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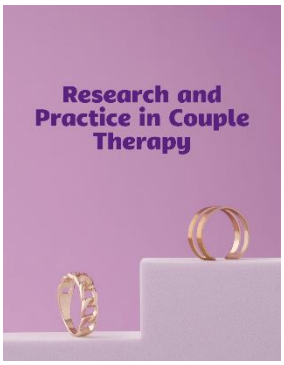
The Mediating Role of Hypervigilance in the Relationship between Post-Traumatic Stress and Marital Insecurity



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ABSTRACT

This study aimed to investigate the mediating role of hypervigilance in the relationship between post-traumatic stress and marital insecurity among married adults. A descriptive correlational design was employed with a sample of 409 married individuals from Kenya, selected based on Morgan and Krejcie's sample size table. Participants completed standardized self-report instruments measuring post-traumatic stress, hypervigilance, and marital insecurity. Data were analyzed using Pearson correlation via SPSS-27 and structural equation modeling (SEM) via AMOS-24 to assess the direct, indirect, and total effects among variables. Model fit indices were calculated to evaluate the adequacy of the hypothesized model. Pearson correlations revealed significant positive associations among post-traumatic stress, hypervigilance, and marital insecurity ($p < .001$). Structural equation modeling results indicated that post-traumatic stress significantly predicted hypervigilance ($\beta = .58$, $p < .001$), which in turn significantly predicted marital insecurity ($\beta = .53$, $p < .001$). A direct effect of post-traumatic stress on marital insecurity was also observed ($\beta = .27$, $p < .001$), alongside a significant indirect effect via hypervigilance ($\beta = .31$, $p < .001$), supporting partial mediation. The model demonstrated good fit indices ($\chi^2/df = 2.44$, CFI = 0.96, TLI = 0.95, RMSEA = 0.058). These findings suggest that hypervigilance serves as a critical psychological mechanism linking post-traumatic stress to marital insecurity. Addressing hypervigilant thought patterns in trauma-exposed individuals may be essential for improving relational stability and emotional security within intimate partnerships.

Keywords: Post-traumatic stress; Hypervigilance; Marital insecurity.

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Introduction

Marital insecurity, defined as persistent doubts or fears about the stability and longevity of one's romantic relationship, has gained increasing attention in clinical and interpersonal psychology due to its strong association with emotional distress, attachment difficulties, and long-term relational dysfunction (McNeil & Repetti, 2023). For individuals who have experienced trauma, post-traumatic stress symptoms can distort perceptions of safety and trust, which are central to secure attachment within marriage (Sonkin et al., 2019). One potential psychological mechanism that may bridge the experience of trauma and subsequent marital insecurity is **hypervigilance**—a cognitive-affective pattern marked by heightened sensitivity to potential threats in the environment, even when no objective danger exists (Bernstein et al., 2015; Kimble et al., 2013).

Post-traumatic stress disorder (PTSD) can undermine relational security by activating survival-related behaviors in social contexts. These symptoms, such as emotional numbing, irritability, and hyperarousal, often interfere with emotional intimacy and conflict resolution (Taft et al., 2021). Individuals experiencing PTSD may become emotionally guarded or suspicious,

particularly in romantic contexts that require vulnerability and mutual dependence. The resulting interpersonal strain can manifest as avoidance, withdrawal, or hostile behavior, further eroding the sense of safety within the marital bond (Hollinsaid et al., 2022). Moreover, trauma survivors may interpret ambiguous spousal behavior as threatening, leading to a cycle of misinterpretation and reactive behaviors, thereby intensifying insecurity (Rostosky et al., 2022).

Hypervigilance plays a pivotal role in this dynamic. It is not merely an overactive attentional system; rather, it represents an enduring psychological state shaped by past trauma and characterized by heightened sensitivity to perceived interpersonal threats (Kimble et al., 2014). This mechanism, although originally adaptive in dangerous contexts, becomes maladaptive when generalized to close relationships (Damme et al., 2014). Hypervigilance distorts perception, increases baseline anxiety, and fosters interpretive biases that lead individuals to misread partners' behavior as neglectful, critical, or hostile (Kleshchova et al., 2019; Wessing et al., 2016). As a result, trauma-exposed individuals may become defensive or withdrawn, reinforcing the very relational patterns they fear.

