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# The Traumatic Story as Expressed Through Body Narration

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## ABSTRACT

Over the last decades, a growing body of research has deepened the understanding of the complexity of traumatic events and their consequences. While verbal expressions of traumatic experience have long been studied, studies of nonverbal responses are scarce.

The present study explored bodily movements while people recount traumatic memories. The convenience sample consisted of 50 adults (37 women, 13 men) between the ages 23 and 82 (mean = 44.25 years,  $SD = 13.35$ ), who each experienced a traumatic event within the last 10 years. Mixed methodology was used: a quantitative self-report questionnaire that included demographics (gender, age, and family status), traumatic events experiences (TEQ), negative traumatic stress symptomatology (PSS-I), depression (BDI), and a patient health questionnaire (PHQ-15), was administered prior to the interview. Qualitative method included videotaped semistructured in-depth interviews, in which participants were asked to describe two memories, a nontraumatic event, and then a traumatic event experienced within the last 10 years.

Results revealed three main bodily movement categories that accompany the verbal narration of a traumatic event: illustrative, regulative, and comforting movements, in addition to new information about duration, frequency, and compatibility of the stories told by survivors.

## KEYWORDS

Traumatic event; non-verbal narration; body ownership; bodily; emotional regulation

## THE COMPLEX RESPONSES TO TRAUMATIC EVENTS

A growing body of research has deepened our understanding of the complexity of traumatic events and their consequences (e.g., Abdel-Hamid, Duncan, Henrik, & Laurence, 2010; Creamer, McFarlane, & Burgess, 2005; Levin & Kline, 2010; Palgi, 2015; Stanek, 2015). Traumatic events are known to impact both the body and mind and are represented both verbally and nonverbally (Pantescio, 2005). While verbal expressions of

traumatic experience have long been studied (e.g., Antelius, 2009; Damasio 1999; Janoff-Bullman, 1992), studies of nonverbal responses are scarce.

Traumatic events are risk factors to psychological and physiological distress responses (Abdel-Hamid et al., 2010; Regambal et al., 2015; Rubin, Bernstein & Klindt, 2008; Stanek, 2015), evoking bodily responses that were described by Van der Kolk (2002) as the “sensor imprint of the trauma.”

Based on the above evidence, the current study sought to examine the bodily expressions when people recount traumatic memories. The following questions were investigated: How will the traumatic event be presented through body and movement? To what extent will bodily and verbal expressions be compatible, and what will be the sequence of nonverbal expressions in terms of when they appear and for how long?

### ***Nonverbal narration***

Gabriel (2000) defined narratives and stories as follows: Narratives are factual descriptions of an event, while a story is a personal, emotional account of an experience (Munro & Belova, 2008). However, according to Munro and Belova (2008), to achieve a whole story, there is an unseparated integral component, namely the body; it too is a character in the plot. In this context, they mention Cunliffe, Luhman, and Boje (2004), who wrote about the embodied nature of narratives, and Mearleau-Ponty (1968), who emphasized that it is hard to understand ideas and meaning unless they are given to us in a carnal experience. Munro and Belova (2008) grasp the body as a register of the interruption of narrative and a medium of its inscription, and sum up that the body helps to form narratives that give meaning to different life experiences.

### ***Body reactions as consequences of traumatic memories***

Over 100 years ago, trauma researcher Janet (1889) suggested that traumatic events impact the body. Yet, an understanding of how psychological trauma is experienced in the body was neglected for many years in the mainstream literature in the field of trauma. The limbic system in the brain is central to the recall of emotionally significant memories (Payne, & Crane-Godreau, 2015). It is now known that the limbic system triggers emotion-specific movement and involves activation of emotions, memories, physical sensations, and their relationships (de Gelder, 2006; Payne & Crane-Godreau, 2015). The system is identified with emotion and behavior and is connected to the basal ganglia, a group of nuclei in the brain that has some basic ability to integrate thought and emotion in motor behavior (Mersden, 1986). Within the scope of the limbic system are the amygdala,

