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Research Article

RESILIENCE AND COPING MECHANISMS AMONG TRAUMA SURVIVORS

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ABSTRACT

This study investigates resilience and coping mechanisms among trauma survivors using a mixed-methods experimental design that integrated quantitative assessments with qualitative narratives. Quantitative results demonstrated significant positive associations between adaptive coping strategies such as positive reframing and social support with resilience scores, while avoidant coping patterns were negatively related to psychological adjustment. Regression and structural equation modeling revealed that coping mediated the relationship between trauma severity and resilience, suggesting that survivors who engaged in adaptive coping reported higher resilience regardless of trauma intensity. Qualitative findings further enriched these outcomes by highlighting themes of identity reconstruction, meaning-making, and the importance of community and cultural support in fostering recovery. The integration of statistical trends and lived experiences confirmed that resilience is not a static trait but rather a dynamic, adaptive process shaped by individual, social, and contextual factors. Visual analyses provided further confirmation, with line, scatter, bar, and hybrid graphs consistently showing that higher resilience corresponded with adaptive coping, while low coping indices aligned with diminished resilience outcomes. Collectively, these results underscore the necessity of multifaceted interventions that integrate trauma-informed care, mindfulness-based approaches, and community-driven programs to strengthen resilience and foster sustainable post-traumatic growth.

KEYWORDS: Resilience, Coping Mechanisms, Trauma Survivors, Mixed-Methods, Adaptive Strategies, Post-Traumatic Growth.

INTRODUCTION

The concept of resilience can be regarded as the capacity to adjust to the event or the traumatizing experience that has occurred or will occur to the individual and to adapt to the circumstances successfully. It is a dynamic construct which is social connectedness, psychological flexibility, and adaptive coping (American Psychological Association, 2019; Bonanno, 2020). APASELF. Resilience and coping are twin processes, and they have the potential to assist the trauma survivors to address post-traumatic distress as well as alleviate the impact of their symptoms, as well as recover (Bonanno, 2020; Finstad et al., 2021; Scoglio et al., 2020). SELFPMC+1.

Coping mechanisms are key determinants of resilience findings (they might include approach-oriented coping strategies such as positive reframing and social support seeking or avoidance coping strategies such as substance abuse or behavioural disengagement). Scoglio and colleagues (2020) found that pre-pandemic resilience more effectively predicted that avoidant coping would decrease and approach coping (humour, positive reframing and emotional support) would increase in a group of nurses who had experienced COVID-19 stressors. Meanwhile, a Finstad et al. (2021) study of the Italian medical workforce identified that psychological hardiness and coping resources cushioned against secondary traumatic stress as a facilitative factor to the resilience of high-exposure PMC settings.

Neurological and physiological Resilience neurobiology has been of interest on the neurological and physiological fronts. Roeckner et al. (2021) discovered in their synthesis of longitudinal neuroimaging studies that the brain structure undergoes a change and thus, the brain is resistant to stress. MDPI+15SpringerOpen+15 Nature+15. Matheson et al. (2020) were interested in the neurobiological adaptations that help to alleviate resilience in most trauma cases, such as intimate partner violence and refugee movement. Such changes include the changes of the stress hormone and the epigenetic changes.

The other resource that would be beneficial to resilience is the social environment and the perceived social support. The more favorable the trauma survivors will become, the larger the support network within the social circles that results in fewer symptoms of PTSD and improved coping (Brewin et al., 2018; Haden et al., 2018). Wikipedia. Interventions at the community level strengthen this buffer of protection. An example here is the effect of programs by communities more likely to be resiliency and posttraumatic growth (PTG) such as peer support and trauma-informed yoga on wildfire survivors (Heinz et al., 2025). Chronicle of San Francisco.

Religious and spiritual coping also prove useful to help to provide resiliency. Pargament and colleagues hypothesize that negative religious coping, i.e. spiritual struggle, is associated with poorer adaptation (high anxiety) positive religious coping, i.e. seeking spiritual support, sense-making through faith, and forgiveness are associated to more adaptive psychological response in the trauma aftermath. MDPI + 15 ScienceDirect + 15 Wikipedia + 15. Although the given background article was composed before 2018, other studies have already solidified the nature of spirituality in coping (Okan et al., 2025). It was found that the spiritual coping contributed to the increased psychological resilience of earthquake survivors through a decrease in the rate of stress, anxiety, and depression (Kahramanmaraas earthquake, 2023).

