KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 19 February 2026
Revised 30 April 2026
Accepted 18 May 2026
Initial Publish 22 May 2026
Published online 01 October 2026

Journal of Assessment and Research in Applied Counseling

Volume 8, Issue 4, pp 1-14

E-ISSN: 3041-8518

Narratives of Orthopedic Residents on Vicarious Trauma: A Narrative Analysis of Therapeutic Meaning Reconstruction

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Aminian, A., Shakeri, M.R., Moeini, J., & Shokatpour Lotfi, Sh. (2026). Narratives of Orthopedic Residents on Vicarious Trauma: A Narrative Analysis of Therapeutic Meaning Reconstruction. *Journal of Assessment and Research in Applied Counseling, 8*(4), 1-14.
http://dx.doi.org/10.61838/kman.jarac.5418

A B S T R A C T

Objective: The present study was conducted to explore and understand the lived experiences of orthopedic residents in confronting vicarious trauma and to elucidate the process of meaning reconstruction among them.

Methods and Materials: This study was conducted using a qualitative approach and descriptive phenomenological methodology. Five orthopedic residents working at the Bone and Joint Reconstruction Research Center of Shafa Yahyaeian Hospital were selected through purposive sampling. Data were collected through semi-structured interviews and analyzed using Colaizzi's seven-step method. To ensure scientific rigor, Guba and Lincoln's criteria, including credibility, transferability, dependability, and confirmability, were employed.

Findings: Data analysis resulted in the identification of five main thematic clusters: (1) cumulative systemic burden (burnout and structural injustice); (2) confrontation with therapeutic trauma (patient death and violence); (3) emotional and coping reactions (emotional numbness and anger); (4) reconstruction of professional meaning (therapeutic efficacy and family support); and (5) professional identity at the crossroads (doubt and a dual future). The findings demonstrated that trauma among orthopedic residents is a cumulative process that begins with systemic pressure and leads to a rupture in meaning; however, through intrinsic resources and feedback from patient recovery, processes of meaning reconstruction and vicarious resilience ultimately emerge.

Conclusion: Orthopedic residents encounter traumatic moments within a context of limited organizational support that challenges their framework of meaning. Nevertheless, the enduring core of their professional identity is preserved through spontaneous meaning-making processes.

Keywords: *Secondary traumatic stress, meaning reconstruction, orthopedic residents, phenomenology, vicarious resilience, and vicarious trauma.*

1. Introduction

Vicarious trauma is one of the most complex psychological consequences of sustained professional exposure to the suffering, injury, death, and traumatic narratives of others. Although trauma has traditionally been examined in relation to individuals who directly experience life-threatening events, contemporary psychological literature increasingly emphasizes that indirect exposure to trauma can also transform the emotional, cognitive, relational, and professional worlds of those who provide care. Professionals who repeatedly witness severe injury, grief, violence, medical failure, or human vulnerability may gradually internalize fragments of these experiences and develop changes in their assumptions about safety, control, meaning, justice, and professional efficacy (Adams & Riggs, 2008; Sui & Padmanabhanunni, 2016). In this regard, vicarious trauma is not merely an acute stress reaction but a cumulative psychological process that develops through repeated empathic engagement with traumatic material. This process is especially important in professions where exposure to trauma is embedded in the ordinary structure of work rather than occurring as an exceptional event. Orthopedic residents constitute one such group because their daily clinical environment includes accidents, fractures, amputations, severe pain, disability, patient death, family distress, and emergency decision-making.

The concept of vicarious trauma was first developed primarily in relation to psychotherapists and counselors working with survivors of violence, abuse, and complex trauma; however, subsequent research has shown that the phenomenon extends across a wide range of helping professions, including mental health practitioners, nurses, child welfare professionals, refugee service providers, crisis workers, and healthcare teams exposed to large-scale medical emergencies (Harrison & Westwood, 2009; Li et al., 2020; Middleton & Potter, 2015). The shared feature across these occupations is repeated contact with the traumatic experiences of others through clinical responsibility, emotional attunement, or caregiving involvement. In healthcare contexts, the professional is not only a witness to suffering but also an actor who is expected to intervene, make decisions, relieve pain, and prevent loss. This responsibility may intensify the psychological burden of indirect trauma because the clinician may interpret unfavorable outcomes as personal failure, systemic injustice, or evidence of the limits of treatment.

Orthopedic residency is a highly demanding stage of medical professional development. Residents work within an environment characterized by high workload, sleep deprivation, hierarchical pressure, emergency admissions, complex surgeries, and frequent encounters with patients experiencing acute physical trauma. Unlike many psychological or counseling settings in which traumatic material is mainly narrated, orthopedic residents often encounter trauma as embodied reality: crushed limbs, amputation, severe fractures, irreversible disability, child injury, and death after unsuccessful resuscitation. These clinical encounters may generate not only distress but also moral and existential questions about the meaning of medical practice. When the resident is repeatedly exposed to patients whose bodies have been damaged, whose futures have changed abruptly, or whose families respond with grief, anger, or aggression, the experience may gradually affect the resident's sense of professional competence, emotional boundaries, and identity as a healer.

Previous studies show that vicarious trauma among trainees deserves particular attention because individuals in training are simultaneously developing professional competence and forming their professional identity. Adams and Riggs demonstrated that therapist trainees may experience vicarious trauma while still learning how to manage boundaries, supervision, empathy, and self-care (Adams & Riggs, 2008). DelTosta and colleagues further emphasized that trainee vicarious traumatization is shaped by the quality of supervisory working alliance and empathy, indicating that exposure to trauma becomes more harmful when trainees lack supportive professional relationships (DelTosta et al., 2019). Although these findings come from psychotherapy training contexts, they are highly relevant to medical residency, where trainees are exposed to high-intensity events while still occupying a subordinate institutional position. Orthopedic residents may be expected to function competently in crisis situations, yet they may not have adequate structured space to narrate, process, and integrate traumatic experiences.