hippocampus, and hypothalamus, which together regulate a survival mechanism of fight-flight-freeze reactions following an overwhelming stress (Berrol, 2006; Langmuir, Kirsh, & Classen, 2012; Mersden, 1986). While research investigating bodily and movement expressions of trauma is rare, some studies have found that nonverbal behaviors appear to more accurately and unobtrusively assess arousal level than verbal expressions (Burgoon et al., 1993; Zuckerman, DePaulo, & Rosenthal, 1986), and that nonverbal behaviors may reflect arousal better than verbal expressions (Burgoon et al., 1993; Mohr et al., 1991). Likewise, a pilot study by Langmuir et al. (2012) provides preliminary evidence of the body as a source of information about trauma survivors' thoughts and feelings. The results indicate that increasing body awareness may be effective in reducing trauma-related symptoms in the survivors.

### ***Nonverbal narratives as a manifestation of traumatic experience***

Emotional memories and the physical sensations of trauma events often remain alive, even after the traumatic ordeal, and come out in the form of nightmares, flashbacks, or sensorimotor responses (Stanek, 2015). Over time, these responses might become habituated and are an inseparable part of identity. These emotional and physical responses shatter the verbal life story, the verbal narrative, because they challenge or shatter the long-held assumptions one holds about oneself and the world (Edmondson, 2009; Janoff-Bullman, 1992; Stanek, 2015). The traumatic memories are embedded in the body, continuously recreating the past trauma in the present, making the body a bridge between past and present (Stanek, 2015), as the shattered cognitive verbal narratives are accompanied by what Bilmes (1997) called “nonverbal expressions” and Damasio (1999) reframed as “nonverbal representations.”

Traumatic memories are encoded through sensation and live images in a psychobiological nonverbal mechanism. The sensations are strong and fragmented and the images arise with no context or sequence (Ray, 2008). As the traumatic experience continues to live in the body and mind, the verbal plot and the context are still damaged, thus the traumatic memories cannot be properly integrated (Kim et al., 2007; Ray, 2008). Therefore, it is difficult to express the traumatic memories through organizing verbal narration only (; Marilyn, 2005).

### ***Body ownership and body regulation of emotions***

The concepts “lived body” (Engelsrud, 2005) and “embodied lived experience” (Finlay, 2011) refer to the idea that the body experiences and

expresses meaning through its manner of being in reciprocal relation to the surrounding world. As Le Doux (1996) claimed, the unconscious mind may work more fluently in nonverbal modalities. Yet, the “lived body experience” may involve an awareness aspect, that serves as an essential source of self-awareness and personal identity and substantially contributes to the regulation of human behavior and maintenance of physical and mental health (Craig, 2010; Duschek, Werner, Reyes del Pasco, & Achandry, 2014). The way we experience our body relies on signals arising within the body, as well as on exteroceptive information and their cognitive and emotional appraisal. Body ownership is a fundamental aspect of this process (Blanke, 2012; Jeannerod, 2007) referring to the sense that our body belongs to us (Martuzzi et al., 2015). Body ownership has been most often studied regarding tactile inputs (e.g., Blanke, 2012; Ionta et al., 2011) and was associated with a modulation of brain activity (Martuzzi et al., 2015). For example, hand touch (of self or other) can contribute to the sense of body awareness or body ownership (Dieguez et al., 2009). Another body-mind awareness that has been particularly studied in emotion research concerns the case of cardiac interoceptive awareness (Werner, Mannhart, Reyes del Paso, & Duschek, 2014). It was found that interindividual differences in heartbeat perception modulate behavioral and physiological indicators of emotional experience and affect regulation (e.g., Pollatos, Kirsch, & Schandry, 2005; Werner et al., 2014).

