

STRUCTURE OF TIME PERSPECTIVE IN COMBATANTS WITH AMPUTATED LIMBS

Nikishina VB, Petrash EA [✉], Yunina-Pakulova NYu, Lukyanov ES

Pirogov Russian National Research Medical University, Moscow, Russia

The relevance of the reported study results from the need to clearly define the target of psychological impact in combatants with amputated limbs. The time perspective being an integral characteristic ensures the life experience integrity: all life events are intertwined within the boundaries of the past, present and future. The study was aimed to assess the time perspective structure in combatants with amputated limbs. The sample consisted of 78 males aged 20–53 years, who had combat experience and underwent treatment or rehabilitation after getting injured. The study involved the use of the Mississippi Scale for Combat-Related Post-Traumatic Stress Disorder, Zimbardo Time Perspective Inventory, method for event-based reconstruction of a person's time perspective by V.B. Nikishina and E.A. Petrash, SR-45 method by P.I. Yunatskevich, infantilism inventory by A.A. Seregin. The factor structure of time perspective in combatants with amputated upper limbs includes the factor of non-reflexive future, factor of limited time perspective, and the situational and behavioral risk factor. In cases of amputated lower limbs, the situational future factor, past orientation factor, and situational and behavioral risk factor are represented. In cases of no amputated limbs, the combatants' time perspective structure includes the factor of reflexive future perspective, factor of limited present fatalistic, and past orientation factor.

Keywords: time perspective, amputation of limbs, post-traumatic stress disorder, combat experience

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✉ **Correspondence should be addressed:** Ekaterina A. Petrash
Ostrovityanova, 1, Moscow, 117997, Russia; petrash@mail.ru

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СТРУКТУРА ВРЕМЕННОЙ ПЕРСПЕКТИВЫ УЧАСТНИКОВ БОЕВЫХ ДЕЙСТВИЙ С АМПУТАЦИЕЙ КОНЕЧНОСТЕЙ

В. Б. Никишина, Е. А. Петраш [✉], Н. Ю. Юнина-Пакулова, Е. С. Лукьянов

Российский национальный исследовательский медицинский университет имени Н. И. Пирогова, Москва, Россия

Актуальность предлагаемого исследования обусловлена необходимостью четкого определения мишени психологического воздействия у участников боевых действий с ампутацией конечностей. Временная перспектива, являясь интегральной характеристикой, обеспечивает целостность жизненного опыта: все события жизни в границах прошлого, настоящего и будущего взаимосвязаны. Целью исследования было оценить структуру временной перспективы участников боевых действий с ампутацией конечностей. Объем выборки составил 78 мужчин 20–53 лет, имеющих опыт участия в боевых действиях и находящихся на лечении либо реабилитации после ранений. В работе использовали Миссисипскую шкалу для оценки посттравматических реакций, опросник временной перспективы Ф. Зимбардо, методику событийной реконструкции временной перспективы личности Никишиной В. Б. и Петраш Е. А., методику СР-45 П. И. Юнацкевича, опросник уровня инфантилизма А. А. Серегина. Факторная структура временной перспективы участников боевых действий с ампутацией верхних конечностей включает в себя фактор нерелексивного будущего, фактор ограниченности временной перспективы и фактор ситуативно-поведенческих рисков. При ампутации нижних конечностей представлены фактор ситуативного будущего, фактор ориентированности на прошлое, а также фактор ситуативно-поведенческих рисков. При отсутствии ампутации конечностей в структуре временной перспективы участников боевых действий представлены фактор перспективы рефлексирующего будущего, фактор ограниченно-фаталистического настоящего, а также фактор направленности в прошлое.

Ключевые слова: временная перспектива, ампутация конечностей, посттравматическое стрессовое расстройство, опыт участия в боевых действиях

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✉ **Для корреспонденции:** Екатерина Анатольевна Петраш
ул. Островитянова, д. 1, г. Москва, 117997, Россия; petrash@mail.ru

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The relevance of assessing the structure of time perspective in combatants with amputated limbs results from the need to search for targets of psychological impact. Chronological narrowing of the time perspective and event (substantial) scantiness characterize manifestations of post-traumatic stress disorder [1–3]. The study of the time perspective structural organization transformation as a target for psychological impact will make it possible to change the combatants' emotional and behavioral status, thereby decreasing the intensity of the traumatic event flashbacks.