The literature also shows that indirect exposure to trauma is closely related to burnout, emotional exhaustion, and changes in professional commitment. Middleton and Potter found that vicarious traumatization can be associated with turnover among child welfare professionals, suggesting that trauma exposure may weaken professional persistence when organizational support is insufficient (Middleton & Potter, 2015). Kounenou and colleagues showed that empathy, vicarious trauma, and burnout interact among mental health

practitioners, indicating that the very capacity that enables effective care may also increase vulnerability to emotional depletion (Kounenou et al., 2023). This dual role of empathy is highly relevant in surgical and emergency medical contexts. Residents must remain emotionally responsive enough to recognize patient suffering, yet sufficiently regulated to perform technically demanding procedures. When the emotional load becomes chronic and unsupported, empathy may shift from a source of professional meaning to a pathway toward exhaustion, anger, or emotional numbness.

Healthcare research during and after the COVID-19 pandemic further expanded understanding of vicarious traumatization in medical populations. Li and colleagues reported vicarious traumatization not only among members of medical teams but also among the general public exposed to pandemic-related suffering, demonstrating that indirect trauma may arise through witnessing, identification, and perceived vulnerability (Li et al., 2020). Kalaitzaki and Rovithis examined secondary traumatic stress and vicarious posttraumatic growth among healthcare workers during the first lockdown in Greece and highlighted the roles of resilience and coping strategies (Kalaitzaki & Rovithis, 2021). These studies suggest that medical professionals do not respond to indirect trauma in a uniform way. Some experience exhaustion, intrusive distress, and emotional disturbance, while others report strengthened meaning, increased appreciation of life, or deeper commitment to caregiving. Therefore, the study of vicarious trauma must attend not only to symptoms but also to the processes through which professionals reconstruct meaning after traumatic exposure.

A growing body of research has introduced the concepts of vicarious resilience and vicarious posttraumatic growth to explain positive transformations that may emerge through indirect exposure to trauma. Puvimanasinghe and colleagues showed that professionals working with refugees and asylum seekers may experience both vicarious traumatization and vicarious resilience, indicating that witnessing survivors' strength can reinforce hope, meaning, and professional commitment (Puvimanasinghe et al., 2015). Beck and Casavant described vicarious posttraumatic growth among neonatal intensive care nurses, showing that repeated exposure to critical care and family suffering may also lead to growth in compassion, perspective, and professional meaning (Beck & Casavant, 2019). Similarly, Willcott-Benoit and Cummings reviewed vicarious growth, traumatization, and event centrality in loved ones indirectly exposed to interpersonal trauma, emphasizing that indirect trauma can become integrated into one's meaning system in both distressing and growth-oriented ways (Willcott-Benoit & Cummings, 2024). These findings indicate that the same traumatic context can contain both destructive and reconstructive psychological potentials.

The process of meaning-making is central to understanding why indirect trauma affects professionals differently. McCormack and Adams argued that therapists working with complex trauma in inpatient settings actively make meaning of vicarious distress, especially when professional models are insufficient to contain the complexity of suffering they encounter (McCormack & Adams, 2016). This insight is important for orthopedic residents because medical culture often privileges technical competence, decisiveness, and emotional control, while providing limited language for processing the existential and narrative dimensions of trauma. A resident may successfully perform a clinical task and still struggle with the meaning of what occurred: Why did the patient die? Why was the family violent? Why did the treatment fail? Why does the system demand so much while offering so little support? Such questions show that vicarious trauma is not limited to emotional symptoms; it also involves a disruption in the professional's interpretive framework.

Narrative approaches are especially suitable for examining these disruptions because trauma is often organized, remembered, and repaired through narrative. Kim and Park's narrative study of crime victim counselors showed that the experience of vicarious trauma can be understood through personal stories in which professionals describe distress, role conflict, coping, and the reconfiguration of meaning (Kim & Park, 2024). Narrative inquiry allows researchers to move beyond symptom checklists and examine how professionals position themselves in relation to suffering, responsibility, institutional constraints, and future identity. For orthopedic residents, narrative analysis can reveal how they interpret the transition from initial idealism to clinical burden, how they describe emotionally overwhelming cases, and how they reconstruct the meaning of being a physician after encounters with death, disability, or violence.

The importance of organizational and supervisory support has been repeatedly emphasized in the literature on vicarious trauma. Harrison and Westwood identified protective practices for mental health therapists, including professional self-awareness, balance, peer support, supervision, and strategies that sustain personal and

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E-ISSN: 3041-8518

professional vitality (Harrison & Westwood, 2009). Kim and colleagues, in a scoping review of vicarious trauma interventions for service providers working with people who have experienced traumatic events, highlighted the need for interventions that target both individual coping and organizational conditions (Kim et al., 2021). These findings suggest that resilience should not be conceptualized solely as an individual trait. When systems expose professionals to repeated trauma without sufficient rest, supervision, recognition, or emotional processing, the burden becomes structurally produced. In orthopedic residency, this point is particularly important because residents may experience trauma in a context already marked by long shifts, financial strain, hierarchical expectations, and limited psychological support.

