# RECONSOLIDATION OF EARLY MEMORIES IN RELIVING THE TRAUMATIC COMBAT EXPERIENCE

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Memory in all the variety of the types and processes ensuring its functioning has a psychotherapeutic resource that is realized when working with manifestations of post-traumatic stress disorder (PTSD). One of these is obsessive repetitive memories with traumatic content. The study aimed to look into reconsolidation of early memories in reliving the traumatic experience of participation in combat. The total sample size was 62 individuals (males aged 21–46 years). The experimental group included 31 respondents with combat experience having the status of war veterans (the average period of participation was 1 year and 5 months). The control group consisted of 31 respondents with no combat experience. The Mini-Mental State Examination (MMSE) scale, set of functional neuropsychological tests ("10 Words" by A.R. Luria, "Pictograms" method by A.R. Luria, "Difficult-to-Verbalize Figures" by T.V. Akhutina, "Rhythm Reproduction Test" by A.R. Luria), analysis of the transcripts of audio recordings of early memories were used. It has been reliably found that the early memory of a positive, negative or neutral modality resulting from the influence of combat experience is changed through the reconsolidation mechanism, which is reflected in the linguistic and semantic parameters. The linguistic and semantic structure of the combat veterans' early memories is characterized by the event-based model, with a predominance of verbs and adverbs. The semantic core of the combat veterans' early memories is more often negatively colored, despite the general ambivalent or positive modality.

**Keywords:** early memories, autobiographical memory, combat experience, reconsolidation

**Author contribution:** all authors contributed to study planning, literature review, data acquisition, analysis, and interpretation equally.

**Compliance with ethical standards:** the study was approved by the Ethics Committee of the Pirogov Russian National Research Medical University (protocol No. 13 dated 23 November 2023), and conducted in accordance with the requirements of Fundamentals of legislation "On Protection of Public Health"; all subjects submitted the informed consent to assessment.

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# РЕКОНСОЛИДАЦИЯ РАННИХ ВОСПОМИНАНИЙ В ПЕРЕЖИВАНИЯХ ТРАВМАТИЧЕСКОГО ОПЫТА УЧАСТИЯ В БОЕВЫХ ДЕЙСТВИЯХ

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Память во всем многообразии видов и процессов, обеспечивающих ее функционирование, обладает психотерапевтическим ресурсом, который реализуется при работе с проявлениями посттравматического стрессового расстройства (ПТСР). Одним из них являются навязчивые повторяющиеся воспоминания с травматическим содержанием. Цель данного исследования — изучить реконсолидацию ранних воспоминаний в переживаниях травматического опыта участия в боевых действиях. Общий объем выборки составил 62 человека (мужчины в возрасте 21–46 лет). В экспериментальную группу вошли 31 респондент с опытом участия в боевых действиях в статусе ветерана боевых действий (средний срок участия составил 1 год 5 месяцев). Контрольная группа состояла из 31 респондента без опыта участия в боевых действиях. Использовали Краткую шкалу оценки психического статуса (MMSE), набор функциональных нейропсихологических проб («10 слов» А. Р. Лурия, методику «Пиктограммы» А. Р. Лурия, методику «Трудно-вербализуемые фигуры» Т. В. Ахутиной, «Тест на воспроизведение ритмов» А. Р. Лурия), анализ стенограмм аудиозаписей ранних воспоминаний. Достоверно установлено, что раннее воспоминание положительной, отрицательной или нейтральной модальности, обусловленное влиянием опыта участия в боевых действиях, изменяется через механизм реконсолидации, что проявляется в лингвистических и семантических параметрах. Лингво-семантическая структура ранних воспоминаний ветеранов боевых действий характеризуется событийно-действенной моделью, с преобладанием глаголов и наречий. Семантическое ядро ранних воспоминаний ветеранов боевых действий чаще окрашено негативно, несмотря на общую амбивалентную или положительную модальность.

**Ключевые слова:** ранние воспоминания, автобиографическая память, опыт участия в боевых действиях, реконсолидация

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Memory is inherently socially contingent; it is involved in organization of the subject's individual experience; it contributes to the increase in his/her productivity considering social and cultural factors of the activity (specifically, due to better memorization of certain information that is personally meaningful for a certain individual) [1]. Memory, studied in all the variety of types and processes that ensure its functioning, has a psychotherapeutic resource that is also realized when working with manifestations of post-traumatic stress disorder (PTSD), which include obsessive repetitive memories with traumatic content.