In combatants, stressful influences include both combat experience itself and acquisition of various physical injuries and

disabilities. A number of authors report that the person's time perspective changes under the long-term exposure to stressful factors, including those leading to post-traumatic stress disorder (PTSD): chronological boundaries change, along with the correlation between the past–present–future parameters and emotional assessment of the time perspective content [4–10].

When constructing the sequence of ideas, we proceeded from the assumption that the time perspective that is substantially characterized by assessing events as traumatic is implemented considering the emotional and behavioral status manifesting in the PTSD severity, degree of personal maturity or infantilism (considered to be the opposite of personal maturity),

and suicidal tendencies at the level of behavior. Therefore, different people can assess the same events differently: what for one is a stressful factor, for another is a usual, ordinary event (one of many other events).

The study was aimed to assess the structure of time perspective in combatants with amputated limbs.

METHODS

The study involved 78 male subjects aged 20–53 years (31.16 ± 4.28 years), who underwent treatment and rehabilitation (early stage — preparation for prosthetics) after the mine blast injuries and gunshot wounds resulting from participation in hostilities. Inclusion criteria: wounds resulting from participation in hostilities (mine blast injuries and gunshot wounds without any severe damage to the internal organs); normative cognitive status assessed using the Mini-Mental State Examination (MMSE) scale [11]. The subjects, whose scores corresponded to 28–30 points, were included in the study. Exclusion criteria: female gender, impaired cognitive status (MMSE score below 28), severe damage to the internal organs due to injuries. The experimental group included 42 individuals with traumatic amputation (26 individuals with the lower limb amputated at the level of the foot/lower leg and 16 individuals with the upper limb amputated at the level of the hand/forearm), who had not proceeded to the prosthetics stage. The control group consisted of 36 combatants with the mine blast and gunshot soft tissue injuries and no amputated limbs.

The study was conducted using the following methods: Mississippi Scale for Combat-Related Post-Traumatic Stress Disorder (Mississippi Scale — MS, Keane et al., adapted by N. V. Tarabrina) — military version; Zimbardo Time Perspective Inventory; method for event-based reconstruction of a person's time perspective by V. B. Nikishina and E. A. Petrash; method to reveal suicidal tendencies (SR-45) by P. I. Yunatskevich; infantilism inventory by A. A. Seregin [7, 12–17].

The study consisted of three sequential phases. In the first phase, we assessed significance of differences in the time perspective and event space parameters of combatants by groups considering the fact of amputation. The objective of the second phase was to assess the combatants' emotional and behavioral status considering the fact of limb amputation.

Emotional and behavioral status was studied in terms of the PTSD manifestation severity parameters, degree of infantilism, and suicidal tendencies. These parameters were assessed in the groups of combatants having/not having amputated limbs considering the type of amputation (upper or lower limb amputation). In the third phase, we assessed the time perspective factor structure with the emotional and behavioral status indicators by groups of subjects.

Statistical processing was performed by statistical methods for comparison (nonparametric Mann–Whitney U test used in accordance with the limitations). Multivariate statistics were also calculated: factor analysis with varimax rotation ($p < 0.05$) was performed for the studied parameters.

The study was aimed to assess the structure of time perspective in combatants with amputated limbs.

RESULTS

In the first phase, we assessed significance of differences in the time perspective parameters of combatants in the groups having/not having amputated limbs. It was found that the time perspective was characterized by predominance of future and past positive orientation (Fig. 1).

Considering the general future orientation, we can conclude that the combatants' behavior is determined by aspirations for the future goals and rewards, regardless of the fact of having/not having amputated limbs. However, the chronological boundaries of that future are determined by the current period of hospitalization and subsequent rehabilitation that is also carried out at the specialized institution (period of up to 1–3 months). Past positive is characterized by positive reconstruction of the past, but only before the beginning of participation in hostilities. Furthermore, combatants having the history of amputation report lower past positive values compared to combatants with no amputated limbs ($p = 0.026^*$). Significant differences are also reported for such parameters, as past negative ($p = 0.024^*$) and present fatalistic ($p = 0.023^*$). These indicators are significantly higher in the group of combatants having no history of amputation, which suggests higher degree of the time perspective differentiation and structuredness.