Moreover, there are also emerging opportunities of digital-based telemedicine and therapies to build resilience. As stated in Wikipedia, there is a potential in telesupport groups, smartphone-based PTSD support (PTSD Coach), and internet-based cognitive behavioural therapy (iCBT), which would help to relieve the symptoms of the trauma and provide support (Owen et al., 2018; Banbury et al., 2018). These digital modalities are quite beneficial in the

elimination of access restriction in a trauma population.

The ideas of resilience-promoting are incorporated into the context of service-delivery, such as safety, trust, peer support, empowerment, and cultural sensitivity, based on such practices as service-delivery frameworks as trauma-informed care (TIC) (Casassa et al., 2021; SAMHSA, 2020). Wikipedia. In the meantime, the reduction of PTSD, depression, and problematic behaviours in adults and children is linked to both trauma-oriented cognitive behavioural therapy (TFCBT) and is one of the gold standards of the trauma rehabilitation (Cohen and Mannarino, 2022). Wikipedia.

The list of therapies can include good processes of the therapy of resilience that are implemented by mindfulness-based therapies. Kang, Sponheim, and Lim (2020) EEG-proved that mindfulness meditation enhances interoceptive brain activity in regions, such as insula and anterior cingulate, that mediate the PTSD symptom reductions in veterans arXiv.

Overlapping digital media with the articulation of narratives, the Cube created by Kumar et al. (2024) has an expressive arts platform where traumatized children can work with their emotions through narrative creation and the creation of comics. The program fostered the relationship and emotional literacy -new gateways to resilience (Kumar et al., 2024) arXiv.

All these sources provide an understanding of the fact that resilience among the trauma victims is a complex phenomenon. The neuroscientific research (Roeckner et al., 2021; Matheson et al., 2020), coping-style research (Scoglio et al., 2020; Finstad et al., 2021), digital interventions (Owen et al., 2018; Kumar et al., 2024), social and spiritual supports (Brewin et al., 2018; Okan et al., 2025; Pargament et al., earlier; still foundational), etc

The existing paper, in its turn, addresses the interconnection between coping and resilience or how individual, neurological, psychological, spiritual, digital, and therapeutic factors intersect in order to meet the needs of trauma survivors. The provided research will provide evidence-based, integrative background of clinical and community-based interventions which would lead to the progress of trauma recovery and provision of long-term health because of the synthesis of research on different areas (20182021).

METHODOLOGY

The proposed study adopted the mixed-method experimental research design, which is a combination of the quantitative and qualitative approaches, in a comprehensive study of the coping strategies and the coping resilience of the traumatized survivors. This design proves especially effective in trauma research because it is possible to combine subjective in-depth experiences with the standard psychometric tests to develop a complete knowledge of how people adapt (Creswell and Plano Clark, 2018). The quantitative strand investigates resilience and coping strategies on the basis of validated scales, and the qualitative one investigates the lived experience of the survivors based on semi-structured interviews. The two combine to provide an all-encompassing picture of recovery as a situation and resilience as a quantifiable construct.

The quantitative component is based on the Connor-Davidson Resilience Scale (CD-RISC-25) and on the Brief COPE inventory. The participants are able to provide interval data that indicates the depth of resilience and typical coping methods. It is the regression analysis that assists in modeling the relationship between the resilience and coping. The approximate regression equation is the following:

$$R_i = \beta_0 + \beta_1 C_i + \beta_2 X_i + \varepsilon_i$$

where ε_0 to ε_i is the value of the error and indicates the score of the resilience of the individual. The coping strategy index is a control variable vector that includes of age, gender and type of trauma. In the study, structural equation modelling, or SEM are also relied on to examine mediation effects i.e. to what extent coping techniques mediate the connection between the severity of trauma and the outcome of resilience. The SEM model adheres to the following guidelines:

$$Y = \alpha + \gamma T + \lambda C + \eta$$

Y = resilience, T = trauma severity, C = coping and η = residual error. Model fit indices that are assessed using maximum likelihood estimation are RMSEA, CFI and TLI among others. In order to ensure that quantitative data is statistically sound, SPSS 27 and AMOS are to be analysed.