Investigation of early memories as an essential component of autobiographical memory attracts considerable attention in the context of psychological studies. The researchers focus mainly on the phenomenological features. There are very few studies of the linguistic and semantic structure of the combat veterans' early memories in the research space, as suggested by the bibliometric analysis. It has been reported that in 2014–2024 there were almost no scientific papers focused directly on studying early memories of this specific category of participants, which emphasizes the potential value of the research in this area. The papers discovered concerning the general aspects of studying early memories (17 papers in eLibrary and 181 papers in Scopus) indicate the growing interest in the issue in the international research space, as well as the need to more thoroughly study the phenomenon of early memories in specific groups of participants. The apparent contradiction between great scientific interest to the phenomenon of early memories in general and the lack of the targeted research focused on combat veterans substantiates the relevance of the study reported.

Methodological grounds of the study were as follows: the autobiographical memory concept by V.V. Nurkova also considered in the context of the reported cultural and historical approach [2]; provisions of the theory of functional systems by P.K. Anokhin [3] considering memory as one of the leading components of afferent synthesis; neurophysiological mechanisms of mnestic processes described in the papers by K.V. Anokhin [4].

The conceptual model scheme is presented in Fig. 1.

The autobiographical memory being part of the mnestic system determines the semantic organization of personally correlated experience, the subjective affiliation of which is ensured by integrity of the system of autobiographical memories (representing the memory traces) [2]. Early memories and traumatic experience represent the consolidated content of the autobiographical memory ordered in a certain chronology: in terms of chronology, consolidation of early experience precedes consolidation of traumatic experience. In terms of neurophysiology, neural circuits are formed during consolidation through alteration of synaptic activity between the neurons that constitute the circuit. The access system is formed to retrieve the necessary information at a particular time, as well as for reconsolidation of memory traces after their retrieval [4]. When the memory traces are retrieved, active reconstruction of those occurs (accompanied by recategorization); i.e. an old memory trace is replaced by the new contents [5–7].

Each memory (memory trace) has a semantic component in its structure: the sensory-perceptive core that remains conditionally unchanged in terms of its content. The semantic core is surrounded by an emotional envelope that characterizes modality of a certain memory.

All the memory traces that have been preciously shaped and saved are through the affective contents of the traumatic memories (experience) to change their modality.

We interpreted the early memory as the memory trace represented by a verbal description of an event that happened to the respondent in childhood, indicating the age at which the described event occurred. Each early memory has some macro-characteristics (space and time of the memory, duration, size, other people's presence, and modality).