Recent nursing studies further demonstrate that indirect trauma may affect work quality, moral resilience, and professional growth. Riaz and Fatima showed that obsessive-compulsive symptoms may mediate the relationship between vicarious trauma and nurses' quality of work life, indicating that indirect trauma can influence not only emotional health but also occupational functioning (Riaz & Fatima, 2026). Ye and colleagues examined the mediating role of death coping between moral resilience and vicarious posttraumatic growth among ICU nurses, suggesting that the capacity to cope with death-related experiences is central to transforming traumatic exposure into growth (Ye et al., 2025). Hlomuka's work on nurses caring for victims of sexual abuse also points to the psychological burden experienced by professionals who provide care within emotionally intense trauma systems (Hlomuka, 2024). These findings are directly relevant to orthopedic residents, who frequently confront bodily trauma and death-related events, but whose experiences remain less systematically studied than those of nurses, therapists, or counselors.

Despite the growing literature on vicarious trauma in mental health and nursing professions, there remains a significant gap concerning surgical residents, especially orthopedic residents. Existing studies have often focused on therapists, counselors, nurses, child welfare professionals, or healthcare workers in pandemic and intensive care settings (Kalaitzaki & Rovithis, 2021; Kounenou et al., 2023; Sui & Padmanabhanunni, 2016). However, orthopedic residents occupy a distinctive position: they are trainees and clinicians, they work with acute bodily injury and chronic disability, and they are embedded in a system where technical performance may overshadow emotional processing. Their exposure to trauma is not only verbal or relational but also visual, tactile, procedural, and decision-based. This distinctive clinical context requires a focused qualitative inquiry capable of capturing the lived and narrated meanings of indirect trauma.

The present study is grounded in the assumption that vicarious trauma among orthopedic residents should be understood as a multidimensional process involving systemic burden, traumatic confrontation, emotional response, coping, meaning reconstruction, and professional identity development. Rather than treating distress and resilience as separate outcomes, this study conceptualizes them as intertwined elements of residents' narratives. An orthopedic resident may feel exhausted and still find meaning in a patient's recovery; may experience anger toward systemic injustice and still strengthen professional commitment; may become emotionally numb in some situations while becoming more clinically vigilant in others. This complexity cannot be adequately captured through quantitative symptom measures alone. A qualitative phenomenological-narrative approach allows the researcher to examine how residents describe what happened, what it meant, how it changed them, and how they continue to remain within the profession.

Accordingly, the significance of this study lies in its attempt to bring the psychological experience of orthopedic residents into the field of trauma research. By focusing on indirect trauma and therapeutic meaning reconstruction, the study contributes to the broader literature on secondary traumatic stress, vicarious traumatization, vicarious resilience, and professional identity formation. It also has practical implications for medical education and hospital systems. If residents' distress is interpreted only as individual weakness, interventions will remain limited to personal coping. However, if their narratives reveal systemic burden, lack of support, and unprocessed exposure to traumatic events, then institutional responses such as reflective supervision, narrative support groups, structured debriefing, and trauma-informed residency education become necessary. Such interventions can help residents maintain emotional vitality while preserving the ethical and humanistic core of medical practice.

The aim of the present study was to explore the lived experiences of orthopedic residents in confronting vicarious trauma and to explain the process through which they reconstruct therapeutic meaning within the context of cumulative systemic pressure and repeated exposure to traumatic clinical events.

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2. Methods and Materials

2.1. Study Design and Participants

The present study was conducted with the aim of deeply exploring and understanding the lived experiences of orthopedic residents in confronting the phenomenon of vicarious trauma and the associated processes of meaning-making. Given the exploratory nature of the subject and the necessity of accessing the hidden layers of participants' perceptions, a descriptive phenomenological approach was employed.

The study population purposively consisted of orthopedic residents at the Bone and Joint Reconstruction Research Center of Shafa Yahyaeian Hospital, affiliated with Iran University of Medical Sciences. Participants were selected using purposive sampling in order to recruit individuals with rich experiences of exposure to trauma. The sample size was determined based on theoretical saturation and included five orthopedic residents (first- and second-year residents).

2.2. Instruments

Data were collected through semi-structured interviews. Each interview began with open-ended questions to provide sufficient space for free narrative expression. The primary focus was on emotional experiences, systemic pressures, and critical moments encountered in working with trauma patients. All interviews were audio-recorded following informed consent and subsequently transcribed verbatim for analysis.

2.3. Data analysis

Qualitative data were analyzed using Colaizzi's (1978) seven-step method, implemented as follows:

1. Reviewing all interview data: repeated reading of transcripts to gain an overall understanding of the experiences and the general atmosphere of the narratives.
2. Extracting significant statements from the interview texts: identifying and isolating statements directly related to experiences of trauma and meaning-making (25 key statements were extracted).
3. Formulating meanings: translating raw statements into scientific-descriptive language in order to uncover the abstract concepts underlying participants' words.
4. Thematic clustering: categorizing the formulated meanings into five major thematic clusters and 22 subthemes.
5. Exhaustive description: developing a coherent narrative of the phenomenon encompassing all dimensions of participants' experiences.
6. Fundamental structure description: reducing the data to the essential structure and core nature of the phenomenon.
7. Final validation: returning to participants to confirm the congruence of the analyses with their actual lived experiences.