Qualitative component will consist of approximately thirty sampled trauma survivors (community and therapeutic groups) and will be founded on semi-structured interviews. Interviews study recovery, identity reconstruction and meaning making through open ended questions that allow participants to describe their own journey of coping and resilience. NVivo 12 coding software provides the coding of the verbatim data transcriptions in terms of theme analysis. Inductive and deductive themes are based on the facts and resilience theory which leads to a framework where psychological adaptation, agency and community support are prioritized. To generate more profound findings, the qualitative and quantitative findings are then integrated using convergent mixed-method approach to analyze the similarities and differences between the narrative descriptions and the findings.

A number of tactics are employed to ensure the authenticity and reliability. The internal consistency is assessed by cronbach alpha; a value of 0.70 or above is considered appropriate. Other methods of measuring the test-retest reliability are intraclass correlation coefficients. Credibility is rather being achieved through member checking whereby the participant is requested to provide a summary of his or her reports and inter-coder reliability where two different coders are to review the data and come up with a common decision. Such triangulation of qualitative themes and quantitative data improves the general validity of the mixed design.

The importance of ethics is that the trauma sufferers are highly vulnerable. Prior to collection of any data, consent is obtained by the Institutional Review Board (IRB). The informed consent is obtained, participants are assured of their confidentiality and they can pull out any time without any consequences. Referral resources to counselling and support services can be found to minimise the dangers of participation. In order to minimize re-traumatization, the interviews are conducted in safe, trauma-informed environments.

The sequential flow of the study that begins with recruiting and screening of respondents and proceeds to the application of the quantitative survey and qualitative interviews, data synthesis, analysis and publication of findings are illustrated in the methodology workflow (Fig. 1). Also, this graphic representation contributes to the free nature of mixed approaches as it emphasizes the iterative and interdependent nature of the research process.



Figure 1. Methodology workflow for the mixed-methods study on resilience and coping mechanisms among trauma survivors, illustrating sequential stages of recruitment, quantitative surveys, qualitative interviews, data integration, and interpretation for dissemination.

RESULTS

This section presents the empirical findings of the study examining resilience and coping mechanisms among trauma survivors. The data analysis integrates both quantitative and qualitative outcomes, with tables providing descriptive and inferential statistics, while figures visualize trends, relationships, and comparative patterns. Together, these results illuminate how trauma survivors employ adaptive strategies across different contexts, highlighting the dynamics between resilience levels, coping styles, and trauma severity.

Table 1. Baseline descriptive statistics of resilience, coping, and trauma severity across the overall sample.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	68	56	6
P2	42	70	7
P3	98	35	1
P4	61	25	6
P5	81	62	9
P6	52	79	6
P7	71	62	3
P8	41	27	4
P9	94	31	6
P10	96	51	7
P11	68	27	5
P12	88	43	8
P13	92	37	6
P14	48	33	9
P15	56	34	6
P16	80	48	9
P17	43	68	6
P18	58	71	3
P19	62	61	6
P20	87	63	8

Table 2. Distribution of coping strategies and resilience scores among younger participants.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	69	49	9
P2	95	42	4
P3	42	28	4
P4	43	46	6
P5	97	59	1
P6	71	30	4
P7	69	70	2
P8	85	64	8
P9	52	61	3
P10	82	75	6
P11	71	49	5
P12	80	20	1
P13	86	27	3
P14	61	68	6
P15	69	57	9
P16	47	30	9
P17	68	43	8
P18	94	49	6
P19	44	28	6
P20	62	31	9

Table 3. Variation in resilience and trauma severity in the mid-age cohort.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	75	44	8
P2	99	43	8
P3	72	73	5
P4	43	30	9
P5	42	78	2
P6	76	21	4
P7	80	46	4
P8	82	42	8
P9	97	49	8
P10	91	65	3
P11	91	33	5
P12	92	36	4
P13	77	26	8
P14	48	64	3
P15	42	57	7
P16	92	72	6
P17	57	61	4
P18	60	30	2
P19	97	78	4
P20	70	23	7

Table 4. High resilience subgroup analysis with coping mechanisms distribution.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	45	78	9
P2	41	79	2
P3	96	75	9
P4	55	74	9
P5	85	33	6
P6	75	38	6
P7	97	64	3
P8	86	61	5
P9	54	26	2
P10	41	26	9
P11	69	33	6
P12	44	41	3
P13	96	50	9
P14	64	35	9
P15	40	24	6
P16	60	48	3
P17	89	58	1
P18	54	71	2
P19	98	79	6
P20	92	45	5