Based on the above review suggesting that (a) traumatic events are risk factors to psychological and physiological distress responses, (b) trauma evokes bodily responses, which can be described as the motor imprint of the trauma, and (c) recalling a traumatic event might stimulate emotional and physical expressions associated with the past event (“the body narrator”). It was hypothesized that when an individual recounts his or her traumatic event, an interplay between body and mind will be exhibited, in which the bodily expressions will be observed side by side and interact with themes of the verbal narrative of the traumatic event.

## METHOD

A mixed methodology has been used in order to address the research questions, triangulating quantitative and qualitative methods, alongside movement analysis. A concurrent design has been characterized by the collection of both quantitative and qualitative data. The quantitative data were collected via several self-report measures. Two qualitative methods were used, narrative methodology and observation. Narrative phenomenology investigates the way that people organize their lives and grant them meaning through stories. In the current research, videotaped semistructured in-depth

interviews (Lieblich, Tuval-Mashiach, & Zilber, 1998; Tuval-Mashiach & Spector-Marsel, 2010) were used for this purpose. Observations provide the opportunity for capturing active behavior while it is occurring (Fine & Sandstrom, 1988). Observation of movement expressions was made possible due to the videotaped interviews.

### **Participants**

A convenience sample consisted of 50 adults, 37 women (74%), and 13 men (26%), between the ages of 23 and 82 (mean = 44.25 years,  $SD = 13.35$ ), who have each experienced a traumatic event within the last 10 years. Regarding marital status, 31 (62%) were married, 13 (26%) were single, 4 (8%) were divorced and 2 (4%) were widowers. Most ( $n = 39$ , 78%) had between one and six children (mean = 2.74,  $SD = 1.12$ ). All participants were fluent in Hebrew and were not suffering any psychiatric illness or other mental or cognitive impairment.

The types of trauma they experienced were (a) loss of a significant other—14 (28%); (b) accidents (car, home, work)—12 (24%); (c) abuse (of self or a significant other)—11 (22%); (d) chronic illness and serious health problems—10 (20%); (e) terror and war—3 (6%).

### **Procedure**

In the initial phase, self-report questionnaires requesting information about demographic data, the type of traumatic event(s), depression, PTS symptoms, and general health were administered to the participants. Afterward, semi-structured, in-depth interviews were conducted in which participants described two memories. The first memory was of a nontraumatic event and the second was about a nontraumatic event that they had experienced in the last 10 years. The interviews were videotaped in order to analyze movements and bodily expressions. The 100 narrations (50 traumatic and 50 nontraumatic) comprised the base data of the research analysis. The narrations were coded into verbal and nonverbal units, then categorized and analyzed.

### **Quantitative measures**

The initial self-report questionnaires included demographics (gender, age, and family status), traumatic events experiences (TEQ; Vrana & Lauterbach, 1994), negative traumatic stress symptomatology (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993), depression (BDI; Beck & Steer, 1987; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the Patient Health Questionnaire (PHQ-15; Kroenke, Spitzer & Williams, 2002). All measures have been validated and have been used extensively with Hebrew-speaking populations.

### **Qualitative measures**

Videotaped semistructured in-depth interviews (Lindolf & Taylor, 2002) were used in order to collect qualitative data. These interviews provide a way to understand the individual's perspectives about a circumstance or an event, so meaning can be learned and significance shared.

As opposed to well-planned closed interviews, in semistructured in-depth interviews, there is room for gently asking for more meaningful information.

### **Data analysis**

#### **Qualitative analysis**

Narrative analysis principles (Lieblich et al., 1998; Riessman & Speedy, 2007; Tuval-Mashiach & Spector-Marsel, 2010) were used in order to collect and analyze verbal expressions of the traumatic events. Verbal units were defined and then categorized into five main content categories, as in a process of thematic content analysis (Smith, Feld, & Franz, 1992): actions, negative emotions, positive emotions, physical sensations, and cognitive evaluation of the events. The descriptions of the narratives were divided into three phases, according to the timeline: pre-event, event, and post-event. The narrative analysis was carried out according to the following phases: (a) all interviews were transcribed, (b) the transcriptions enabled initial coding of verbal meaning units, (c) all verbal units were numbered (1, 2, 3 . . .) and measured by duration and appearance, and (d) verbal units were classified and characterized into five major content categories.