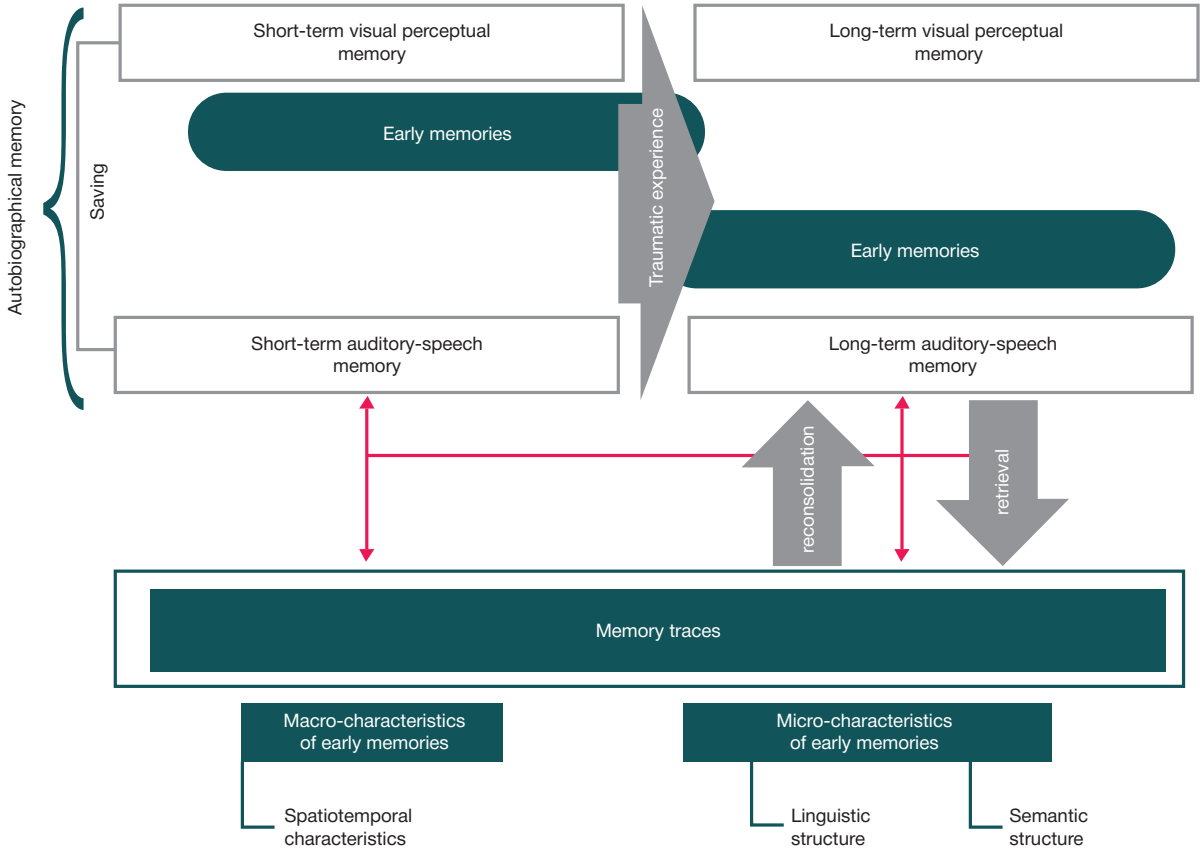


**Fig. 1.** Scheme of the conceptual model for studying reconsolidation of early memories in reliving the traumatic experience of participation in combat

The early memory modality is determined by the semantic core emotional coloring and its consistency with the overall emotionality of the memory (negative, positive, ambivalent, or neutral). Micro-characteristics have a linguistic and semantic structure (linguistic structure — parts of speech: verb, noun, pronoun, adjective, adverb, affective elements and other parts of speech; semantic structure — the memory's semantic core, modality; memory's secondary parameters).

It is mnestic processes, representing an essential part of the afferent synthesis in functioning of any functional system, that ensure analysis, synthesis, and comparison of afferent signals with the subsequent development of certain strategies of behavior in certain situations on the basis of those taking into account previous experience and restructurization of that under changing environmental conditions [3].

The experience of participating in combat, which is traumatic and characterized by the fact of having spontaneous repetitive traumatic memories, manifestations of psychomotor agitation, emotional and cognitive changes, as well as symptoms of avoidance (representing the PTSD manifestations), is embedded in the autobiographical memory systems, which results in transformation of early memories.

Foreign scientific literature reflects extensive studying of the traumatic memory reconsolidation, while transformation of the earliest childhood memories is a more ambiguous domain that is usually covered in theoretical papers by the researchers following the psychoanalytic paradigm [8; 9].

When describing the earliest childhood memories arbitrarily transformed by an individual, V.V. Nurkova points out that these provide the basis for the formation of personal identity and life scenario [10]. Therefore, deliberate change of the individual's maladaptive life scenario and coping with his/her traumatic experience through reconsolidation of the earliest childhood memories, which play a key role in the structure and contents of the individual's identity, preferred patterns of perception and social reality assessment, seem to be possible [11].

Under conditions of reliving the traumatic experience of participating in combat, the early memories are transformed (in terms of macro- and micro-characteristics) in both retrieval and further reconsolidation phases. The repetition compulsion symptoms (including repetition of the intrusive, suddenly emerging, recurrent traumatic memories), symptoms of avoidance, negative changes in the cognitive and emotional sphere, as well as symptoms of psychomotor agitation (described by N.V. Tarabrina as PTSD manifestations) lead to changes in the linguistic and semantic structure of early memories, affecting their modality, simplifying their structure and "embedding" elements of intrusive traumatic memories in them.

The use of deliberate linguistic and semantic reconstruction of the combat veterans' early memories during their reconsolidation will make it possible to ensure rearrangement of the subject's integral individual experience, including his/her traumatic memories.

The study aimed to look into reconsolidation of early memories in reliving the traumatic experience of participation in combat.

## METHODS

The total research sample size was 62 individuals aged 21–46. All the subjects were males. Inclusion criteria: young adulthood and middle age (18–59 years according to the WHO classification); no severe decompensated somatic disorder; no mental disorder. The study groups were formed based on the criterion of combat experience. The experimental group (EG) included 31 participants with combat experience having the status of war veterans, who underwent inpatient treatment at the rehabilitation department for the consequences of mine-explosive and gunshot wounds (the average age was 32.2 ± 0.17 years). In the experimental group, the period of the participants' participation in combat was monitored; the period of participation varied between 4 days and 2 years 7 months, the average period was 1 year 5 months, and the range of values was 2 years 7 months. The control group (CG) included 31 participants without combat experience (the average age was 26.1 ± 0.43 years). In both groups of subjects, the age of early memories was monitored, the memory duration and size (number of sentences) criteria were specified. Primary results of assessing the features of the linguistic and semantic structure of the combat veterans' early memories were set out in the personal questionnaire applying the encryption procedure.

The study was organized into three sequential phases. In the first phase, the participants' cognitive status was assessed using the Mini–Mental State Examination (MMSE) scale [12]. Furthermore, severity of PTSD manifestations was assessed in order to determine the fact of having traumatic experience and its sequelae. For that the Mississippi Scale (MS) for Combat-Related Posttraumatic Stress Disorder by Keane et al. (adaptation by N.V. Tarabrina) was used: a military variant for the participants having combat experience and a civil variant for the participants having no combat experience. The experimental group included the participants with combat experience, who had high PTSD manifestation scores (95.4 ± 4.27). The control group included the participants having no combat experience and low PTSD manifestation scores (72.4 ± 4.27).