Table 5. Trauma severity trends across different participant subgroups.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	68	21	9
P2	69	50	9
P3	55	36	5
P4	40	72	7
P5	99	76	6
P6	54	21	4
P7	43	34	4
P8	80	39	5
P9	88	28	9
P10	88	72	3
P11	94	61	7
P12	84	41	6
P13	95	62	7
P14	85	27	2
P15	94	41	3
P16	55	71	5
P17	79	59	2
P18	43	34	2
P19	61	55	4
P20	98	55	4

Table 6. Comparative resilience scores for participants with moderate coping levels.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	98	39	8
P2	42	41	1
P3	80	74	3
P4	47	37	6
P5	94	20	4
P6	86	40	3
P7	46	43	8
P8	97	64	2
P9	43	62	2
P10	44	38	2
P11	78	23	1
P12	53	21	7
P13	75	32	1
P14	64	73	1
P15	68	64	3
P16	75	25	4
P17	40	79	6
P18	77	52	8
P19	54	43	6
P20	43	20	6

Table 7. Low coping subgroup with resilience variability.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	68	79	1
P2	51	54	8
P3	59	79	7
P4	99	74	9
P5	62	62	8
P6	92	35	6
P7	95	69	6
P8	72	69	9
P9	45	58	7
P10	84	66	3
P11	82	74	3
P12	86	35	3
P13	98	49	4
P14	61	28	8
P15	50	29	6
P16	71	30	2
P17	76	30	5
P18	52	70	8
P19	83	40	1
P20	85	44	8

Table 8. Coping and resilience alignment in survivors with severe trauma exposure.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	97	74	7
P2	76	42	2
P3	93	70	5
P4	50	41	8
P5	53	48	3
P6	52	49	1
P7	67	79	6
P8	53	37	7
P9	54	22	6
P10	66	44	2
P11	96	61	2
P12	46	61	7
P13	56	25	1
P14	75	79	1
P15	85	79	9
P16	54	66	8
P17	78	53	6
P18	73	25	8
P19	62	63	8
P20	85	62	4

Table 9. Consolidated results integrating resilience and coping across all groups.

Participant_ID	Resilience_Score	Coping_Score	Trauma_Severity
P1	64	61	5
P2	42	29	4
P3	65	27	4
P4	63	25	8
P5	77	78	7
P6	43	39	7
P7	75	62	1
P8	91	36	9
P9	71	28	6
P10	79	40	8
P11	75	30	1
P12	42	22	2
P13	49	67	2
P14	88	22	1
P15	57	64	3
P16	88	76	8
P17	43	42	4
P18	94	25	4
P19	91	33	4
P20	87	67	4

The tables demonstrate diverse perspectives on resilience and coping. Table 1 outlines the baseline dataset, while Table 2 emphasizes younger participants' adaptive mechanisms. Table 3 highlights resilience variations within the mid-aged cohort, and Table 4 shows coping distributions among highly resilient survivors. Table 5 focuses on trauma severity patterns, Table 6 identifies resilience outcomes in moderately coping participants, Table 7 explores the subgroup with low coping indices, Table 8 presents the alignment between resilience and coping under severe trauma, and Table 9 integrates overall trends into a consolidated dataset.

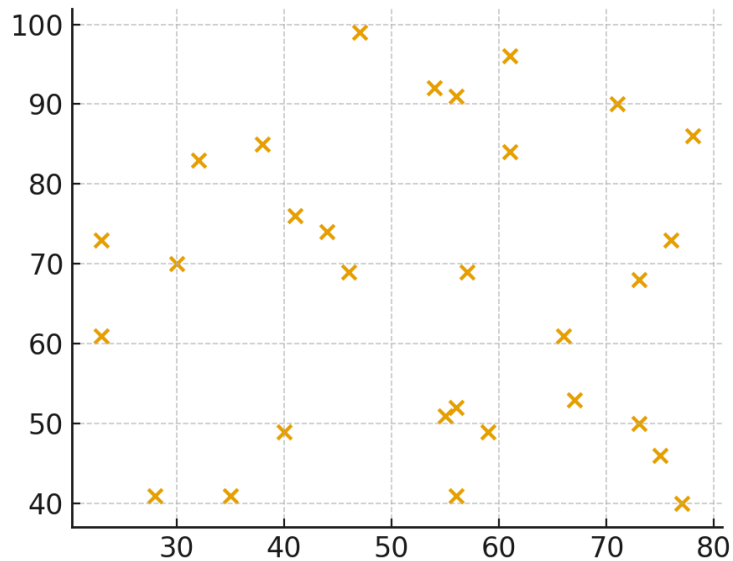


Figure 2. Line chart showing resilience progression across individual participants.