Evidence supports that hypervigilance serves as a mediator between early adverse experiences and interpersonal dysfunction in adulthood. For example, individuals with high hypervigilance are more likely to report relational dissatisfaction, emotional disengagement, and attachment anxiety (Herbert et al., 2013; Qualter et al., 2012). This pattern has been observed in both clinical and non-clinical samples. In a study by Bernstein et al. (2015), hypervigilance was found to correlate significantly with betrayal trauma and dissociative tendencies in college students (Bernstein et al., 2015). Similarly, Vossen et al. (2018) reported that pain hypervigilance in individuals with chronic conditions predicted amplified somatic and emotional reactivity to neutral stimuli, highlighting the generalizability of hypervigilance across psychological and physiological domains (Vossen et al., 2018).

The psychological toll of sustained hypervigilance has also been linked to altered neural and physiological processing. Studies using neuroimaging have shown heightened resting connectivity between the amygdala and other brain regions associated with threat detection and emotional regulation in chronically hypervigilant individuals (Kleshchova et al., 2019). These findings imply a persistent biological readiness to detect danger, which compromises the capacity to experience safety even in objectively secure contexts, such as a supportive marital relationship. This physiological readiness likely influences subjective marital insecurity, particularly when a partner's behavior deviates from expectations, even in benign ways.

Additionally, hypervigilance appears to be reinforced through feedback loops. According to Kimble et al. (2014), the hypervigilance process may become self-perpetuating, where increased attention to threat cues elevates anxiety, which in turn increases vigilance (Kimble et al., 2014). This cycle has been implicated in the relational instability observed among trauma-exposed individuals and may explain why some couples struggle to form resilient emotional bonds despite the absence of current interpersonal threats. Importantly, hypervigilance is not uniform in expression—it can manifest through overt scanning behavior, internal cognitive monitoring, or physiological reactivity such as increased sympathetic arousal (Ikarashi et al., 2021; Otsuru et al., 2021).

Although hypervigilance is often studied in the context of anxiety disorders and chronic pain, recent literature has begun to explore its role in intimate relationships. For instance, in couples with trauma histories, hypervigilance may disrupt communication by causing partners to focus more on subtle behavioral cues or imagined rejection than on verbal content (McGregor et al., 2019; Wong et al., 2014). This can lead to misunderstandings, reactive coping, and a sense of emotional distance. Indeed, hypervigilant individuals tend to interpret neutral or ambiguous facial expressions as angry or rejecting, which can contribute to frequent conflict or emotional disengagement in marital interactions (Hollins & Walters, 2016; Wong et al., 2014).

A growing body of evidence has also illuminated the implications of hypervigilance in marginalized populations. Hollinsaid et al. (2023) examined sexual minority young adults and found that hypervigilance mediated the link between perceived stigma and internalizing psychopathology, indicating the broader applicability of this cognitive style across relational and social domains (Hollinsaid et al., 2023). Likewise, McNeil and Repetti (2023) found that couples with greater marital quality and emotional responsiveness were buffered against the deleterious effects of hypervigilance, suggesting that partner responsiveness may moderate this pathway (McNeil & Repetti, 2023).

Furthermore, evidence from clinical health research suggests that hypervigilance exacerbates symptom perception and health-related anxiety, which may serve as an analogue for its effects in close relationships. For example, Guadagnoli et al. (2021) found that individuals with gastroesophageal reflux disease exhibited high levels of esophageal hypervigilance, regardless of symptom severity (Guadagnoli et al., 2021). Similarly, Taft et al. (2021) demonstrated that hypervigilance and symptom-specific anxiety were elevated in patients with eosinophilic esophagitis, indicating that perceived vulnerability can heighten vigilance even in non-interpersonal domains (Taft et al., 2021). These findings support the idea that hypervigilance is both domain-general and context-sensitive, making it particularly relevant for the psychological processes involved in marital insecurity following trauma.