In the second phase, the problem of assessing the combat veterans' mnestic functions was solved. In this phase of the study the following set of functional neuropsychological tests was used as methods: "10 Words" to diagnose the direct short-term and long-term auditory-speech memory volume (A.R. Luria) [13]; "Pictograms" method to diagnose the indirect short-term and long-term auditory-speech memory (A.R. Luria) [13]; "Difficult-to-Verbalize Figures" method to assess accuracy, volume, durability of the visual-spatial memory traces (T.V. Akhutina) [14]; "Rhythm Reproduction Test" to assess the ability to perceive and reproduce rhythmic patterns, which is important for the diagnosis of the auditory gnosis and memory impairment (A.R. Luria) [14].

The objective of the third phase was to assess macro- and micro-characteristics of the combat veterans' early memories. In this phase, the clinical conversation (with audio recording), together with the linguistic and semantic analysis of the early memories presented, were used as assessment methods. The study participants were given the following instructions: "Now I'm going to ask you to recall the earliest memory; as soon as you recall, tell me about it in some detail, in at least three sentences; specify your age in this memory". The combat veterans' early memory macro- and micro-characteristics were assessed based on the audio recording transcript, in which macro-characteristics (space and time of the memory, duration, size, other people's presence, and modality) and micro-characteristics represented by the description of the early memory linguistic and semantic structure were determined.

Quantification of the results obtained was performed by the following methods: descriptive (mean, standard deviation, frequency analysis, mode, median, размах) and comparative (Mann–Whitney *U*-test, Fischer's angular transformation, $p < 0.05$) statistical methods.

## RESULTS

Based on the cognitive status assessment results obtained using MMSE, 54.8% of the participants had a mental status

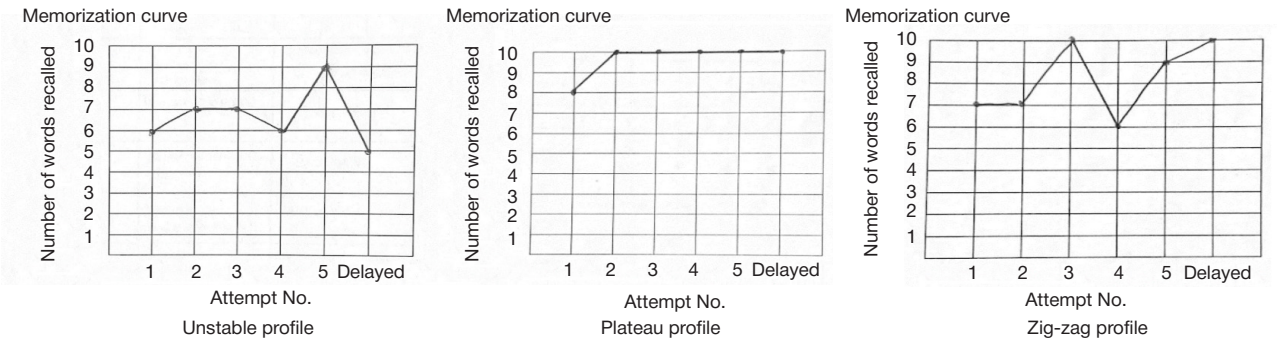


**Fig. 2.** Averaged profiles of the curves of memorizing 10 words by combat veterans

without cognitive impairment (score 28–30), while subjective cognitive impairment (score 24–27) was reported in 45.2%. No mild cognitive impairment (below 24 points) was reported. It should be noted that all the participants, in whom subjective cognitive impairment was detected, reported the history of contusion due to participation in combat. When assessing significance of differences in cognitive status indicators of the participants of the experimental and control groups, the lack of significant differences was reliably determined ($p = 0.172$).

The high level of the direct auditory-speech memorization was detected in combat veterans: a total of 9–10 words were recalled by the fifth attempt, 8–10 words upon delayed recall in 21 participants (67.7%). In 6 participants (19.3%), the medium level was reported (6–8 words by the fifth test and 5–7 words upon delayed recall); 4 individuals (12.9 %) showed an unstable profile of results. The averaged profiles of memorization curves characterizing the memorization pattern were plotted based on the data obtained (Fig. 2).

Thus, the combat veterans show a steady rise between the attempts, which is especially clear between tests 1 and 3 (an increase of more than 2.7 words); low variation on the fifth attempt (standard deviation 0.86) suggests stable results in the majority of subjects; variation increases with the delayed recall (standard deviation ≈ 1.5), which can indicate differences in the strategies of encryption in the long-term memory.