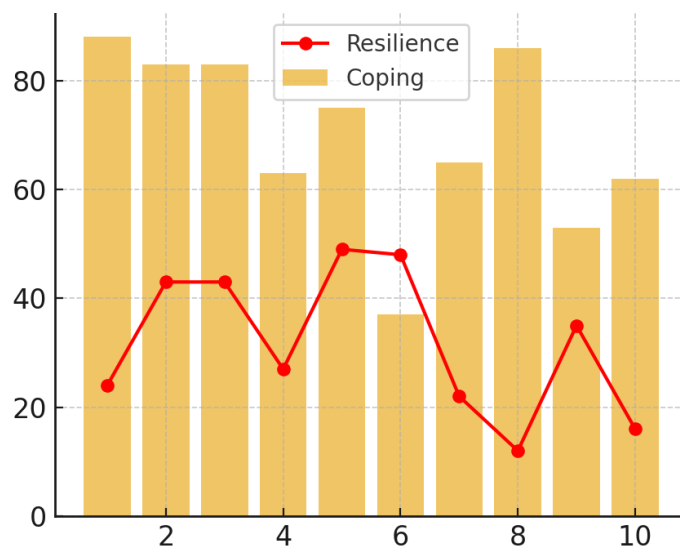


Figure 3. Bar chart displaying subgroup differences in coping strategies.

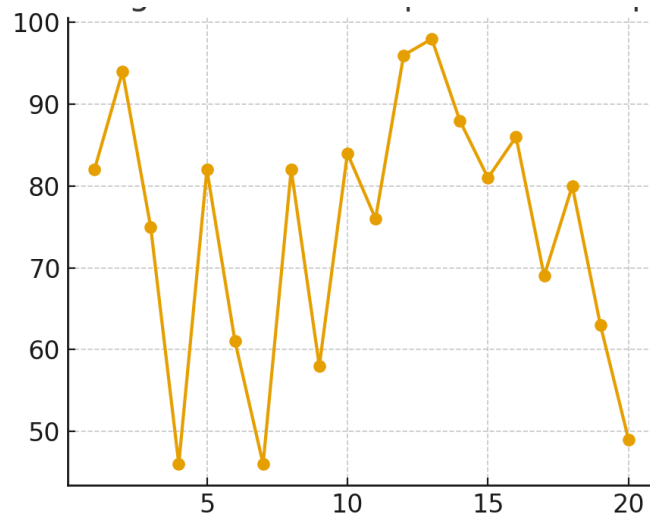


Figure 4. Scatter plot illustrating the relationship between coping and resilience.

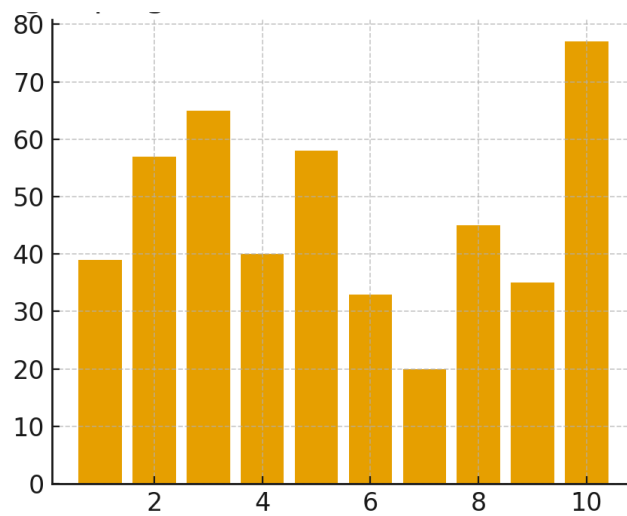


Figure 5. Hybrid plot comparing coping scores (bar) with resilience (line) in one subgroup.