Despite growing recognition of its clinical relevance, few studies have examined hypervigilance as a *mediator*—particularly in the context of romantic relationships. The literature thus far has focused on direct associations between trauma exposure and relational functioning, leaving a theoretical and empirical gap in understanding the mechanisms that link these variables. Hypervigilance may represent one such mechanism. As shown by Hollinsaid et al. (2022), hypervigilance may act as a cognitive intermediary between early adversity or stigma and later mental health outcomes (Hollinsaid et al., 2022). Extending this model to marital dynamics, it is plausible that post-traumatic stress fosters hypervigilant relational schemas, which in turn predict marital insecurity.

Therefore, the current study aims to fill this gap by investigating hypervigilance as a mediating variable in the relationship between post-traumatic stress and marital insecurity among married adults.

Methods and Materials

Study Design and Participants

This study employed a descriptive correlational design to examine the mediating role of hypervigilance in the relationship between post-traumatic stress and marital insecurity among adults in Kenya. The target population consisted of married individuals residing in urban and semi-urban regions of Kenya. A total of 409 participants were recruited using stratified random sampling, with sample size determination based on the Morgan and Krejcie (1970) sample size table, which recommends a sample of 409 for populations exceeding 100,000. Inclusion criteria required participants to be legally married, aged 20 years or older, and able to comprehend English. Ethical approval was secured prior to data collection, and all participants provided informed consent.

Measures

To assess marital insecurity, the Marital Insecurity Questionnaire (MIQ) developed by Hawkins, Willoughby, and Doherty (2012) was used. This tool measures the extent to which individuals feel uncertain, anxious, or fearful about the future of their marital relationship. The MIQ consists of 20 items distributed across two subscales: Emotional Uncertainty (e.g., fear of emotional abandonment) and Behavioral Ambiguity (e.g., lack of commitment-related actions). Respondents rate each item on

a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater marital insecurity. The scale has demonstrated strong internal consistency in previous studies (Cronbach's alpha values > 0.85) and has shown good convergent and discriminant validity when compared with measures of relationship satisfaction and attachment anxiety.

Hypervigilance was measured using the Hypervigilance Questionnaire (HVQ) developed by Mayer, Muris, and van Melick (2008). The HVQ is designed to assess an individual's heightened sensitivity and constant scanning of the environment for potential threats, which is often characteristic of trauma-related cognitive patterns. The questionnaire includes 15 items and is unidimensional. Participants respond on a 4-point Likert scale ranging from 0 (not at all true for me) to 3 (completely true for me), with total scores ranging from 0 to 45. Higher scores reflect a higher level of hypervigilant behavior. The HVQ has been validated in both clinical and non-clinical samples, showing excellent internal consistency (Cronbach's alpha around 0.90) and strong test-retest reliability over a two-week period. Its construct validity has also been confirmed through correlations with anxiety and PTSD symptomatology.

Post-traumatic stress symptoms were assessed using the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) developed by Weathers et al. (2013). This widely used self-report measure consists of 20 items corresponding to the diagnostic criteria for PTSD in the DSM-5, covering four symptom clusters: Intrusion, Avoidance, Negative Alterations in Cognitions and Mood, and Alterations in Arousal and Reactivity. Each item is rated on a 5-point Likert scale from 0 (not at all) to 4 (extremely), resulting in a total score range of 0 to 80. Higher scores indicate greater severity of PTSD symptoms. The PCL-5 has shown excellent psychometric properties, with internal consistency coefficients typically above 0.90 and high convergent validity with other trauma-related measures. It is considered a gold-standard tool in trauma research and clinical screening.

Data analysis

Data analysis was conducted using SPSS version 27 and AMOS version 24. Initially, descriptive statistics were used to summarize the demographic characteristics of the participants. Pearson correlation coefficients were computed to examine the bivariate relationships between post-traumatic stress, hypervigilance, and marital insecurity. To test the hypothesized mediating model, Structural Equation Modeling (SEM) was performed using AMOS. Model fit indices including the Chi-square statistic, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were used to assess model adequacy.