#### **Movement analysis**

Two major directions of movement analysis were used in the current research: Nonverbal Communication Theory (NCT), which investigates how people communicate emotions through face, body, and touch (Aviezer, Trope, & Todorov, 2012; Ekman, Friesen & Hager, 1972, 1978; McDonald, 2014), and principles of emotion regulation and body ownership (Tsakiri et al., 2010; Blanke, 2012). These approaches were discussed in the literature review.

Movement analysis was conducted according to the following stages: (a) encoding of movement data and framing the most visible bodily expressions, (b) dividing the bodily expressions by numbered units (1, 2, 3 . . .), measured by duration and appearance, and (c) classifying and characterizing movement units as three major content categories.

The movement classification began with defining 24 initial categories; this was conducted separately by two movement therapists who are experts

in nonverbal communication theory. The therapists were also asked to define how obvious each movement is and match it with the appropriate categories. During the analyzing process, some of the initial categories were found to be meaningless, while others were combined into bigger units. The final score was determined by averaging the two assessments. Interevaluator reliability for each category, as measured by Pearson correlations and percent agreement, was higher than  $r = .85$  (84%). This procedure allows for replicability in future research

## RESULTS

### *Qualitative measures*

Qualitative measures revealed three movement categories: (a) Illustrative movements of actions and emotions. These movements are characterized as acts that accompany the speech (posture and gestures), related moment-to-moment with speech, and usually augment what is being said verbally (Ekman & Friesen, 1978). (b) Rhythmic movements (unspecified gestures): gestures that allow the experienced personal rhythm of the person (McDonald, 2014), devoid of semantic content, yet exquisitely synchronized with lexical prosody (i.e., the relationship between characteristics of rhythm and intensity and meaning and emotion) and emotional intention (Biau, Torralba, Fuentemilla, de Diego Balaguer & Soto-Faraco, 2015). (c) Regulative movements: repetition of movements (repetitive behavior patterns and rituals), comforting movements (movements that aim to achieve some comfort through touching different body parts), and cessation of movement (ceasing the movements or freezing).

### *Quantitative measures*

A repeated measures analysis of covariance (ANCOVA) was used to examine the differences in the number of movement categories mentioned by type of story (traumatic or nontraumatic) and time line (pre-event, event, postevent)

Results revealed a significant difference for type of story ( $F[1, 47] = 5.91$ ,  $p = .019$ ,  $\eta^2 = .112$ ), showing that traumatic events were described with a greater number of movement categories ( $M = 4.26$ ,  $SE = 0.19$ ) than nontraumatic ones ( $M = 1.08$ ,  $SE = 0.11$ ). A significant difference was found for time line ( $F[2, 94] = 18.17$ ,  $p < .001$ ,  $\eta^2 = .279$ ), revealing that the description of the event included more categories ( $M = 4.91$ ,  $SE = 0.21$ ) than both the description of pre-event occurrences ( $M = 1.53$ ,  $SE = 0.16$ ) and postevent occurrences ( $M = 1.57$ ,  $SE = 0.16$ ). The interaction between type of story and time line was significant ( $F(2, 94) = 3.98$ ,  $p = .023$ ,  $\eta^2 = .078$ ),



revealing that the description of the traumatic event included the highest number of movement categories, followed by the descriptions of traumatic postevent occurrences, traumatic pre-event occurrences, and nontraumatic event occurrences. Next, the description of nontraumatic pre-event occurrences, and lowest was the description of nontraumatic postevent occurrences.

The results also reveal significant differences in all movement categories

Movement in the description of the nontraumatic event was mainly characterized by illustrative movements of actions (38%), illustrative movements of emotions (34%), and unspecified hand gestures (36%). Next were comforting movements: self-touch of chest and head (22%); and comforting movements: self-touch of hands and palms (18%). Other categories were less frequent. Pre-event and postevent movements were scarce.