To ensure the rigor and trustworthiness of the qualitative data, the criteria proposed by Guba and Lincoln (1994) were employed to evaluate the scientific accuracy of the study:

- **Credibility:** Achieved through prolonged engagement of the researcher with the research topic, member checking, and participant confirmation that the findings accurately reflected their genuine lived experiences.
- **Transferability:** Refers to the extent to which findings may be generalized to other contexts. This was addressed by providing a "thick description" of the research setting and participants' characteristics.
- **Dependability:** Reflects the consistency of internal processes and the manner in which the researcher examined changing conditions of the phenomenon. This criterion was ensured through comprehensive documentation of all stages of analysis and detailed recording of the researcher's decision-making processes.
- **Confirmability:** Ensured through efforts to bracket the researcher's prior assumptions and to demonstrate that the findings were directly derived from the data. It also refers to the extent to which other researchers would confirm the findings after reviewing the study results.

3. Findings and Results

This study was conducted with the aim of exploring and understanding the lived experiences of orthopedic residents in confronting vicarious trauma. Five semi-structured interviews were conducted with residents at Shafa Yahyaeian Hospital. The data were analyzed using Colaizzi's seven-step method.

Stage One: Reading and Re-Reading

At this stage, the researcher repeatedly reviewed all five interviews in order to obtain a holistic understanding of the participants' experiences. The aim was not analysis, but

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immersion in the mental and emotional world of each participant.

Table 1

Summary of Participants' Characteristics

Participant	Residency Year	Clinical Area	Salient Characteristic
P1	First-year residency	Orthopedics – emergency department and inpatient ward	High systemic pressure, sense of meaninglessness, hopelessness regarding financial future
P2	Second-year residency	Orthopedics – specialty clinic, hip and pelvis service, shoulder, tumor, and knee services	Exposure to pediatric tumors, anger toward violence from patients' families
P3	Second-year residency	Orthopedics – emergency department, specialty clinic, tumor service, hip and pelvis service, etc.	Perfectionism, high resilience, music as a restorative resource
P4	First-year residency	Orthopedics – emergency department and inpatient care	Child abuse exposure, introversion, confusion regarding professional identity
P5	Second-year residency	Orthopedics – specialty clinic, hip and pelvis service, tumor and knee services	Systemic burnout, death of a pregnant woman, limited hope for the future

After repeated reading, the researcher found that the interviews were commonly permeated by three principal emotional tones: chronic exhaustion and sleep deprivation, feelings of helplessness in the face of the system, and, simultaneously, sparks of meaning and motivation during moments of effective patient care.

Stage Two: Extraction of Significant Statements

At this stage, the researcher extracted all sentences and expressions directly related to the phenomenon under study—vicarious trauma and meaning-making—from the interview texts. The selection criterion included any statement describing a profound emotional, cognitive, or behavioral experience related to treatment.

Table 2

Raw Significant Statements (25 Statements)

Participant	Theme	Raw Significant Statement
P1	Systemic pressure/exhaustion	"From the moment I arrive at the hospital in the morning until night, there is literally no opportunity to rest."
P1	Financial-professional hopelessness	"Sometimes I get upset. Maybe I made a mistake choosing this specialty. I become hopeless wondering when things are finally going to improve."
P1	Meaning in direct treatment	"Part of our treatment involves reduction procedures; seeing patient satisfaction gives us satisfaction from treatment."
P1	Family support	"My family has played an important role for me—my brother, my father, and my mother."
P1	Change in professional identity	"I do my work confidently now; I feel more at ease. I model myself after those who have good character."
P2	Direct trauma (amputation)	"He was a 60-year-old man; after surgery we had to amputate his leg again."
P2	Anger toward injustice	"I was angry because I thought we had done our job correctly, and he was protesting for no reason."
P2	Hopelessness regarding the system	"I had become hopeless about treatment and surgery. Why couldn't we help him?"
P2	Reconstruction of meaning through peer growth	"When I saw that all of us were going through our own process of change, it gave me hope."
P2	Dual future	"Professionally I'm very hopeful, but on the other hand there's all this sleep deprivation and humiliation."
P3	Awareness of hardship	"I knew it would be difficult and involve sleepless nights, but I entered because of my interest."
P3	Joy from patient recovery	"The best thing a person can experience is being able to help someone who was suffering."
P3	Psychological resilience	"I didn't let it disrupt me. I try to give the positive energy I have to others."
P3	Music as restoration	"I become deeply attached to music. If I want to change my mood, I listen to music."
P3	Problematic perfectionism	"I had a perfectionistic personality, and that perfectionism was distressing."
P4	Shock of child abuse	"There were fractures in the pelvis and wrist; the wrist fracture was old. It seemed the abuse had been ongoing for a long time."
P4	Sadness and distress	"I became very upset. Even though the family was educated, they had neglected their child."
P4	Change in clinical behavior	"Now whenever a child comes in, I perform an overall examination. I ask permission to check the neck, back, and chest."
P4	Identity confusion	"Imagine what kind of job this is that I entered. I don't even like interacting with people."

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P4	Reliance on mother	"My mother helps me a lot. I talk to my family about traumatic cases."
P5	Systemic burnout	"With very low pay, they place a huge burden on our shoulders. We even do nurses' work."
P5	Severe trauma (death of pregnant mother)	"There was a pregnant woman who died along with her baby; we were performing CPR while both of them died simultaneously."
P5	Empathy with abandoned child	"The child had nobody. I bought supplies for him. He didn't even have diapers. I looked at him like my younger brother."
P5	Gradual indifference	"I've become somewhat indifferent to these issues; they no longer matter to me as much."
P5	Limited hope	"Hope for the future… I want to continue because there's no way back."

Across all interviews, 25 significant statements were identified. These statements encompassed a spectrum ranging from the collapse of meaning to its active reconstruction. A notable finding was that all participants described both moments of breakdown and moments of recovery in their narratives.

Stage Three: Formulation of Meanings

At this stage, the researcher translated each significant statement from everyday colloquial language into scientific-specialized language. This process involved uncovering the intention, feeling, belief, or meaning underlying each statement without imposing external interpretations.