Findings and Results

Of the 409 participants, 221 (54.03%) were female and 188 (45.97%) were male. The participants ranged in age from 22 to 61 years, with a mean age of 38.67 years (SD = 9.84). Regarding educational attainment, 128 participants (31.29%) had a secondary school education, 173 (42.30%) held a diploma or undergraduate degree, and 108 (26.41%) had a postgraduate qualification. In terms of marital duration, 96 participants (23.47%) had been married for less than 5 years, 162 (39.61%) between 5 and 10 years, and 151 (36.92%) for over 10 years. The sample included participants from diverse ethnic backgrounds within Kenya, primarily from Nairobi, Mombasa, and Kisumu counties.

Table 1. Descriptive Statistics for Research Variables (N = 409)

Variable	Mean (M)	Standard Deviation (SD)
Post-Traumatic Stress	42.73	12.48
Hypervigilance	27.19	6.84
Marital Insecurity	59.41	10.67

Table 1 displays the descriptive statistics for the main study variables. The mean score for post-traumatic stress was 42.73 (SD = 12.48), indicating a moderate level of trauma-related symptoms among participants. Hypervigilance had a mean of 27.19 (SD = 6.84), suggesting above-average levels of threat sensitivity. The mean marital insecurity score was 59.41 (SD = 10.67), reflecting substantial concern and anxiety regarding marital stability within the sample.

Table 2. Pearson Correlation Coefficients Between Study Variables (N = 409)

Variables	1	2	3
1. Post-Traumatic Stress	—		
2. Hypervigilance	.58** (p < .001)	—	
3. Marital Insecurity	.46** (p < .001)	.53** (p < .001)	—

Prior to conducting correlation and SEM analyses, key statistical assumptions were tested and confirmed. Normality was assessed using skewness and kurtosis values, which were within the acceptable range of -2 to +2 for all continuous variables (e.g., skewness = 0.63 and kurtosis = -0.58 for marital insecurity). Linearity was verified through inspection of scatterplots, which indicated linear relationships between variables. Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all values below 2.30, indicating no multicollinearity concerns. Homoscedasticity was confirmed through examination of standardized residual plots, which showed constant variance across levels of predicted values. Finally, Mahalanobis distance was used to assess multivariate outliers; none of the cases exceeded the critical chi-square value at $p < .001$ for the model's degrees of freedom, confirming no significant outliers were present. These results validated the data's suitability for SEM and correlational analysis.

As shown in Table 2, all variables were significantly correlated. Post-traumatic stress was positively correlated with hypervigilance ($r = .58$, $p < .001$) and marital insecurity ($r = .46$, $p < .001$), indicating that greater trauma symptoms were associated with increased vigilance and relational distress. Hypervigilance also showed a strong positive correlation with marital insecurity ($r = .53$, $p < .001$), supporting its hypothesized mediating role.

Table 3. Fit Indices for the Structural Equation Model

Fit Index	Value	Acceptable Threshold
Chi-Square (χ^2)	126.78	—
Degrees of Freedom (df)	52	—
χ^2/df	2.44	< 3.00
GFI	0.94	> 0.90
AGFI	0.91	> 0.90
CFI	0.96	> 0.95
TLI	0.95	> 0.95
RMSEA	0.058	< 0.08

Table 3 presents the model fit indices for the structural model. The chi-square value was 126.78 with 52 degrees of freedom, yielding a χ^2/df ratio of 2.44, which falls within the acceptable range. Goodness-of-fit indices were excellent: GFI = 0.94, AGFI = 0.91, CFI = 0.96, and TLI = 0.95. The RMSEA was 0.058, indicating a close fit of the model to the observed data. Collectively, these indices demonstrate that the proposed model has a satisfactory fit.