When assessing indirect memorization in the combat veterans using the "Pictograms" method, high levels were reported for 32.3% of the participants (they recalled 10–11 word combinations), medium levels were reported in 38.7% (they recalled 7–9 words), and the levels below average were reported in 25.8% of the combat veterans, who correctly recalled only 5–6 word combinations. Low levels were reported in 3.2%.

The data on the word combinations can be matched to the direct memorization results in the “10 Words” test. Normally, it is expected, that a pictogram (semantic mediation) must ensure better memorization compared to mechanical reproduction. However, the data obtained suggest impairment or insufficient realization of this strategy. In 54.8% of the subjects, the direct memory volume was larger, than that of the indirect memory. This is contrary to theoretical expectations and can indicate cognitive rigidity in turning to abstract thinking or higher motivation for reproduction of specific material in combat veterans that just reflects specificity of their occupation, i.e. acting on specific commands. In 32.3% of subjects, the direct and indirect memory levels coincided. The hypothesis about the predominant recall by means of indirect memorization was confirmed in 12.9% of the participants only.

Based on the results of the analysis of the tempo-rhythmic memorization test using an auditory image without visual support, high levels of test completion (5 correct series out of 5) were reported only in 5.2%, medium levels (3–4 series) — in 38.5%, low levels (0–1 series) — in 56.3% of the participants. The typical errors observed include extra taps suggesting functional insufficiency of the parieto-temporal brain regions; rhythm reduction, slowdown suggesting possible dysfunction of the posterior frontal structures. This allows us to speak about the poorly shaped auditory-motor coordination in combat veterans.

Based on the results of the "Difficult-to-Verbalize Figures" method (visual-spatial memory assessment), manifestations of high memorization levels were reported in 37.4% of the participants, moderate in 56.8% of the combat veterans; the levels below average were reported only in 5.8%. The visual-spatial memory involving the non-verbal material turned out to be rather productive.

No significant differences in the localization type parameter were revealed in the experimental and control groups based on the early memory macro-characteristic assessment (Table 1).

Spatial localization was differentiated between the following locations: “kindergarten / specific city / at the grandma’s / home / entrance / suburban area / field”. In turn, in the participants having no combat experience, spatial localization was differentiated based on the location: home / specific city / outpatient clinic / water basin / suburban train station (village) / yard / recreation facility / kindergarten / countryhouse. Furthermore, those, in whom spatial localization was not identified, were found in both groups.

The largest share in both EG (68%) and CG (49%) was constituted by the memories, in which the place of action was not clearly established. Moreover, the common specifically identified localizations were found, among which the CG participants more often specified the following: “specific city” (20% vs. 7% in the EG) and “home” (10% vs. 3%). In the EG, such locations, as “kindergarten” and “specific city” were more often mentioned in equal proportions (7%). Other locations were rare (3% each), which suggests their individually limited role in the structure of early autobiographical memories.

**Table 1.** Indicators of comparative analysis of the early memory localization type parameter in the experimental and control groups

| Groups | Home | Specific city | Kindergarten | Rural area | Localization not identified | Sums |
|---|---|---|---|---|---|---|
| | Percentage of subjects in the groups | | | | | |
| EG | 3.20% | 6.50% | 6.50% | 3.20% | 67.70% | 100% |
| CG | 9.70% | 19.40% | 3.20% | 3.20% | 48.4% | 100% |
| φ*emp | 1.075 | 1.559 | 0.614 | 0 | 1.551 | <1.64 |