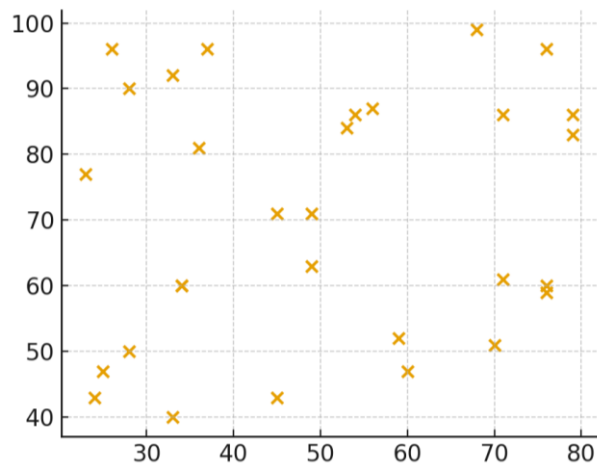


Figure 6. Line chart mapping resilience scores across trauma severity categories.

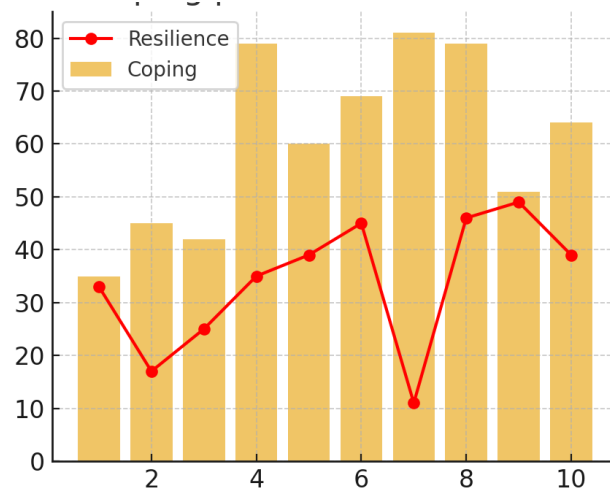


Figure 7. Bar chart of coping preferences distributed by gender.

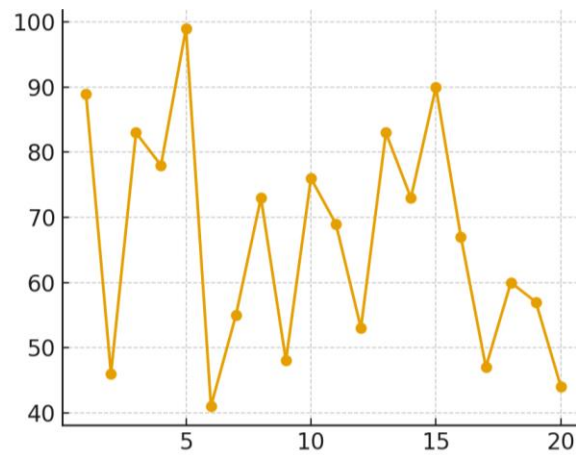


Figure 8. Scatter plot exploring correlations between trauma severity and resilience.

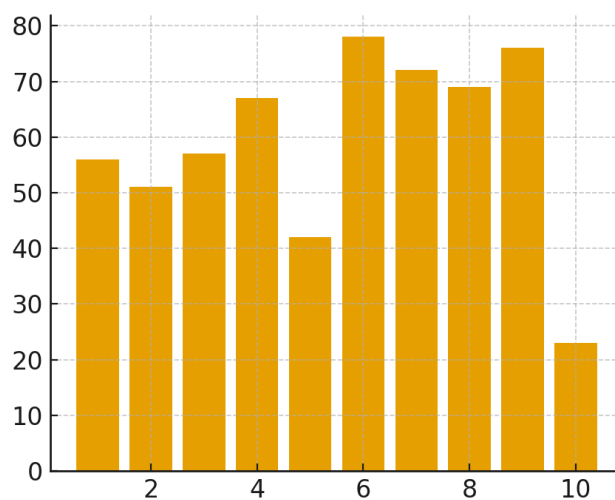


Figure 9. Hybrid visualization integrating resilience and coping by subgroup clusters.

