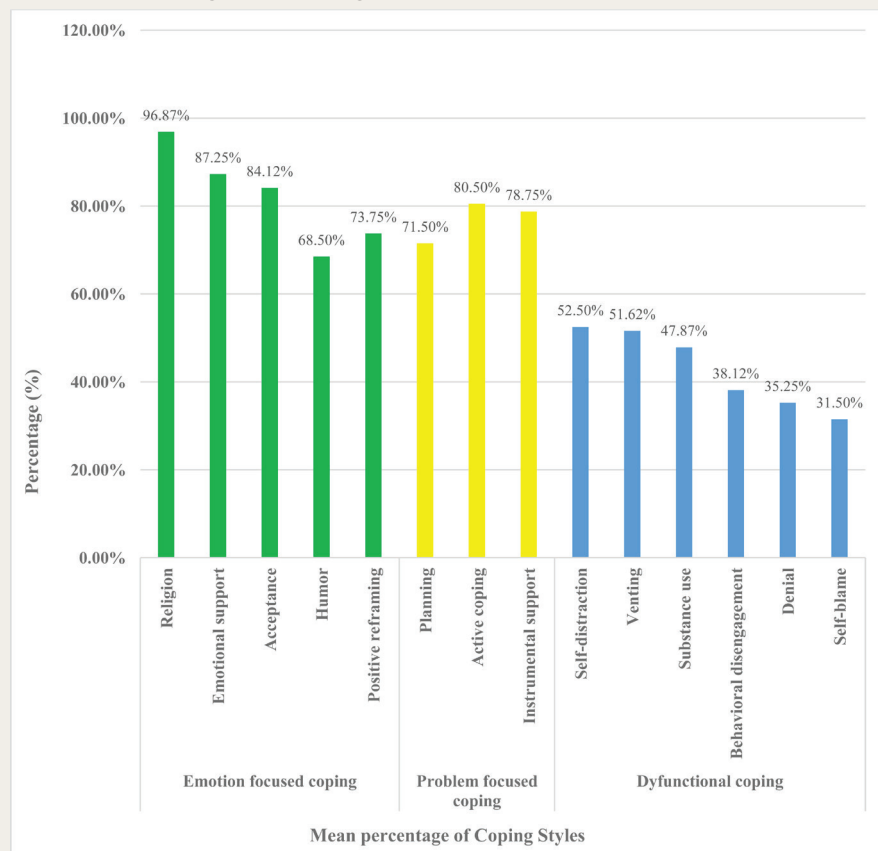


TABLE 4.

Correlation of PTSD and Depression with Coping Scores (N = 250).

| Variables | PTSD Severity | | Depression Severity | |
|------------------------|---------------|---------|---------------------|---------|
| | r Value | P Value | r Value | P Value |
| Emotion-focused coping | -0.11 | 0.29 | -0.83** | 0.001 |
| Problem-focused coping | -0.14 | 0.19 | -0.68** | 0.001 |
| Dysfunctional coping | 0.33** | <0.001 | 0.62** | 0.01 |

**r = Pearson's correlation significant at the 0.01 level (two-tailed); PTSD: Post-traumatic stress disorder.

significant co-relation between depression and different coping mechanisms. Adaptive coping has been found as a beneficial tool in combating trauma. The religious and emotional support of significant others plays a vital role, whereas maladaptive coping mechanisms were used minimally. Awareness about adaptive coping strategies will help improve the quality-of-life post-trauma.

As there is a paucity of studies assessing the coping strategies, we recommend encouraging problem-focused strategies

and developing psychosocial interventions to address the use of dysfunctional coping strategies after an MVA. We also advocate for training health workers in the early identification of dysfunctional coping strategies and initiating interventions involving a multidisciplinary approach.

Data Availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to restrictions as it contains information that could compromise the privacy of research participants.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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ORCID iD

Xavier C. Belsiyal  <https://orcid.org/0000-0003-1673-1134>

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