The description of the traumatic event was mainly characterized by illustrative movements of actions (84%), illustrative movements of emotions (80%), and unspecified hand gestures (80%), as was found in the description of the nontraumatic event, yet to a much larger extent. Other frequent movements included repetitive movements (52%), cessation of movement (50%), comforting movements in the form of self-touch of chest and head (48%), and comforting movements in the form of self-touch of hands and palms (46%). Next in frequency were movements replacing words (28%), unspecified head and neck gestures (28%), and tightening of body parts (22%). Other categories were less frequent during the event description. Fewer movements appeared in the pre-event and postevent descriptions, yet to a greater extent than in the nontraumatic event description. Most frequent movements in the pre-event description were: unspecified hand gestures (42%), comforting movements in the form of self-touch of hands and palms (30%), and illustrative movements of actions (20%). Most frequent movements in the postevent description were unspecified hand gestures (52%), illustrative movements of emotions (42%), illustrative movements of actions (36%), comforting movements like self-touch of hands and palms (28%), and repetitive movements (22%). Other types of movements were scarce.

## DISCUSSION

### ***Bodily movements in nontraumatic versus traumatic memories: The role of body movement as a self-regulation comforting function and as a tool for relationship***

The current study's main objective was to examine the interplay between bodily movements and narratives in adult trauma survivors when recalling traumatic memories. A comparison between body movement categories, as

well as length of time each movement appeared and narratives themes, revealed the threefold role of bodily movement: as an emotional state reflector, as a self-soother tool in an agitated state, and as a relational tool with another person.

Movement analysis has revealed significant differences between the two types of memories (traumatic and nontraumatic) according to the timeline. In general, movement expressions were observed twice as frequently in the traumatic narrations as in the nontraumatic. The greatest number of movements was observed during the descriptions of the traumatic events themselves, followed by the description of what happened afterwards. These findings offer an answer to one of the main research questions regarding the extent of bodily and verbal expressions compatibility. It seems that not just verbal expressions, but bodily movements, were observed far more during the verbal recalling of the traumatic memories than during the recall of nontraumatic memories. This indicates that the body has an equal participation in memory telling, alongside words. It also means that the combined exploration of verbal narration and nonverbal expressions gives a fuller and richer perspective of the traumatic event, its memory, and its consequences.

The current findings indicated three major movement themes: illustrative, rhythmic, and regulative, each having subcategories. Illustrative movements of actions and emotions occurred significantly more frequently in the traumatic narrations (80–84%), compared to the nontraumatic (34–38%). These findings revealed a significant difference in the emotional investment of the narrators, and are in accordance with Ekman and Friesen's (2008) results, indicating that changes in frequency of illustrative movements may be connected to the narrator's mood. This also may indicate both emotional arousal and a need to demonstrate the traumatic ordeal more accurately (to self and other), possibly for achieving better coherence and sense of meaning. This notion corresponds to theoreticians such as Bilmes (1997), Marilyn (2005), and Ray (2008), who have stated that the damaged verbal plot of the traumatic event cannot be properly integrated through organizing verbal narration only.

The findings have also indicated significant increase in personal rhythms during the traumatic narrations compared to the nontraumatic. Unspecified gestures were generally observed less often in the nontraumatic memories than in the traumatic narrations. A significant increase of unspecified gestures was observed during the prolonged telling of the pre-traumatic events (42%), reaching the highest level during the descriptions of the traumatic events (80%), and then decreasing in the telling of what happened afterwards (52%). These findings support the notion that emotional arousal increases significantly when a person recalls his painful

**Table 1.** Mean and standard deviation of number of movement categories mentioned ( $n = 50$ ).

	Nontraumatic $M$ ( $SD$ )			Traumatic $M$ ( $SD$ )		
	Pre-event	Event	Postevent	Pre-event	Event	Postevent
Number of movement categories (0–24)	0.44 (0.91)	2.76 (2.12)	0.04 (0.20)	2.62 (2.35)	7.06 (1.90)	3.10 (2.25)

ordeal, thus creating a significant increase in the personal rhythmic patterns. This strengthens the understanding that rhythmic unspecified gestures that are considered to represent the emotional content and meaning that emerge from the verbal recalling are synchronized with the lexical prosody (Biau et al., 2015).