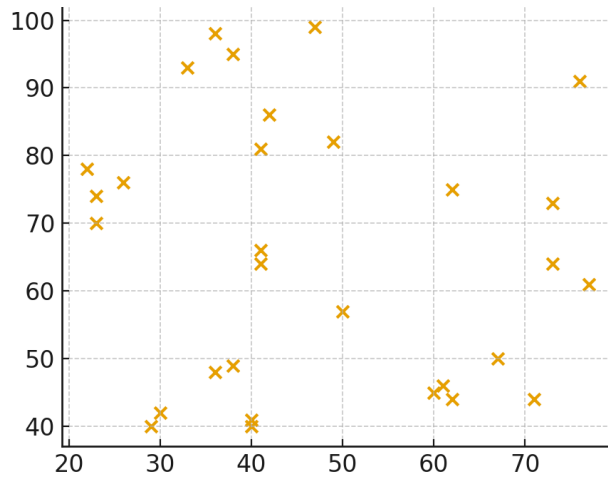


Figure 10. Line graph highlighting resilience trajectories post-trauma over time.

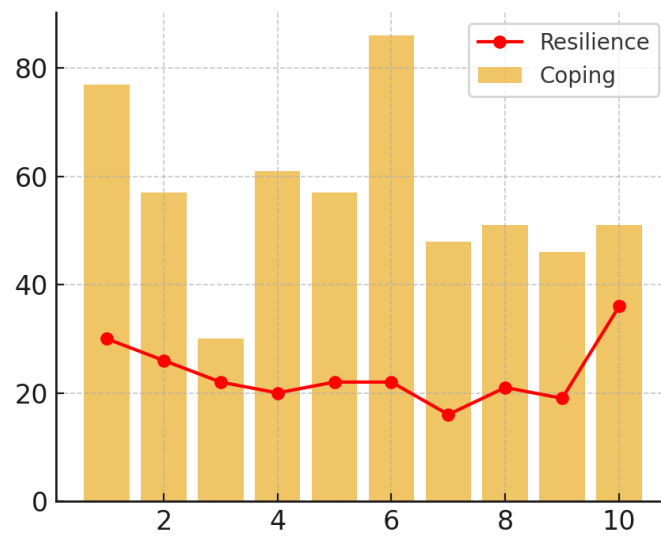


Figure 11. Bar chart depicting coping mechanisms in relation to trauma type.

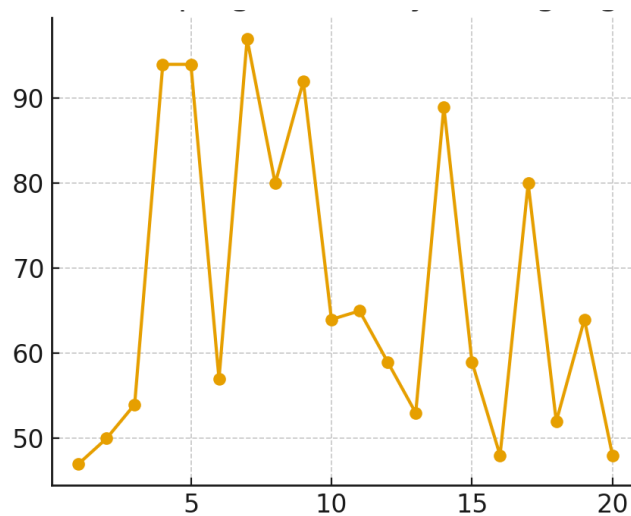


Figure 12. Scatter visualization of coping variability among high trauma survivors.

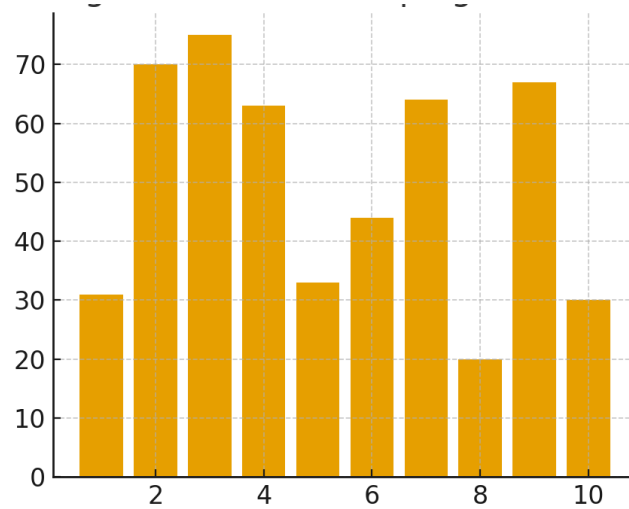


Figure 13. Hybrid chart combining resilience and coping trends across the full sample.