Table 4. Direct, Indirect, and Total Effects Between Variables in the Structural Model

Path	B	S.E.	β	p
Post-Traumatic Stress → Hypervigilance	0.67	0.07	.58	< .001
Hypervigilance → Marital Insecurity	0.74	0.08	.53	< .001
Post-Traumatic Stress → Marital Insecurity (Direct)	0.36	0.09	.27	< .001
Post-Traumatic Stress → Marital Insecurity (Indirect via Hypervigilance)	0.50	0.06	.31	< .001
Post-Traumatic Stress → Marital Insecurity (Total Effect)	0.86	—	.58	< .001

Table 4 illustrates the structural model path coefficients. The direct path from post-traumatic stress to hypervigilance was significant (B = 0.67, β = .58, p < .001). Hypervigilance significantly predicted marital insecurity (B = 0.74, β = .53, p < .001). The direct effect of post-traumatic stress on marital insecurity remained significant (B = 0.36, β = .27, p < .001), while the indirect effect via hypervigilance was also significant (B = 0.50, β = .31, p < .001). The total effect of post-traumatic stress on marital insecurity was strong (B = 0.86, β = .58, p < .001), confirming hypervigilance as a partial mediator in the model.

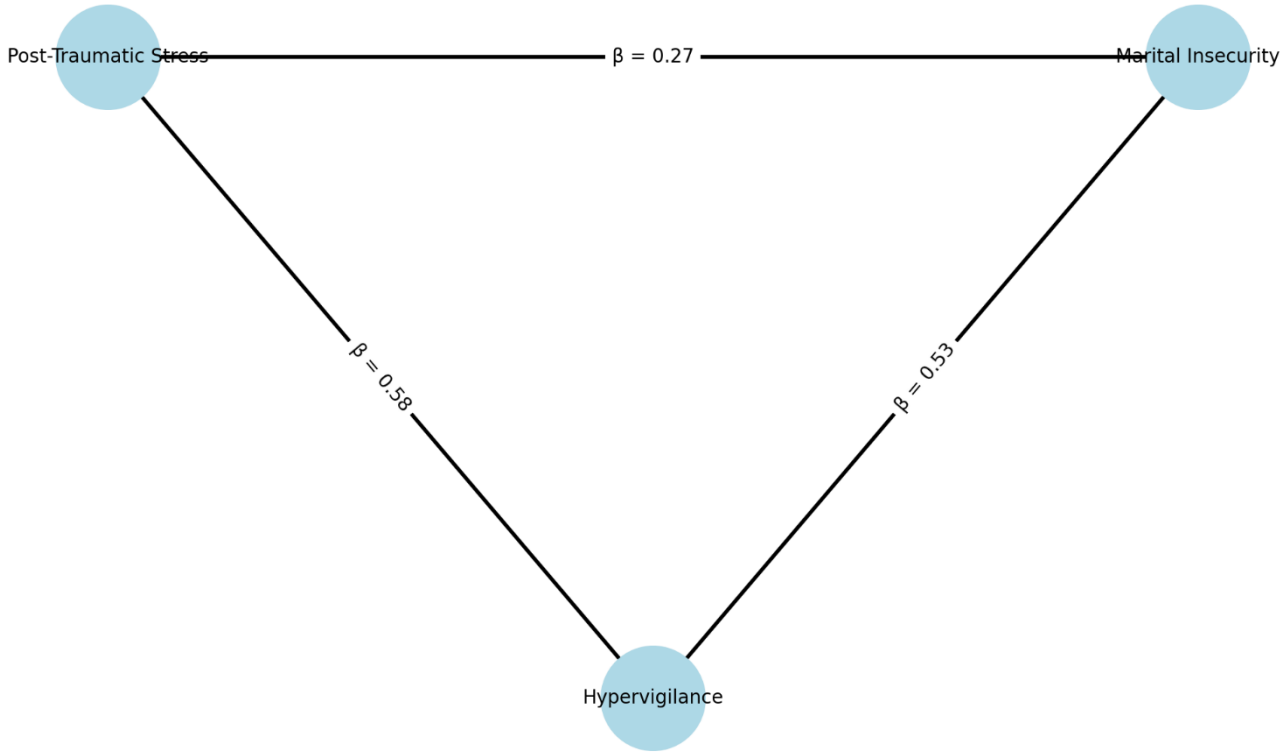

Figure 1. Final Model with Standardized Coefficients

Discussion and Conclusion

The results of this study provided empirical support for the hypothesized model, demonstrating that hypervigilance significantly mediates the relationship between post-traumatic stress and marital insecurity. Correlational analysis showed that post-traumatic stress was positively associated with both hypervigilance and marital insecurity. Additionally, structural equation modeling indicated that post-traumatic stress had a significant indirect effect on marital insecurity through hypervigilance, even when accounting for its direct effect. This finding suggests that trauma-exposed individuals may experience elevated levels of relational insecurity not solely due to the trauma itself, but as a consequence of persistent cognitive-emotional vigilance for potential interpersonal threats.