Table 3

Formulated Meanings Derived From Raw Statements (20 Meanings)

Participant	Raw Statement	Formulated Meaning
P1	"I'm a first-year resident. Most of what I do involves constant rushing."	Feeling marginalized and perceiving one's role in the system as meaningless
P1	"Maybe I made a mistake choosing this specialty."	Identity doubt arising from the discrepancy between expectations and professional reality
P1	"I don't want to be blamed. I sacrifice my sleep, my rest, and my family."	Chronic anxiety rooted in fear of negative evaluation
P1	"The patient's pain matters to me."	Preservation of values despite environmental pressure
P2	"We had to amputate his leg."	Cumulative trauma arising from difficult treatment decisions
P2	"He threw the file at my face."	Anger as a reaction to injustice following violence
P2	"We try to handle it more peacefully."	Adaptive coping through active emotional guarding
P2	"When families become happy, their happiness keeps me on the right path."	Reconstruction of meaning through emotional feedback from patients and families
P3	"I knew it would be difficult, but I entered because of my interest."	Conscious choice and preexisting resilience capacity
P3	"Helping someone recover is the best feeling."	Peak positive meaning: therapeutic efficacy as an existential reward
P3	"I didn't let it disrupt me."	Active cognitive self-regulation against traumatic intrusion
P3	"I listen to music; it changes my mood."	Sensory-artistic coping strategy
P4	"The fracture was old. I suspected abuse."	Awakening of clinical sensitivity through vicarious trauma
P4	"Now when a child comes in, I examine them carefully."	Preventive clinical behavioral change as practical meaning-making
P4	"What kind of job did I enter?"	Conflict between personality profile and professional demands
P4	"My mother helps me a lot."	Instrumental social support as narrative processing
P5	"With low pay, we carry heavy responsibilities."	Structural injustice and erosion of role boundaries
P5	"The pregnant woman and her baby both died while we were doing CPR."	Severe trauma: dual loss, inability to save, lived experience of death
P5	"I looked at him like my younger brother."	Personalized connection as preservation of clinical humanity
P5	"I've become somewhat indifferent."	Gradual emotional numbness as a defense mechanism

The formulated meanings demonstrated that participants confronted trauma on multiple levels: cognitive (role redefinition), emotional (anger, sadness, emotional numbness), and behavioral (changes in clinical behavior). Furthermore, processes of meaning reconstruction were traceable in all participants.

Stage Four: Thematic Clustering

At this stage, the formulated meanings were grouped together in order to reveal shared patterns and latent themes. Five major thematic clusters were identified, each describing one layer of the participants' experiences.

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Table 4

Thematic Clusters (5 Clusters, 22 Subthemes)

Thematic Cluster	Subtheme	Participants
Cluster 1: Cumulative Systemic Burden	Chronic sleep deprivation and physical exhaustion	P1, P3, P4, P5
	Structural injustice (non-specialized work and inadequate salary)	P5, P4
	Evaluation pressure and fear of blame	P1
	Sense of role meaninglessness within the system	P1, P5
Cluster 2: Confrontation With Therapeutic Trauma	Experience of amputation and difficult decisions	P2
	Encountering patient death (pregnant mother)	P5
	Discovery of child abuse	P4
	Violence from patients' families	P2
	Malignant illness in children	P2, P3
Cluster 3: Emotional and Coping Reactions	Anger in response to injustice	P2
	Empathic sadness and identification with patients	P5, P4
	Gradual emotional numbness	P5, P1
	Active emotional guarding	P2
	Cognitive self-regulation (music and nature)	P3
Cluster 4: Reconstruction of Professional Meaning	Therapeutic efficacy as existential reward	P3, P2, P1
	Preventive change in clinical behavior	P4
	Modeling after peers with positive character	P1, P3
	Narrative processing with family support	P4, P1, P2
Cluster 5: Professional Identity at the Crossroads	Identity doubt ("Did I choose the wrong specialty?")	P1, P4
	Conflict between personality profile and professional demands	P4
	Dual future (professional hope + financial hopelessness)	P2, P5
	Strengthening identity through controlling what is possible	P1, P2

Interpretation: The thematic clustering demonstrated that vicarious trauma in this group was not a singular experience, but rather a cumulative process beginning with systemic burden, intensified through acute traumatic encounters, and resulting in diverse emotional reactions. A central finding was that all participants, despite differences in trauma severity, experienced some process of meaning reconstruction.

Stage Five: Exhaustive Description

At this stage, the researcher developed a comprehensive narrative description of the phenomenon based on the thematic clusters in order to represent the shared experiential structure of all participants.

A) Threshold: Entering the Space of Cumulative Burden

From the very first day of residency, orthopedic residents are placed in an environment characterized by chronic sleep deprivation, accumulated workload, and engagement in non-specialized tasks. All participants described a common pattern in which "before you even have time to think, you have to run." This condition creates a negative psychological preparedness for trauma exposure; individuals confront intense scenes before having sufficient restorative resources.

B) The Moment of Confrontation: Trauma as a Rupture of Meaning

Traumatic events emerged in interviews in two forms: cumulative trauma (gradual accumulation of difficult experiences such as pediatric tumors and amputations) and acute trauma (death of a pregnant mother, discovery of child abuse, and physical violence from patients' families). In both forms, the most common initial reaction was a "rupture of meaning": a feeling that therapeutic work had become "insufficient" and "meaningless." This rupture was expressed in statements such as "Why couldn't we help?" and "What kind of profession is this?"