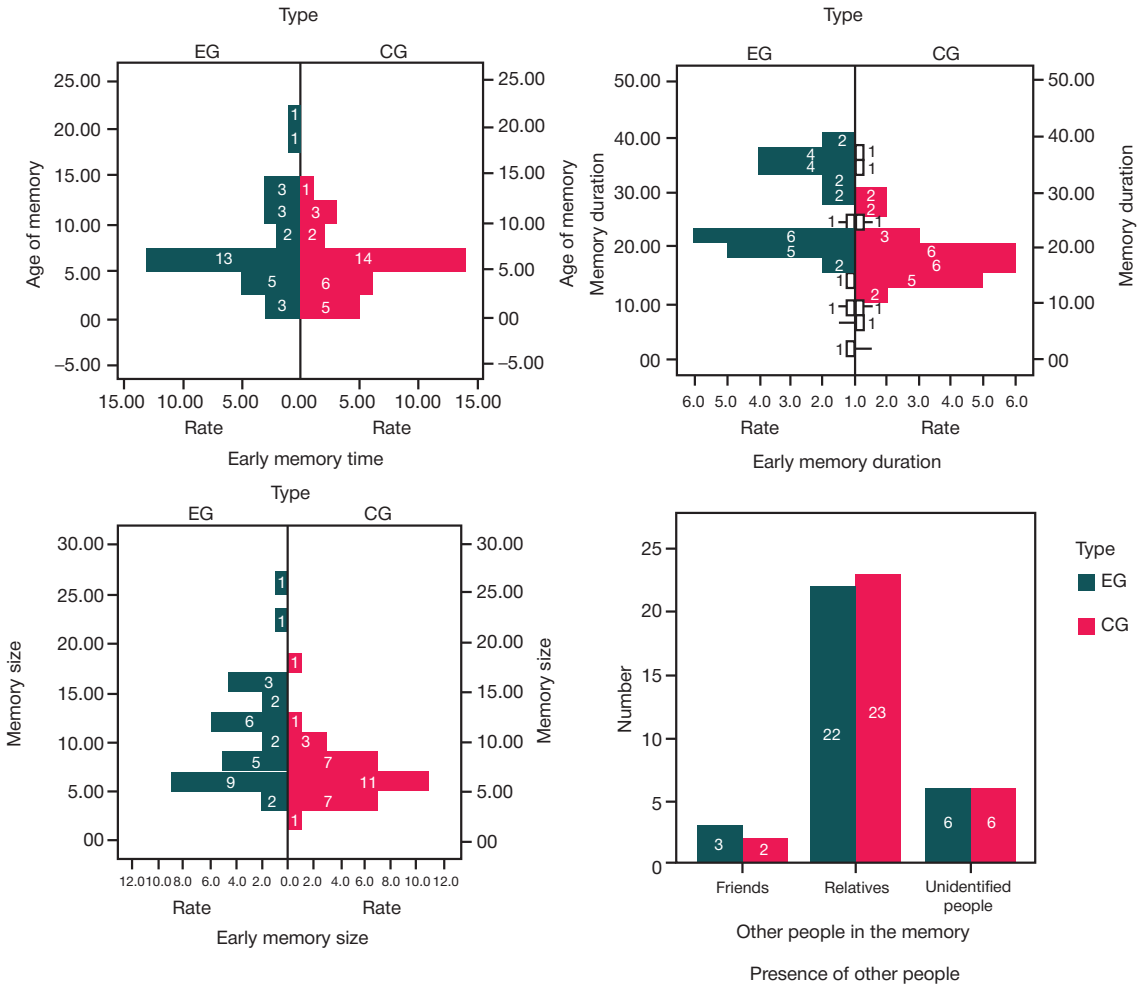


**Fig. 3.** Histogram of frequency distributions for the "time" and "duration" parameters of early memories in the experimental and control groups

When assessing the “time” parameter of early memories, i.e. the age in the early memory, in the participants with combat experience, variation between 2 and 22 years was revealed, and the average value was 7 ± 0.4. The participants having no combat experience showed variation between 1 and 13 years, the average value was 5 ± 0.4. The proportional age difference in early memories shows that in the participants having no combat experience most memories are concentrated at the age of 4–6 years: 23% of memories are related to the age of 6 years, 19% to the age of 5 years, 16% to the age of 4 years. In the participants with combat experience, the peak of memories is observed at almost the same age as reported for the CG: 5 (19%) and 6 (16%) years. The difference has been also revealed: the combat veterans show a broad age span in their memories, including adolescence and young adulthood (Fig. 3).

The less early memories are typical for combat veterans compared to the subjects having no combat experience. The peak of memories in both groups falls on the age of 4–6 years, which is consistent with the general autobiographical memory formation patterns. However, the higher age variability of memories (2–22 years) is typical for the EG (combat veterans), in contrast to the CG (1–13 years), and the average value is higher (7 years vs. 5 years). This trend suggests that veterans draw the later in terms of chronology, but important in terms of contents episodes, including adolescence and young adulthood, into the zone of “early” memories. It is likely that such memories have high affective intensity or role significance, which facilitates their integration into the autobiographical core of memory, despite going beyond the typical age range of early memories.

As for the early memory “duration” parameters, specifically the distance between the current age and the age in the early memory, the values of the participants having combat experience were as follows: variation between 2 and 40 years, average age 25 ± 0.7. In the participants having no combat experience, variation was between 8 and 38 years, and the average age was 19 ± 0.6. The analysis of proportional distribution of the early memories by the distance between the current age and the age in the early memory showed a well-defined peak within an interval of 17–21 years in both groups, which corresponds to the effect of the “peak of autobiographic memories” described by V.V. Nurkova. According to this effect, it is the events that occur in late adolescence and early adulthood that have an increased likelihood of being retained in the long-term memory due to their emotional richness, social significance, and association with the identity formation [18]. The combat veterans show the more sprawling distribution of memories, including those distant based on the age interval: from 30 to 40 years with even distribution across 3–6% (Fig. 3).