Assessment of the time perspective indicators in combatants considering the type of amputation (upper/lower

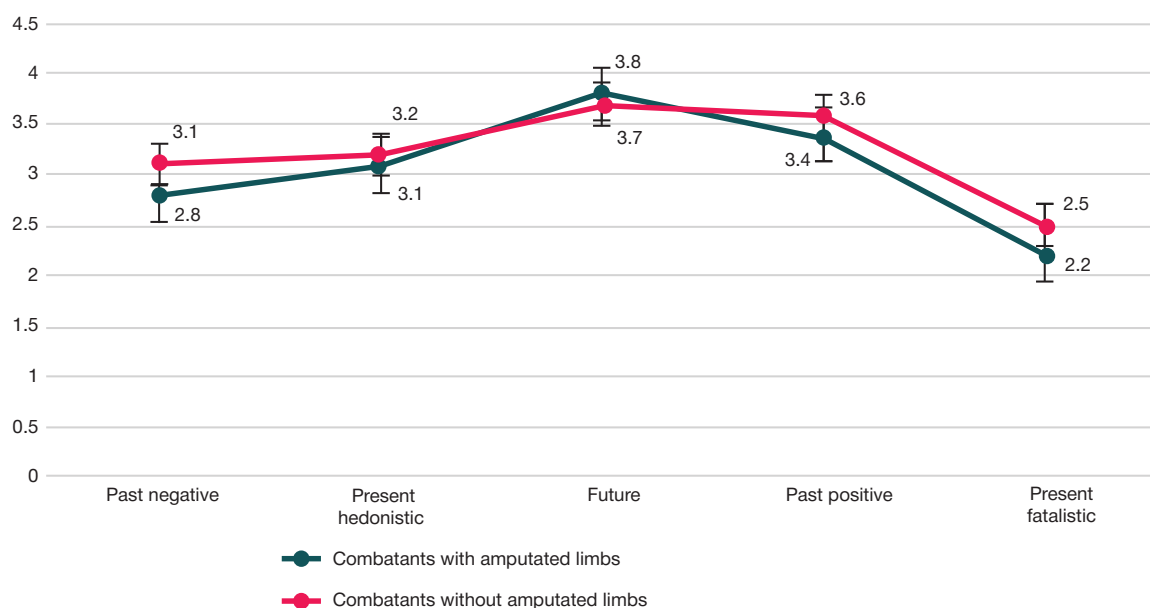


Fig. 1. Profiles of the combatants' time perspective parameter average values considering the fact of limb amputation

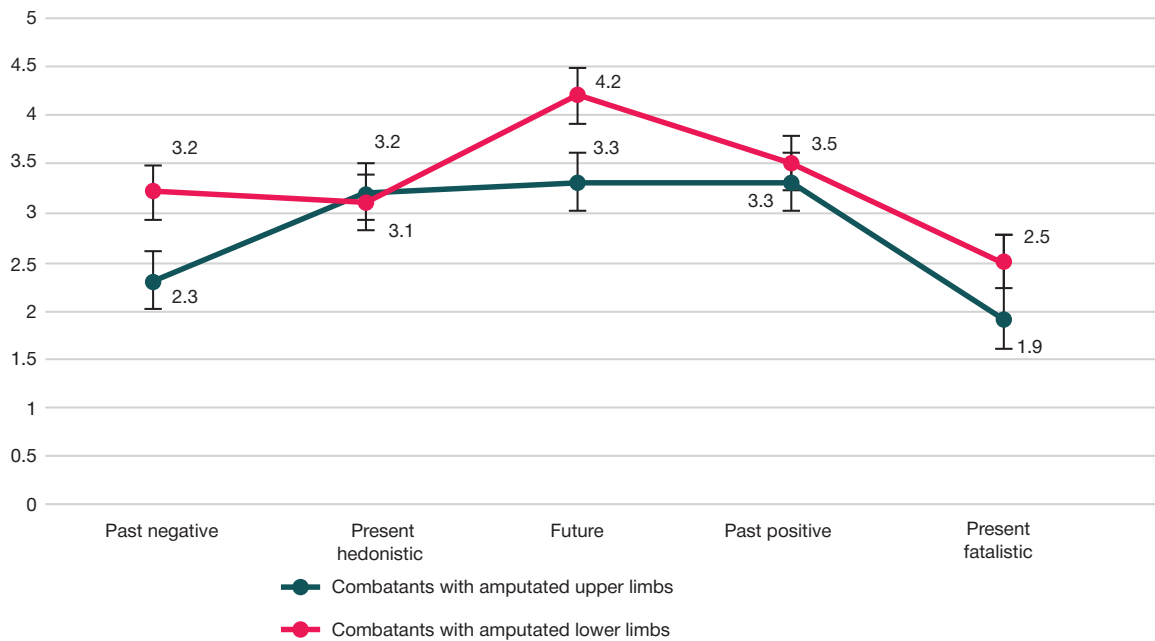


Fig. 2. Profiles of the combatants' time perspective parameter average values in the groups with the upper and lower limb amputation