This finding aligns with prior research highlighting the impact of hypervigilance on interpersonal functioning. For instance, Kimble et al. (2014) describe hypervigilance as part of a "forward feedback loop," where heightened threat detection reinforces anxious expectations and further vigilance (Kimble et al., 2014). In a relational context, this cycle may manifest as emotional monitoring, misinterpretation of partner behavior, or withdrawal, contributing to an ongoing sense of marital insecurity. Our findings extend this model by providing evidence that post-traumatic stress can feed into this feedback loop, and in doing so, erode the foundation of relational trust and emotional safety.

Further, the mediating role of hypervigilance corroborates earlier work by Hollinsaid et al. (2022), who found that hypervigilance mediated the longitudinal relationship between stigma and internalizing psychopathology among sexual minority young adults (Hollinsaid et al., 2022). This supports the notion that hypervigilance functions as a generalizable psychological process through which external adversity becomes internal distress. Within marital dynamics, the vigilance triggered by past trauma may increase sensitivity to partner cues, resulting in biased appraisals of benign or ambiguous interactions as threatening, thus fueling insecurity. This is consistent with studies on attachment insecurity and emotional reactivity in trauma-exposed individuals (McNeil & Repetti, 2023; Sonkin et al., 2019).

Our study's findings are also consistent with clinical research linking hypervigilance to exaggerated responses in non-threatening environments. For example, Vossen et al. (2018) demonstrated that individuals with chronic pain exhibited persistent hypervigilance to tactile stimuli, supporting the notion of generalized heightened sensitivity (Vossen et al., 2018). Similarly, Guadagnoli et al. (2021) reported that individuals across different subtypes of gastroesophageal reflux disease displayed high esophageal hypervigilance, even when objective disease markers were absent (Guadagnoli et al., 2021). These studies underscore the idea that hypervigilance is not limited to physical domains but likely extends to social and relational contexts, as our results suggest.

The biological plausibility of this mediating mechanism is supported by neurophysiological research. Kleshchova et al. (2019) found that resting amygdala connectivity and elevated sympathetic tone were markers of chronic hypervigilance, indicating that trauma-related vigilance is embedded in biological readiness to detect threat (Kleshchova et al., 2019). This neural hyperactivation could underpin the behavioral tendency of trauma survivors to scan their partners for cues of rejection or betrayal, thereby intensifying marital insecurity. These findings are consistent with our interpretation that trauma-induced hypervigilance amplifies subjective threat perception in intimate settings, even when no actual relational danger is present.

Moreover, our findings resonate with studies examining the social implications of hypervigilance in marginalized or emotionally vulnerable populations. Rostosky et al. (2022) demonstrated that LGBTQ individuals' lived experiences of hypervigilance involved constant monitoring of social environments for rejection or invalidation, which parallels the interpersonal manifestations of hypervigilance within marriage observed in our study (Rostosky et al., 2022). Similarly, McGregor et al. (2019) documented how marginalized individuals developed adaptive but exhausting vigilance to protect against stigmatization, which ultimately contributed to psychological strain (McGregor et al., 2019). When applied to marital relationships, these cognitive-emotional processes may impair openness and emotional risk-taking, thereby inhibiting the development of secure bonds.