The following values were reported for the “memory size” parameter: in the combat veterans, variation was between 3 and 25 sentences, the average size was 9 ± 0.6. In the participants having no combat experience, variation was between 2 and 17 sentences, the average value was 6 ± 0.4. Memories sized 5–6 sentences (16–19% each) predominate in both experimental and control groups. However, in the CG the share decreases sharply as early as after 8 sentences, while in combat

**Table 2.** Results of comparative analysis of the early memory macro-charactertistics in the experimental and control groups

| Parameters | Combat veterans | | Control group | | Mann–Whitney *U*-test | Significance level |
|---|---|---|---|---|---|---|
| | Mode | Median | Mode | Median | | |
| Duration | 21 | 22 | 17 | 19 | 405 | 0.284 |
| Size | 6 | 8 | 6 | 6 | 266.5 | 0.003** |
| Age in the memory | 5 | 6 | 6 | 5 | 281.5 | 0.005** |

**Note:** ** — significance at the level of 0.01

veterans (EG) a second wave of more detailed memories, about 11 (16%) and 15 (10%) sentences is observed, and cases of the most explicit memories (up to 25 sentences) are reported that are lacking in the CG (Fig. 3). The expanded form of early memories in the EG can be interpreted not only as the high degree of cognitive processing and meaning-making, but also as the attempt to process the potentially traumatic experience.

Based on the parameter "presence of other people" in early memories, the results of both groups are matched. Other people are present in the early memories of 100% of the participants, only the number varies: from 1 to 2 in the EG, from 1 to 3 in the CG. Relatives predominate in the combat veterans' memories — 70%, they are followed by unidentified people — 22%; only 8% are friends. In the participants having no combat experience, relatives also predominate — 73%, they are followed by unidentified people — 21%, and friends — 6% (Fig. 3). The central place in the early memories of both combat veterans and the participants having no combat experience is occupied by close relatives (70 and 73%, respectively). This emphasizes an important role of family in the individual's emotional development and the autobiographical memory formation. Friends are far less often reported in the memories; in every fifth case, people with the unspecified identity are mentioned. Such a distribution suggests that it is family relations that form the basis for storage and recall of big moments of childhood.

To assess significance of differences in macro-charactertistics of early memories between combat veterans and individuals having no such experience, we performed comparative analysis of the quantitative data obtained using the nonparametric Mann–Whitney *U*-test (Table 2).

Comparative analysis of the early memory quantitative macro-charactertistics revealed significant differences in the memory size and age in the memory ($p < 0.01$) in the experimental and control groups. In combat veterans, a second wave of prolonged memories is reported, which can be considered as the mechanism of posttraumatic processing and adaptation though storytelling. In the CG having no combat experience, the early memory size decreases sharply after 8 sentences.

When assessing the early memory modality, ambivalent and positive memories are more often reported in the EG, while the neutral and negative ones are less frequent. The early memories that are neutral in terms of modality predominate in the participants having no combat experience (Fig. 4).

The results obtained suggest that the combat experience transforms early memories during their reconsolidation in the direction of emotional ambiguity or the emphasis shift towards positive modality, while when there is no combat experience, the early memories that are emotionally neutral in terms of modality predominate.

Micro-characteristics describe the linguistic and semantic structure of early memories.

The analysis of the percentage of various parts of speech in the transcripts characterizing the linguistic structure of early memories in combat veterans and the participants having no combat experience makes it possible to identify a number of substantial and cognitive-linguistic differences correlated with the functional characteristics of speech units.

The combat veterans demonstrate a higher percentage of the verb forms (on average 21.35% vs. 18.03% in the CG), which suggests richness of their statements with event-related content, the desire to structure memory as a sequence of actions, not descriptions, which reflects the combat experience specifics with capturing current events and plays a protective cognitive role [16; 17]. The rates of using nouns are comparable in both groups (20.16 % — EG; 21.06 % — CG), which confirms the unique nominative function of this part of speech: representation of objects, persons, phenomena, and abstractions providing the basis for the cognitive categorization of experience [18]. Pronouns that ensure coherence and reference are more often found in the participants having no combat experience: 16.87% (15.77% in the group of combat veterans). This suggests a higher degree of subjective involvement in the memory among representatives of the CG, as well as the orientation towards the story's internal perspective [19]. The combat veterans, on the contrary, show a trend of distancing from the early experience manifested by the decrease in the rate of using the personally marked units. The decrease in the share of the attributive and evaluative characteristics in the combat veterans' statements (4.55% vs. 6.58% in the CG) suggests the reduced need for details, as well as the specific nature of the memories, in which actions and situations predominate instead of value judgements [20; 21]. The differences in the percentage of adverbs (higher in the group of combat veterans — 11.61% vs. 9.93% in the CG) suggest the importance of spatiotemporal parameters and subjective assessment of the intensity of what is happening by combat veterans [22]. Significance of differences in the linguistic structure parameters of early memories are provided in Table 3.