C) Diverse Reactions: From Numbness to Anger

Reactions differed depending on participants' personalities and available resources. P2 experienced overt reactive anger. P5 moved toward gradual emotional numbness: "I became indifferent." P3 used active self-regulation and "pushed the trauma away." P4 internalized the experience more quietly. P1 fluctuated between hopelessness and attempts to preserve meaning. This diversity indicates that responses to vicarious trauma are idiographic processes.

D) The Reconstruction Process: Where Does Meaning Come From?

Despite differences in their trajectories, all participants ultimately reported some process of meaning reconstruction. This reconstruction derived from four primary sources: (1)

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direct feedback from patient recovery ("when the patient gets better"), (2) family support and social narrative processing, (3) modeling after peers with positive character, and (4) sensory-artistic strategies (music and nature outings). Importantly, meaning reconstruction in this group was largely personal and self-generated rather than the product of institutional support.

E) Outcome: Professional Identity in the Process of Becoming

The experience of vicarious trauma reconstructed participants' professional identities not suddenly, but gradually over time through the accumulation of experiences. All participants described an identity "in the process of becoming," in which core values (helping patients and valuing others' suffering) remained stable, while coping mechanisms and emotional boundaries evolved.

Stage Six: Description of the Fundamental Structure

At this stage, the shared essence of all participants' experiences was articulated in the form of fundamental structures. Fundamental structures are those characteristics that, if removed, would fundamentally alter the nature of the experience itself.

Table 5

Fundamental Structures of the Phenomenon

No.	Structure Name	Structural Description	Participants
Structure 1	Cumulative systemic burden	Residency as a predisposing environment for traumatic vulnerability	All participants (P1–P5)
Structure 2	Acute rupture of meaning	Confrontation with trauma causing temporary collapse of the therapeutic meaning framework	P2, P4, P5
Structure 3	Differential emotional reaction	Anger/sadness/numbness/guarding depending on personality profile	All participants with variation
Structure 4	Reconstruction of personal meaning	Self-generated process of returning to meaning through internal resources	All participants (P1–P5)
Structure 5	Professional identity at the crossroads	Doubt, stabilization, and redefinition of therapeutic identity within trauma contexts	P1, P2, P4
Structure 6	Dual future	Professional hope in conflict with structural-financial hopelessness	P2, P5

The orthopedic resident, within an environment of cumulative burden and limited systemic support, confronts traumatic moments that challenge their framework of meaning. Their responses, depending on personality profile and available resources, fluctuate from anger to emotional numbness; however, the process of meaning reconstruction—primarily occurring through patient feedback, family support, and modeling after peers—preserves the stable core of professional identity, even though that identity exists within a context of doubt and a dual future.

Stage Seven: Validation and Return to Participants

In the final stage of Colaizzi's method, the researcher's findings (fundamental structures and thematic clusters) were returned to participants for validation in order to determine whether the descriptions corresponded with their lived experiences.

Table 6

Validation Results Reported by Participants

Participant	Return Process	Reviewed Theme	Result
P1	Yes (through participant review)	Systemic exhaustion and hopelessness regarding the future	Fully confirmed
P2	Yes	Reactive anger cluster and reconstruction through hope derived from peer growth	Confirmed with additional emphasis on continued professional hope
P3	Yes	Resilience and self-regulation through music	Fully confirmed
P4	Yes	Change in clinical behavior following child abuse trauma	Fully confirmed
P5	Yes	Gradual numbness and the heaviness of dual-death experience	Fully confirmed

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E-ISSN: 3041-8518

Table 7

Scientific Rigor: Guba and Lincoln's Criteria

Criterion	Description	Action Taken in This Study
Credibility	Do the findings accurately represent the experience?	Member checking and extensive use of direct quotations
Transferability	Can the findings be transferred to similar situations?	Detailed description of the clinical setting
Dependability	Is the research process traceable?	Documentation of every stage of Colaizzi's analysis
Confirmability	Are the findings derived from data rather than researcher bias?	Precise formulation and member review

The following table presents a comprehensive overview of the Colaizzi analytical pathway from raw statement to overarching theme.

Table 8

Comprehensive Analytical Map (From Statement to Main Theme)

Main Theme	Thematic Cluster	Sample Significant Statement	Formulated Meaning
Accumulated environmental pressure	Cumulative systemic burden	"From morning until night there is no opportunity."	Chronic sleep deprivation and role meaninglessness
Acute rupture of meaning	Traumatic confrontation	"Why couldn't we help?"	Temporary collapse of the therapeutic framework
Emotional reaction	Anger, sadness, numbness	"I was angry. We did our job correctly."	Anger as a reaction to injustice
Reconstruction of meaning	Patient feedback, peers, family	"When the patient gets better, that is the best thing."	Therapeutic efficacy as existential reward
Identity at the crossroads	Doubt and identity redefinition	"Maybe I chose the wrong specialty, but I still do my work."	Professional identity in the process of becoming
Dual future	Professional hope / structural hopelessness	"I hope to help, but… all the humiliation…"	Conflict between motivation and structural reality

4. Discussion

The present study aimed to explore the lived experiences of orthopedic residents confronting vicarious trauma and to explain the process through which they reconstruct therapeutic meaning in the context of repeated exposure to traumatic clinical events and cumulative systemic pressure. The findings demonstrated that vicarious trauma among orthopedic residents is not a singular or isolated psychological reaction, but rather a layered and cumulative process that evolves through the interaction of systemic burden, traumatic clinical exposure, emotional responses, coping strategies, and meaning reconstruction. The identified thematic clusters revealed that participants simultaneously experienced exhaustion, helplessness, anger, emotional numbness, identity conflict, and existential doubt while also preserving hope, professional commitment, and restorative meaning through patient recovery, peer modeling, family support, and self-generated coping resources. These findings support the broader conceptualization of vicarious trauma as a multidimensional phenomenon that affects emotional, cognitive, relational, and professional domains (Kounenou et al., 2023; Sui & Padmanabhanunni, 2016).