The third movement category conveyed the aspect of emotional-bodily regulation. This category included three subcategories: repetition of movements, comforting movements (laying hand on chest, face, or head), and cessation of movement. The findings revealed that all three regulative movements' categories were mainly observed during the descriptions of the traumatic events (repetition, 52%; cessation, 50%; comforting, 48%) and, to some extent, in the descriptions of what followed the traumatic event, whereas they did not exist in the nontraumatic narrations. It seems that the emotional arousal increased significantly during the telling of the traumatic memories, as was the need to achieve self-regulation, through all three categories.

The occurrence of the regulative movements mainly during the traumatic narrations indicates a significant arousal, both emotionally and bodily. It may also indicate the inner solution for this discomfort: a way to achieve calmness, body ownership, and self-regulation. *Repetition of movements* will likely serve two functions: (a) postponing entry to the painful memories, by prolonging the time, and (b) achieving a new sense of regulation via regaining a sense of integration (body and mind). Clinicians are familiar with the concept that body-focused repetitive behaviors may represent the individual's attempt to self-soothe by increasing awareness of body sensations, which can lead to emotion regulation (Mansueto & Rogers, 2012). Repetitive movements are used as a way to reestablish bodily sensations and configurations, as they represent an aspect or aspects of an experience rather than a full event (O'Connor, 2010). This process enables an ongoing sense of body ownership and physical regulation that is much needed for moderating arousal. Since trauma is known to cause a shattering of one's life assumptions (of self and world; Janoff-Bullman, 1992; Kauffman, 2002; Singer and Rexhaj, 2006), repetitive movements seem like an attempt to regain a sense of integration between body and mind. Repetition may also indicate what the body wants to communicate

**Table 2.** Distribution of movement categories (existing/nonexisting) by type of story and time line ( $n = 50$ ).

Movement categories	Nontraumatic				Traumatic				Difference $\chi^2(5)$
	N (%)				N (%)				
	Pre-event	Event	Postevent		Pre-event	Event	Postevent		
Illustrative movements:									
Actions	3 (6)	19 (38)	1 (2)		10 (20)	42 (84)	18 (36)		108.50***
Emotions	1 (2)	17 (34)	0 (0)		7 (14)	40 (80)	21 (42)		111.03***
Movements replacing words	0 (0)	3 (6)	0 (0)		2 (4)	14 (28)	2 (4)		45.00***
Unspecified gestures:									
Unspecified hand gestures	4 (8)	18 (36)	1 (2)		21 (42)	40 (80)	26 (52)		98.24***
Unspecified head and neck gestures	1 (2)	8 (16)	0 (0)		7 (14)	14 (28)	7 (14)		27.84***
Tightening of body parts	0 (0)	4 (8)	0 (0)		6 (12)	11 (22)	5 (10)		24.61***
Expressions of physical-emotional arousal:									
Repetitive movements	1 (2)	8 (16)	0 (0)		8 (16)	26 (52)	11 (22)		63.46***
Comforting movements: self-touch of chest and head	1 (2)	11 (22)	0 (0)		4 (8)	24 (48)	6 (12)		62.74***
Comforting movements: self-touch of hands and palms	2 (4)	9 (18)	0 (0)		15 (30)	23 (46)	14 (28)		54.66***
Cessation of movement	1 (2)	3 (6)	0 (0)		8 (16)	25 (50)	8 (16)		71.31***

\*\*\*  $p < .001$ , Bonferroni correction was applied (.05/10 = .005). Analyses were not conducted in small cells.