limb amputation) has revealed significant predominance of such indicators, as past negative, future, and present fatalistic in combatants with amputated lower limbs compared to combatants with amputated upper limbs. In cases of upper limb amputation, the time perspective is characterized by lower scores of indicators with their good balance, while in cases of lower limb amputation the patients are future-oriented (the future is rather short-term, not extending beyond the phase of treatment and rehabilitation), they show predominance of negative assessment of the past (related not only to the traumatic event, but also to negative perception of neutral events) and present fatalistic (Fig. 2).

Assessment of the time perspective event fullness via the event space size has shown that the number of the past ($p = 0.031^*$) and future ($p = 0.033^*$) events is significantly higher in combatants with the mine blast and gunshot soft tissue injuries and no amputated limbs, than in combatants with amputated limbs. There are no significant differences in the number of present-day events.

Regardless of the presence of the fact of having/not having amputated limbs in the event space structure, the maximum number of events belongs to the past, with the minimum

number of events belonging to the present. Assessing the total number of events, we can conclude that the total number of events (belonging to the past, present and future) is lower in combatants with amputated limbs. This suggests significant narrowing of the event space surrounding the events with post-traumatic effects that accumulate the system of relationships between the events and disrupt personal time perspective in combatants (Fig. 3).

Assessment of the event space integration in combatants considering the fact of amputation has revealed a significant excess of the number of relationships between events in the group of combatants with amputated limbs within the coordinates of the past ($p = 0.034^*$), present ($p = 0.031^*$), and future ($p = 0.027^*$). The findings suggest the combatants' fixation on the obviously traumatic event. Furthermore, the entire time perspective flows through the system of relationships of the traumatic event (designated as the fact of participating in hostilities, getting wounded, amputation and all the things related to this situation by the subjects) in both groups.

Assessment of the time perspective event fullness in combatants with amputated upper and lower limbs has revealed that in cases of lower limb amputation the

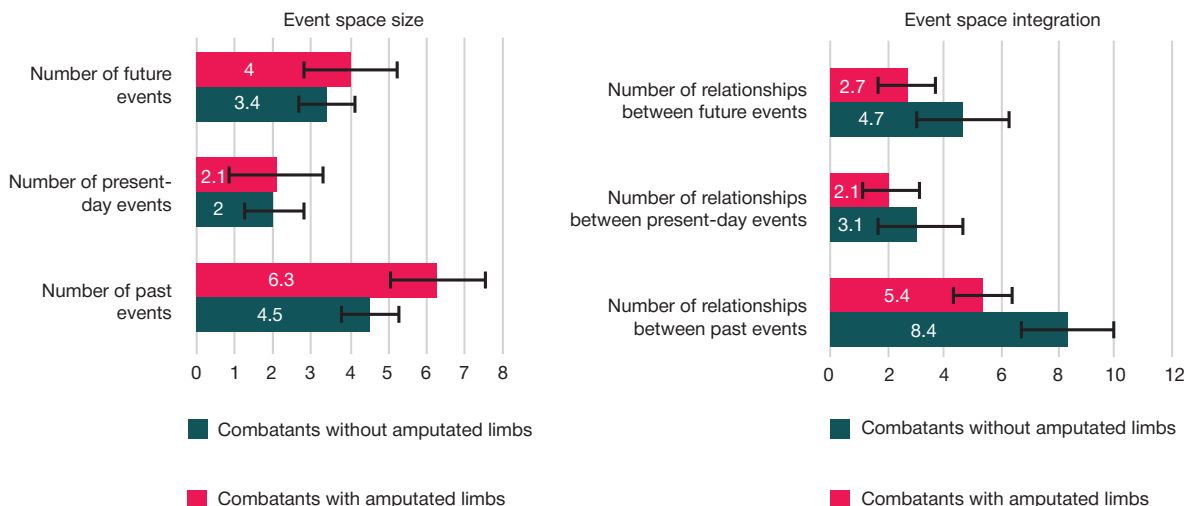


Fig. 3. Event space size and integration in combatants considering the fact of limb amputation