One of the central findings of the present study was the role of cumulative systemic burden in preparing residents for traumatic vulnerability. Participants repeatedly described chronic sleep deprivation, excessive workload, role ambiguity, non-specialized duties, inadequate financial compensation, and continuous institutional pressure. This finding suggests that traumatic vulnerability in orthopedic residency does not emerge solely from exposure to severe clinical events, but from an already depleted psychological state in which restorative resources are insufficient. In this regard, the findings align with previous studies emphasizing the interaction between occupational stress, burnout, and vicarious trauma among healthcare professionals (Kounenou et al., 2023; Riaz & Fatima, 2026). The residents' narratives indicated that trauma was intensified by the perception that the system itself was unsupportive and structurally unjust. Statements concerning humiliation, fear of blame, and carrying excessive responsibilities reflected an institutional environment in which emotional exhaustion became normalized. This finding also corresponds with Harrison and Westwood's argument that organizational conditions play a

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major role in either protecting professionals from or exposing them to vicarious traumatization (Harrison & Westwood, 2009).

Another important finding was the emergence of "rupture of meaning" following traumatic clinical encounters. Participants described moments in which therapeutic work temporarily lost coherence and significance, particularly after patient death, amputation, child abuse discovery, or violence from patients' families. The recurrent questions of "Why couldn't we help?" and "What kind of profession is this?" demonstrated that vicarious trauma involved not only emotional suffering but also disruption in participants' professional meaning systems. This finding is highly consistent with McCormack and Adams' discussion of meaning-making among therapists working with complex trauma, where clinicians struggled to reconcile professional ideals with the painful realities of patient suffering and systemic limitations (McCormack & Adams, 2016). Similarly, Kim and Park's narrative study of counselors exposed to vicarious trauma emphasized that traumatic encounters frequently destabilize professionals' understanding of their role and identity (Kim & Park, 2024). In the present study, orthopedic residents experienced similar disruptions despite working in a surgical rather than psychotherapeutic context. This suggests that meaning disruption may represent a universal psychological mechanism underlying indirect trauma exposure across helping professions.

The findings also revealed considerable diversity in emotional responses to trauma. Some residents expressed overt anger toward perceived injustice and aggression from patients' families, whereas others reported sadness, empathic distress, emotional withdrawal, or gradual numbness. This variability supports the interpretation that responses to vicarious trauma are highly individualized and shaped by personality structure, coping style, emotional regulation capacity, and contextual resources. Kounenou et al. demonstrated that empathy and burnout interact dynamically in mental health practitioners, producing different patterns of emotional vulnerability (Kounenou et al., 2023). Similarly, DelTosta and colleagues emphasized that empathy may intensify exposure to vicarious traumatization among trainees (DelTosta et al., 2019). In the current study, empathy functioned simultaneously as a source of distress and a source of professional humanity. Residents who identified deeply with suffering patients or abandoned children experienced emotional pain more intensely, yet this identification also preserved their ethical sensitivity and prevented complete depersonalization. This duality reflects the complex emotional structure of caregiving professions, where emotional openness is both psychologically risky and professionally necessary.

The gradual emergence of emotional numbness among some participants was another significant finding. Residents described becoming "less sensitive" or emotionally indifferent after repeated exposure to suffering and death. This emotional blunting appeared to function as a defensive adaptation aimed at maintaining functional performance in overwhelming conditions. Similar findings have been reported in studies of secondary traumatic stress among healthcare workers exposed to repeated traumatic situations (Kalaitzaki & Rovithis, 2021; Li et al., 2020). Emotional numbing may temporarily protect professionals from emotional overload; however, prolonged emotional disengagement can also threaten empathy, relational quality, and professional meaning. In the current study, emotional numbness was often accompanied by fatigue, hopelessness, and existential exhaustion, suggesting that it may represent not resilience but defensive survival within chronic stress conditions.

At the same time, the findings demonstrated that participants were not passive recipients of trauma. All residents described some process of meaning reconstruction through which they re-established psychological continuity and professional commitment. One of the strongest sources of reconstructed meaning was direct observation of patient recovery. Residents repeatedly emphasized that seeing a patient improve restored hope and reaffirmed the value of their work. This finding strongly aligns with the literature on vicarious posttraumatic growth and vicarious resilience (Beck & Casavant, 2019; Puvimanasinghe et al., 2015). Beck and Casavant showed that healthcare providers may experience existential reward and emotional growth through witnessing patient recovery and resilience (Beck & Casavant, 2019). Similarly, Puvimanasinghe et al. found that professionals working with traumatized refugees often derived renewed hope and meaning from observing survivors' strength (Puvimanasinghe et al., 2015). The orthopedic residents in the present study appeared to experience a comparable process in which successful treatment outcomes functioned as symbolic evidence that suffering could still be transformed and that therapeutic work retained meaning despite systemic hardship.