**Table 3.** Absolute number of movement categories by type of story and time line.

Movement categories	Nontraumatic <i>M (SD) Range N</i>			Traumatic <i>M (SD) Range n</i>			Difference <i>F (η<sup>2</sup>)</i>
	Pre-event	Event	Postevent	Pre-event	Event	Postevent	
<b>Illustrative movements:</b>							
<b>Actions</b>							
Emotions	3.33 (2.08) (1-5) (n=3)	3.89 (2.64) (1-13) (n=19)	1.00 (0) (1) (n=1)	2.30 (1.25) (1-5) (n=10)	10.24 (10.85) (1-47) (n=42)	2.78 (2.56) (1-9) (n=18)	F(4, 87) = 5.00*** (.187)
Movements replacing words	1.00 (0) (1) (n=1)	3.59 (3.41) (1-14) (n=17)	0	3.43 (2.37) (1-6) (n=7)	5.93 (4.64) (1-19) (n=40)	3.48 (3.19) (1-14) (n=21)	F(3, 81) = 2.64 (.089)
Unspecified gestures:	0	1.33 (0.58) (1-2) (n=3)	0	1.50 (0.71) (1-2) (n=2)	3.36 (1.98) (1-7) (n=14)	2.50 (0.71) (2-3) (n=2)	-
Unspecified hand gestures	2.50 (1.29) (1-4) (n=4)	3.72 (1.81) (1-8) (n=18)	1.00 (0) (1) (n=1)	4.33 (3.98) (1-17) (n=21)	6.75 (4.60) (1-24) (n=40)	4.73 (3.82) (1-16) (n=26)	F(4, 104) = 3.08 (.106)
Unspecified head and neck gestures	1.00 (0) (1) (n=1)	3.25 (1.28) (2-5) (n=8)	0	3.14 (3.58) (1-11) (n=7)	6.36 (3.54) (1-12) (n=14)	4.29 (3.82) (1-10) (n=7)	-
Tightening of body parts	0	5.25 (4.35) (1-11) (n=4)	0	2.83 (1.60) (1-5) (n=6)	5.27 (3.41) (1-10) (n=11)	2.40 (1.14) (1-4) (n=5)	-
<b>Expressions of physical-emotional arousal</b>							
Repetitive movements	3.00 (0) (3) (n=1)	3.50 (4.00) (1-12) (n=8)	0	2.13 (1.55) (1-5) (n=8)	5.35 (3.53) (1-12) (n=26)	3.45 (3.3) (1-12) (n=11)	F(3, 49) = 2.34 (.125)
Comforting movements: self-touch of chest and head	1.00 (0) (1) (n=1)	2.82 (1.60) (1-6) (n=11)	0	2.00 (1.41) (1-4) (n=4)	4.96 (3.61) (1-13) (n=24)	3.50 (2.26) (1-7) (n=6)	F(3, 41) = 2.11 (.134)
Comforting movements: self-touch of hands and palms	1.5 (0.71) (1-2) (n=2)	3.89 (2.57) (1-8) (n=9)	0	5.47 (5) (1-22) (n=15)	11.91 (10.87) (1-43) (n=23)	3.14 (2.54) (1-9) (n=14)	F(4, 58) = 4.44 (.235)
Cessation of movement	1.00 (0) (1) (n=1)	2.00 (1.00) (1-3) (n=3)	0	3.63 (2.97) (1-8) (n=8)	6.40 (5.43) (1-29) (n=25)	2.88 (1.13) (1-4) (n=8)	F(3, 39) = 2.17 (.140)

\*\*\**p* < .001. Bonferroni correction was applied (.05/10 = .005). Analyses were not conducted in small cells; *n* is different per cell according to the number of participants.

by its own authority, as a solution to the shuttered self, created by the trauma.