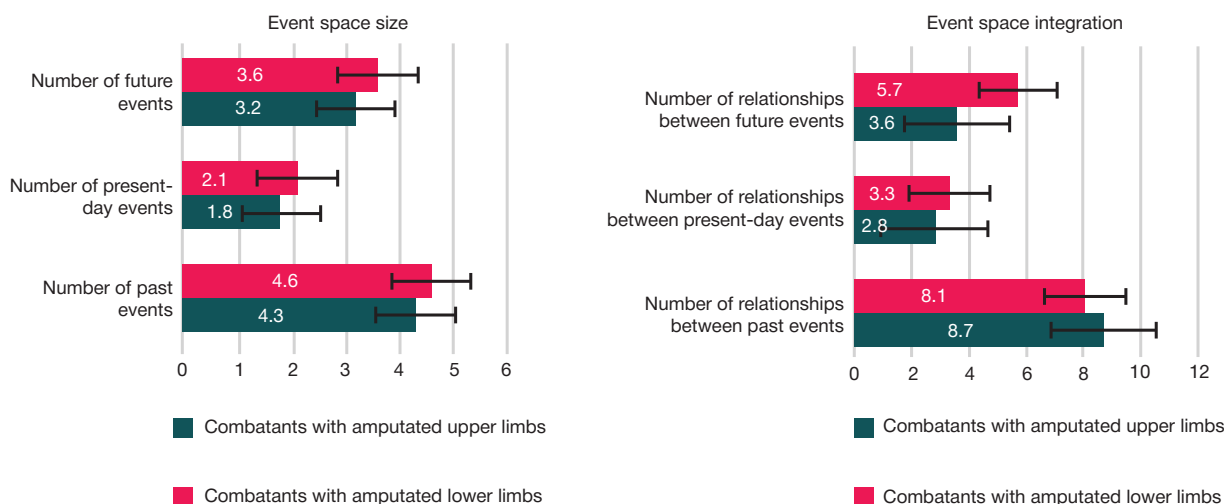


Fig. 4. Event space size and integration in combatants with amputated upper and lower limbs

number of the past ($p = 0.022^*$), present-day ($p = 0.023^*$), and future ($p = 0.022^*$) events is significantly higher than that in combatants with amputated upper limbs. Assessment of the number of relationships within the boundaries of the present ($p = 0.026^*$) and future ($p = 0.024^*$) has revealed a larger number of relationships in combatants with amputated lower limbs compared to combatants with amputated upper limbs. Furthermore, in combatants with amputated lower limbs, the larger number of past events is involved in the smaller number of relationships ($p = 0.046^*$) relative to combatants with amputated upper limbs (Fig. 4).

When solving the problem of assessing severity of PTSD manifestations in combatants, it has been revealed that severity of PTSD manifestations is significantly higher in combatants with amputated limbs, than in combatants with no amputated limbs, however, it is within the medium range with the trend toward high severity (98.4 ± 2.86) in both groups, which characterizes the adjustment disorder. Furthermore, assessment of the significance of differences in the group of combatants with amputated upper and lower limbs has revealed that in cases of upper limb amputation the severity of PTSD manifestations (92.2 ± 2.31) manifesting in the adjustment disorder is significantly higher than in cases of lower limb amputation (88.3 ± 2.57). The findings result from the fact that self-care skills are significantly impaired after amputation of the upper limbs, the feeling of helplessness and hopelessness increases (according to the subjects). The adjustment disorder is less severe in cases of lower limb amputation, since limitations are related mainly to movement in space that can be compensated using mobility aids.

Considering infantilism as a complex personality trait manifested in immaturity of the emotional and volitional sphere, low achievement motivation, lack of independence in decision-making and actions, subjugate, disorganized behavior, orientation towards hedonic values, as well as low ability to reflect and undeveloped coping behavior, the medium degree of total infantilism has been revealed in both groups, regardless of the fact of having/not having amputated limbs. Assessment of the significance of differences has shown that the total infantilism level is higher in combatants with amputated limbs ($p = 0.021^*$), than in combatants with no amputated limbs (Fig. 5). Assessment of the significance of differences in the total infantilism level in the groups of combatants with amputated upper and lower limbs has revealed no significant differences ($p = 0.129$).