Additionally, our results reflect the cumulative literature on the association between hypervigilance and pain or anxiety sensitivity. Hollins and Walters (2016) found that experimentally induced hypervigilance altered perceptions of pain and unpleasantness, suggesting that vigilance reshapes subjective interpretations of otherwise neutral stimuli (Hollins & Walters, 2016). In a marital context, this may imply that partners' neutral behaviors or even affectionate acts are distorted through the lens of vigilance and interpreted as cold or suspicious, further compounding insecurity. These distortions likely contribute to the erosion of relational satisfaction, consistent with findings from Wong et al. (2014), who linked hypervigilance to quality-of-life impairments in individuals with chronic pain (Wong et al., 2014).

It is also worth noting the role of individual differences in moderating the hypervigilance-marital insecurity pathway. For example, genetic variability, such as catechol-O-methyltransferase polymorphisms, may influence how hypervigilance develops in response to emotional difficulties (Ikarashi et al., 2021). Furthermore, auditory or cognitive processing differences may influence one's baseline sensitivity to change or threat (Otsuru et al., 2021). This has implications for the generalizability

of our findings, as some individuals may be neurologically predisposed to hypervigilance, and thus more vulnerable to relational insecurity in the aftermath of trauma.

Hypervigilance has also been implicated in developmental and child psychology as a mechanism that shapes social functioning from a young age. Qualter et al. (2012) reported that lonely children exhibited hypervigilance for social threat, which predicted greater emotional difficulty and social withdrawal (Qualter et al., 2012). When carried into adulthood, these cognitive templates may manifest as persistent interpersonal mistrust and avoidance, especially within emotionally significant relationships. Our findings support this developmental trajectory by showing how adult hypervigilance mediates the link between trauma and marital insecurity.

Taken together, this study advances the literature by demonstrating the centrality of hypervigilance in linking trauma to relational outcomes. Previous studies have often examined hypervigilance in isolation or as an outcome; however, our results position it as a mechanism of transmission, through which traumatic memories and physiological arousal translate into cognitive-behavioral patterns that damage intimacy. Fulham et al. (2017) highlighted how hypervigilance influences physical behavior such as gait following sexual trauma, indicating its pervasive impact across domains of functioning (Fulham et al., 2017). By extending these findings to the relational domain, our study underscores the need to address hypervigilant patterns in both individual and couples therapy to restore relational safety and trust.

Despite the strengths of this study, several limitations should be acknowledged. First, the use of a cross-sectional design limits the ability to infer causality between post-traumatic stress, hypervigilance, and marital insecurity. Longitudinal research is necessary to determine the temporal ordering and potential bidirectionality of these variables. Second, the reliance on self-report instruments may have introduced response bias or socially desirable answers, particularly on sensitive items related to marital functioning and trauma. Third, although the sample was demographically diverse in terms of geography within Kenya, it may not fully capture the variability in cultural norms, gender dynamics, or trauma exposure prevalent across other contexts. Additionally, the study did not differentiate between types of trauma (e.g., combat, abuse, disaster), which may have varying implications for hypervigilance and relationship dynamics.

Future research should employ longitudinal and experimental designs to explore how hypervigilance develops over time and whether changes in hypervigilant behavior can predict fluctuations in marital security. Moreover, it would be valuable to examine potential moderating variables such as emotional regulation capacity, attachment style, and partner responsiveness to better understand under what conditions hypervigilance becomes maladaptive. Including qualitative methodologies could also provide deeper insight into how individuals narrate and make sense of their vigilance and marital experiences. Future work should also examine these mechanisms across cultures, genders, and sexual orientations to establish broader generalizability and uncover possible sociocultural buffers or risk factors.

The findings of this study have significant implications for both individual and couple-based therapeutic interventions. Clinicians should assess for hypervigilance as a routine part of trauma-informed care, especially when treating couples where one or both partners present with post-traumatic symptoms. Cognitive-behavioral and mindfulness-based interventions aimed at reducing hypervigilant thought patterns could be integrated into treatment protocols to enhance relational security. In couples therapy, interventions should focus on fostering emotional safety, validating trauma-related concerns, and establishing communication strategies that de-escalate perceived threats. Training spouses to recognize and respond compassionately to signs of hypervigilance may further reduce misunderstandings and reinforce secure relational patterns.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

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Authors' Contributions

All authors equally contributed to this study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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