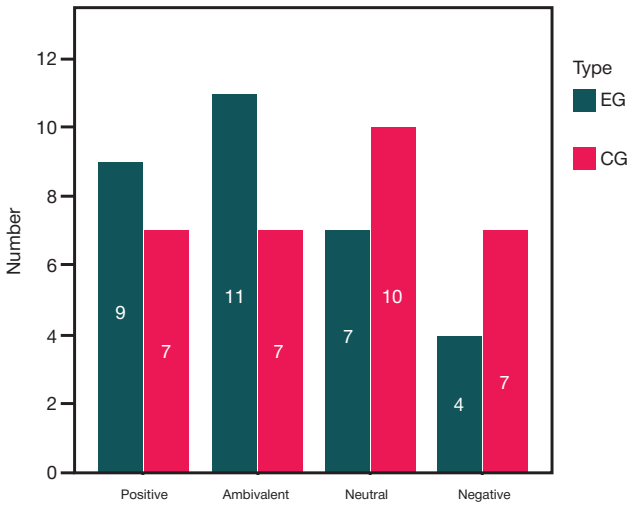


**Fig. 4.** Histogram of frequency distributions for the early memory modalities in the experimental and control groups

**Table 3.** Significance of differences in the linguistic structure parameters of early memories modalities in the experimental and control groups

| | EG | | CG | | Mann–Whitney *U*-test | Significance level |
|---|---|---|---|---|---|---|
| | Mode | Median | Mode | Median | | |
| Noun | 9 | 16 | 19 | 18 | 563 | 0.244 |
| Pronoun | 13 | 13 | 8 | 15 | 575 | 0.182 |
| Verb | 12 | 20 | 10 | 15 | 307.5 | 0.015* |
| Adjective | 2 | 3 | 2 | 5 | 647 | 0.018* |
| Adverb | 7 | 9 | 6 | 8 | 366 | 0.105 |
| Other parts of speech | 12 | 21 | 18 | 24 | 531 | 0.475 |

**Note:** ** — significance at the level of 0.01.

Thus, the identified differences in the speech unit composition allow us to speak about the existence of two cognitive-discursive models of the early memory representation: an event-based model in the group of combat veterans (characterized by relying on the verb forms and adverbs reflecting the action dynamics and situation, with the minimum evaluative vocabulary) and a descriptive-reflexive model (that is based on the nouns, pronouns, and adjectives that create a subjectively colored and emotionally detailed picture of past experience) for the participants with no combat experience.

Assessment of the combat veterans' early memory semantic core suggests fixation of an event in memory with a predominance of the negative emotional envelope of the semantic core. Memories with the semantic core positive modality predominate in the participants with no traumatic experience. Such semantic structure features reflect the qualitative characteristics of the life context impact on the selection and consolidation of the key meanings. The semantic core emotional vector can be considered as a reflection of both individual perception and the conditions of the autobiographical memory formation.

## DISCUSSION

The shift of the combat veterans' early memory emotional modality vector results from the desire to maintain internal stability and integrity of experience: under the influence of the negatively colored obsessively repeating traumatic memories, the direction of the vector of emotional modality in the structure of the autobiographical memory changes towards the positive coloring of early memories.

It has been shown that after the exposure to combat traumatic psychological stress, combat veterans have to essentially recreate the structure of their subjective life space under the conditions of peaceful life, including the structure of self-attitude, self-esteem and life-purpose orientations. This is why, in the context of reconsolidating early memories, such participants resort to a more detailed presentation, at the same time trying to reconstruct their own life [23]. The thesis specified has been also confirmed in our study: through the recording of a more expanded form of early memories in combat veterans, suggesting a high degree of cognitive processing and meaning-making, potentially enabling the processing of traumatic experiences. Interpersonal relationships are not addressed in the contents of early memories of the participants, who took part in the study, when recalled, which is typical for males [24]. It has been shown that high severity of PTSD manifestations results in violation of the chronological boundaries of one's own life, as well as in the reduced quantity of the memory trace details [25]. According to our results, it is the expanded form of the early memory verbal representation in combat veterans that ensures the traumatic memory processing psychotherapeutic resource and restoration of the chronological integrity and order of the autobiographical memory contents.

## CONCLUSIONS

Based on the study it was reliably determined that the experience of participating in combat transforms early memories through the reconsolidation mechanism, which is manifested by macro- and micro-characteristics. The expanded form of the early memory verbal representation in combat veterans suggests processing of personal experience, including traumatic, in which the narrative detailing serves as the means of understanding and integrating life events into an autobiographical context. The linguistic and semantic structure of the combat veterans' early memories is characterized by an event-based model, with a predominance of verbs and adverbs. It has been found that the semantic core of the combat veterans' early memories is more often negatively colored, despite its general ambivalent or positive modality.

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