The total infantilism level being an integrative indicator includes a number of indicators allowing one to determine, which personal manifestations are characterized by immaturity (what level of personal manifestations produces the signs of infantilism: emotional and volitional, axiological, motivational or behavioral).

Consideration of infantilism parameters in combatants has revealed that personal immaturity manifests itself at the axiological and motivational-behavioral levels in both groups of subjects (Fig. 6).

Combatants with no amputated limbs having the medium infantilism level characterized by situational emotional control experience difficulties with planning ways to achieve their goals, when they have life goals; they are characterized by the pronounced parasitic attitude and shifting responsibility to

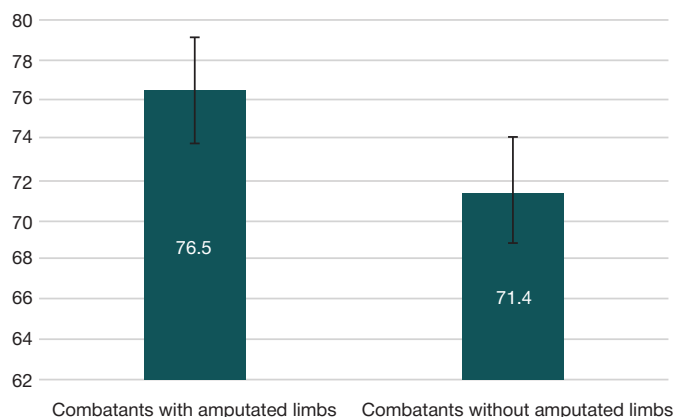


Fig. 5. Average values of total infantilism level in combatants considering the fact of limb amputation

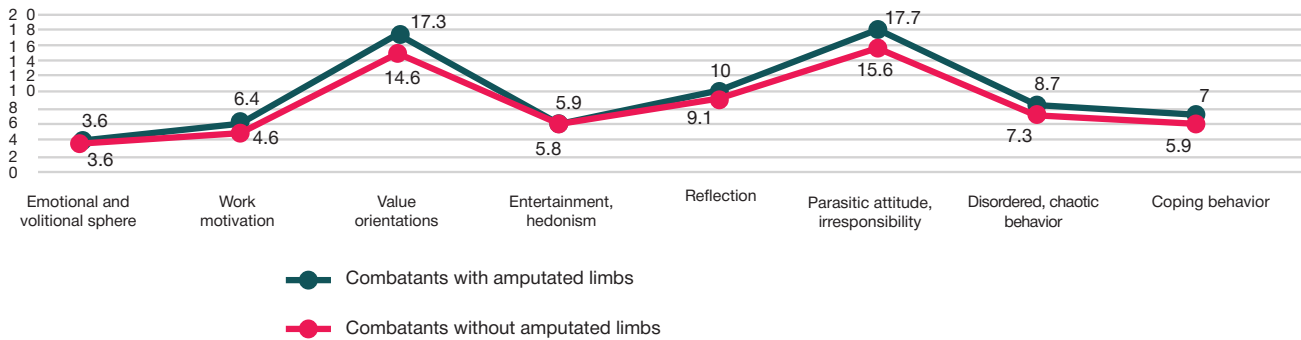


Fig. 6. Average severity of infantilism manifestations in combatants considering the fact of limb amputation

others. Such attitude corresponds to avoidance behavior in difficult and uncertain situations. In combatants with amputated limbs (both upper and lower) with medium total infantilism level, value orientation ($p = 0.022^*$), work motivation ($p = 0.021^*$), parasitic attitude ($p = 0.019^*$), and chaotic behavior ($p = 0.043^*$) are significantly higher, than in combatants with no amputated limbs. The findings are natural, since traumatic amputation is an objective factor that disturbs behavior.

No statistically significant differences in infantilism indicator scores have been revealed in the experimental group (when comparing infantilism indicators in combatants with amputated lower and upper limbs).