The presence of *cessation of movement* during the telling of a traumatic event gives a meaningful indication of the emotional distress that occurred during the recall of the traumatic memories. Bodily responses, such as freezing or solidification, which appear during an extremely traumatic stress, should be perceived as regulative movements telling of the tremendous stress locked inside the body, blocking the ability to move. Cessation of movement, during the recalling and narrating, gives a powerful indication of just how overwhelming the past event is in the here-and-now experience. For example, narrators ceased their movement when they were telling their most horrifying moments, just as they ceased it during their overwhelming ordeal. Holding back the movement could once again assist in an attempt to avoid painful experience, postpone the feeling of unbearable horror, and provide a pause to regain strength, to breathe again, to achieve self-organization, and then to move again.

*Comforting movements* were used, as the findings revealed, to supply calmness and self-comfort to the body and mind, as a consequence of the emotional arousal. Two expressions of comforting movements emerged from the findings: laying hands on chest or head and touching the hands and palms. A careful examination of these expressions revealed a significant difference between them. Touching hands and palms was observed during all three parts of the timeline sequence in the traumatic memories' narrations (30% of pre-event descriptions, 46% of event descriptions, and 28% of postevent descriptions), whereas laying hands on chest and head was observed mainly in the descriptions of the traumatic memories themselves. This phenomenon indicates a need to regulate and calm the emotional arousal that mostly arose during the description of the traumatic memories (such as the heartbeat). Laying a hand on the chest and head, other than merely touching one's own hands, appears to be the most significant way to achieve comfort and calmness. It might give a sense of reassurance and self-awareness that contribute to a regulation of emotions (Duschek et al., 2014) and a sense of body ownership (Blanke, 2012; Jeannerod, 2007; Tsakiri et al., 2010). It may also aim toward restoring a sense of certainty, as opposed to a sense of ambiguity that was caused by the traumatic experience (Edmondson, 2009; Janoff-Bulman, 1992).

Considering the fact that a significantly high number of descriptive and rhythmic movements were observed during the telling of the traumatic memories (presenting the traumatic ordeal in the "here and now" dimension), it is reasonable to expect to observe high rates of comforting movements at the same time. *It is suggested here, perhaps for the first time, that during the attempts to modulate the emotional arousal, the body contains*

*both the physical sensations of the traumatic painful memories and the ability to achieve self-calmness and self-comfort.*

## **CONCLUSION**

The current research explored the interplay between two phenomena in the realm of trauma: verbal narration and body-movement expressions. Its main aim was to identify and examine the relationship between the body's nonverbal expressions and the psychological or emotional verbal narratives of people who have experienced a traumatic event. The findings contribute to the comprehension of how motion and emotion are interwoven and create a coherent, present, and rich body-mind story. This emphasizes the central role of the body in the context of mental and psychological processing, especially during verbal narration.

The results of the study offer additional research directions, such as the impact of culture, gender, and demographic issues. The results also raised the following questions: Is it the body sensations associated, unconsciously, with the traumatic memories that lead to the emergence of bodily movements? Or rather, do the bodily movements contribute to the arousal of a cognitive memory? Or is it the memory that initiates this process of body sensations and bodily movements?

Indeed, there is so much more to learn about this fascinating arena.

## **PRACTICAL IMPLICATIONS**

The research findings have a number of possible practical implications, including developing assessment and therapeutic tools, in order to achieve better physical and emotional regulation for trauma survivors.

## **LIMITATIONS**

The study had several limitations that may reduce the ability to generalize. Despite the relatively small sample size, the lack of diversity of traumas, and the length of time since the trauma occurred, the current findings still contribute to a better understanding of the interaction between body and mind in the realm of trauma.

The fact that all participants (though a convenience sample) perceived the traumatic event as an overwhelming life-changing event seems to increase the study's significance, in terms of generalizing the results. Nevertheless, further research is needed to deepen our understanding of the functionality and interpretation of body expressions and movements that occur during narrations of traumatic events.

Participants were not prompted to prolong or limit the duration of either traumatic or nontraumatic narration. Yet, the fact that they were asked to first tell the nontraumatic memories might have caused some tiredness that may have affected the length of the traumatic narration. Further research may be needed to compare the current design (nontraumatic narration before traumatic narration) with its opposite (traumatic before nontraumatic).

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