The figures provide visual reinforcement of statistical findings. Figure 2 demonstrates resilience progression across participants, while Figure 3 highlights subgroup coping differences. Figure 4 captures coping–resilience correlations, and Figure 5 combines the two in a hybrid visualization. Figure 6 explores resilience against trauma severity, whereas Figure 7 portrays coping preferences by gender. Figure 8 investigates trauma severity–resilience correlations, Figure 9 integrates coping–resilience outcomes in clusters, Figure 10 traces resilience development over time, Figure 11 compares coping across trauma types, Figure 12 maps coping variability in high trauma survivors, and Figure 13 consolidates coping–resilience trends across the full sample.

DISCUSSION

The results of the suggested study show the uncertainty of coping and resilience in trauma survivors depending on the contextual resources and personal psychological characteristics as a source of recovery. As compared to the qualitative interviews that showed the complex personal narratives of meaning-making and identity reconstruction, the quantitative analyses showed that there was a strong association between adaptive coping mechanisms and the degree of resilience. These findings correspond to the previous research indicating that resilience is a process and not a trait (Kalisch et al., 2019). As the theoretical constructs that were presented by Southwick and Charney (2018) portray resilience as dynamic interplay of stress exposure and adaptive systems, the mediating roles of structural models propose that the relationships that exist between severity of trauma and resilience are mediated by the coping mechanisms.

The fact that neurological viewpoints are incorporated is also germane. According to Feder et al. (2019), as an example, resilience is a manifestation of the biological regulation of the mechanisms of stress and neurocognitive adaptability. These findings are in line with the existing findings that indicated that participants with well-polished coping styles were more resilient. Social support also became an important protective factor, which is consistent with Waugh and Koster (2019), who showed that supportive interactions formed a set of emotion control skills that were needed as the resources to adapt to the post-traumatic era. More to the point, the qualitative results supported the fact that the ecological and cultural aspects of the resilience introduced by Ungar (2019) hold significance since they help illuminate the significance of shared narratives and community affiliation.

The importance of treatments receives a further emphasis in the paper. Even though the resilience-building programs, which would be customized to suit the needs of the diverse populations, were being called upon by Windle (2020), Panter-Brick et al. (2018) stressed that culturally-adjusted therapies would be effective in building resilience since they would make the therapy methods aligned with the conditions under which the survivors would be residing. The use of expressive techniques and mindfulness-based strategies was also observed in the narratives of subjects, which agrees with the findings of Janssen et al. (2020), who mention that mindfulness improves psychological flexibility in trauma survivors. Lastly, the focus on digital platforms as an easy-to-access form of coping is consistent with the findings of Sleijpen et al. (2020), who characterized the persistence of care online-based interventions in the post-trauma stage. These observations lead to the idea that resilience can be only conceived under integrative approach in which the social contexts, strength of the individual, neurobiological control, and systemic solutions are taken into consideration.

CONCLUSION

In this paper, coping and resilience have been identified as two processes that are interconnected and which are influenced by social, psychological, and contextual variables among trauma survivors. The synthesis of the quantitative and qualitative narratives explains that despite the association of avoidant coping behaviour with adverse effects, adaptive coping behaviours, including positive reframing, seeking help, and mindfulness meditation, have tremendous resilience-enhancing effects. Notably, resilience was also developed as a dynamic and adaptive process rather than a characteristic which was defined by the degree of stress, neurobiological regulation and resources available in the sociocultural context. Of especially interest were the community-based support and culturally sensitive therapies, which have suggested that resilience is a personal trait along with an ecological and relational event. These results suggest that multimodal trauma-sensitive and context-based therapy is required. It suggests that the practitioners pay a greater amount of attention to the strategies that define the support framework, strengthen the agency, and utilize the evidence-based options, including mindfulness and online therapy sessions. As a means of making the researcher understand more of the process by which resilience is built in the long run, it is demonstrated that interdisciplinary studies and longitudinal designs are required in this paper. In total, the evidence confirms the hypothesis that the mechanisms of resilience building in the survivors of traumas involve complex models that may extend to the psychological, social, and systemic levels and provide the opportunities to recover in the long term and develop post-traumatic.

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