Family support and narrative sharing also emerged as central restorative mechanisms. Several participants described discussing traumatic experiences with parents or

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E-ISSN: 3041-8518

close family members in order to process emotional burden. This finding highlights the importance of relational containment in coping with vicarious trauma. Narrative processing allows traumatic experiences to become integrated into a coherent psychological framework rather than remaining fragmented emotional intrusions. Kim and Park emphasized that narrative reconstruction is essential in understanding how professionals metabolize traumatic exposure (Kim & Park, 2024). Similarly, Willcott-Benoit and Cummings argued that indirect trauma becomes psychologically significant when it becomes central to personal identity and meaning systems (Willcott-Benoit & Cummings, 2024). In the present study, family support functioned as an external narrative space where residents could verbalize distress, receive emotional validation, and restore coherence to difficult experiences.

The use of music, nature, and sensory-artistic coping strategies by some participants further demonstrates that meaning reconstruction may occur through non-clinical and non-verbal pathways. Residents used music not merely as distraction but as emotional regulation and psychological restoration. This finding supports broader trauma literature suggesting that sensory and embodied coping strategies may facilitate emotional recovery when cognitive processing alone becomes insufficient. Importantly, these restorative strategies were largely self-generated rather than institutionally supported, indicating that residents developed personal survival mechanisms in the absence of formal trauma-informed systems.

Another important finding concerned professional identity development. Participants described their identity as "in the process of becoming," characterized by tension between idealism and disillusionment. Some questioned whether they had chosen the correct specialty, while simultaneously remaining committed to patient care. Others described learning to become more emotionally guarded while still preserving core ethical values. These findings are consistent with Adams and Riggs' work on therapist trainees, which demonstrated that vicarious trauma can profoundly influence identity formation during professional training (Adams & Riggs, 2008). The present study extends this insight into orthopedic residency, suggesting that repeated exposure to suffering and systemic pressure transforms not only emotional functioning but also residents' evolving sense of self as physicians. The coexistence of doubt and commitment indicates that professional identity in trauma-intensive medical settings is not stable but continuously renegotiated.

The theme of "dual future" identified in this study further illustrates this identity tension. Participants simultaneously expressed hope for professional growth and despair regarding structural realities such as financial hardship, exhaustion, and institutional disrespect. This duality reflects the coexistence of vocational meaning and structural disappointment. Ye et al. showed that coping with death-related experiences may mediate the relationship between resilience and vicarious growth among ICU nurses (Ye et al., 2025). Similarly, the current findings suggest that orthopedic residents maintain professional hope not because trauma disappears, but because they continuously negotiate between suffering and meaning. Their narratives indicate that resilience is not the absence of distress; rather, it is the ongoing effort to preserve therapeutic identity despite repeated exposure to emotionally destabilizing experiences.

The present findings also contribute to the understanding of vicarious trauma within medical education systems. Previous intervention-focused studies have emphasized the importance of supervision, peer support, reflective practice, and organizational interventions in reducing vicarious trauma among helping professionals (Harrison & Westwood, 2009; Kim et al., 2021). However, the participants in this study described meaning reconstruction as predominantly self-directed and informal. This suggests that institutional trauma-processing structures may be underdeveloped within orthopedic residency settings. Residents relied on peers, family, music, or personal reflection rather than formal debriefing or psychological support. Consequently, trauma adaptation became individualized rather than systemically supported. This finding underscores the need for trauma-informed residency structures that recognize emotional processing as an essential component of clinical education rather than a private individual responsibility.

5. Conclusion

Overall, the findings suggest that vicarious trauma among orthopedic residents should be conceptualized as a dynamic and existential process rather than a purely symptomatic condition. Residents confront repeated experiences that challenge assumptions about competence, justice, mortality, and professional efficacy. Yet, despite emotional exhaustion and systemic burden, they continue to search for meaning through healing relationships, patient recovery, peer connection, and personal coping strategies. Their narratives reveal that trauma and resilience coexist within the same

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E-ISSN: 3041-8518

professional experience. The same clinical encounter that produces helplessness may later become a source of professional meaning. Therefore, understanding orthopedic residents' experiences requires moving beyond binary distinctions between pathology and resilience and instead recognizing the fluid interplay between suffering, adaptation, and identity reconstruction.

6. Limitations & Suggestions

One limitation of the present study was the small sample size and the focus on residents from a single clinical setting, which may limit the transferability of findings to other residency programs or medical specialties. In addition, because the study relied on self-reported narratives, participants may have selectively emphasized experiences that were emotionally memorable or socially acceptable. Another limitation was that cultural and gender-related influences on experiences of vicarious trauma were not explored in depth. The qualitative nature of the study also prevents causal interpretations regarding the relationship between systemic burden, trauma exposure, and meaning reconstruction.

Future studies should examine vicarious trauma among residents from different medical specialties and compare trauma experiences across surgical, emergency, psychiatric, and intensive care settings. Longitudinal research designs could provide deeper understanding of how professional identity and coping processes evolve throughout residency training. Future investigations may also explore the role of gender, organizational culture, supervision quality, and institutional hierarchy in shaping residents' trauma experiences. In addition, mixed-methods studies integrating qualitative narratives with standardized measures of burnout, secondary traumatic stress, and resilience could provide more comprehensive insight into the phenomenon.

Healthcare institutions and medical education systems should develop trauma-informed support structures specifically tailored for residency programs. Structured reflective supervision, peer debriefing sessions, confidential psychological consultation services, and narrative-based support groups may help residents process traumatic clinical experiences before emotional exhaustion becomes chronic. Residency curricula should also include education regarding secondary traumatic stress, emotional regulation, and healthy coping strategies. Hospital systems need to recognize that repeated exposure to trauma affects not only residents' mental health but also professional identity, empathy, and long-term retention within the medical profession. Strengthening organizational support may therefore improve both physician well-being and quality of patient care.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors equally contributed in this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

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JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518