In the next phase, we assessed the combatants' suicidal tendencies. As a result, significant differences in the strength of suicidal tendencies between the experimental and control groups ($p = 0.024^*$), as well as in the experimental group ($p = 0.038^*$) have been revealed. It has been found, that combatants with the suicidal tendency levels below average are characterized by the probability of situational emergence of the risk of suicide, regardless of the fact of having/not having amputated limbs: suicide can happen only in the context of long-term stressful impact or in case of reactive mental disorder (Fig. 7).

Combatants with amputated limbs are characterized by the stronger situational suicidal tendencies compared to combatants without limb amputation. Situational suicidal tendencies are stronger in combatants with amputated upper limbs, than in combatants with amputated lower limbs.

During the next phase we implemented the procedure of the studied parameter factorization by groups of subjects.

The time perspective factor structure of combatants with amputated upper limbs includes three factors with the highest factor loadings: factor of future non-reflexive (including future orientation — 0.736 in terms of shifting responsibility — 0.729),

factor of time perspective limitation (characterized by past negative — 0.691, the content of which includes stressful experience — 0.704), and the situational behavioral risk factor (including situational suicidal tendencies — 0.726 with fatalistic assessment of the present — 0.808) (Fig. 8).

The time perspective factor structure of combatants with amputated lower limbs consists of three factors, including the factor of situational future (characterizing the limited nature of the future events — 0.709 with the situational emotional control — 0.806), past orientation factor (including event fullness of the past — 0.725 realized through avoidance behavior — 0.748), and the situational behavioral risk factor (including situational suicidal tendencies — 0.734; present fatalistic — 0.731; PTSD manifestations — 0.764).

The time perspective factor structure of combatants with no amputated limbs also includes three factors with the highest factor loadings: factor of future reflexive perspective (future orientation — 0.752 with negative assessment of the past — 0.702 and shifting responsibility attitude — 0.729), factor of limited present fatalistic (with fatalistic present-day events — 0.801 that are considered stressful), and the past orientation factor (with positive assessment of the past — 0.736 in terms of shifting responsibility — 0.705).

DISCUSSION

The features of the combatants' time perspective factor structure identified during the study are consistent with the data acquired in the earlier studies [4, 5, 9, 12], according to which the authors clearly see the time perspective inconsistency, orientation towards past events, and narrowing of chronological boundaries of the past, present, and future. The factors determining the time perspective structural organization

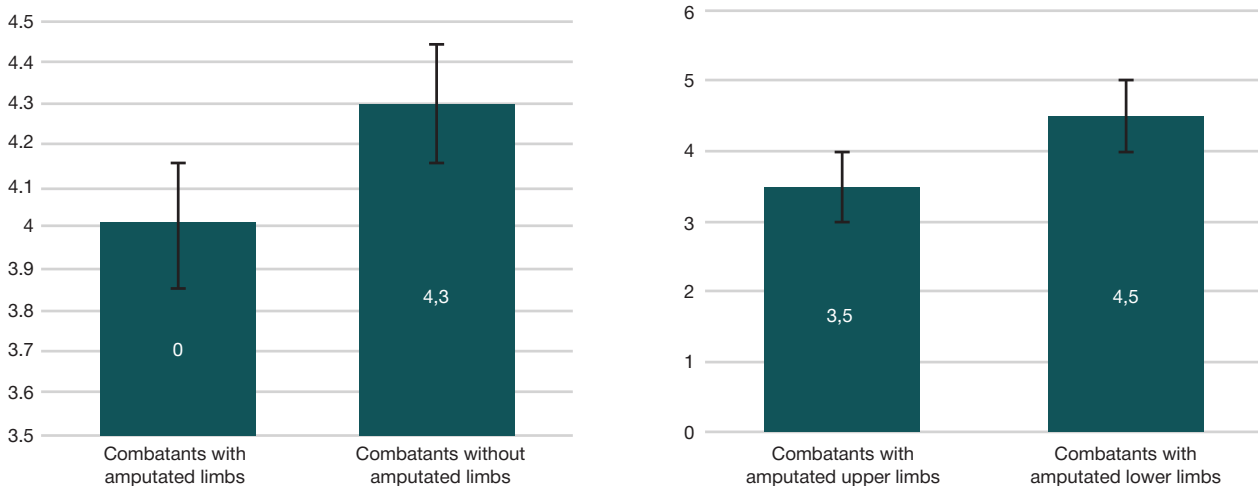


Fig. 7. Bar charts of the average values of suicidal tendency strength in combatants considering the fact of limb amputation

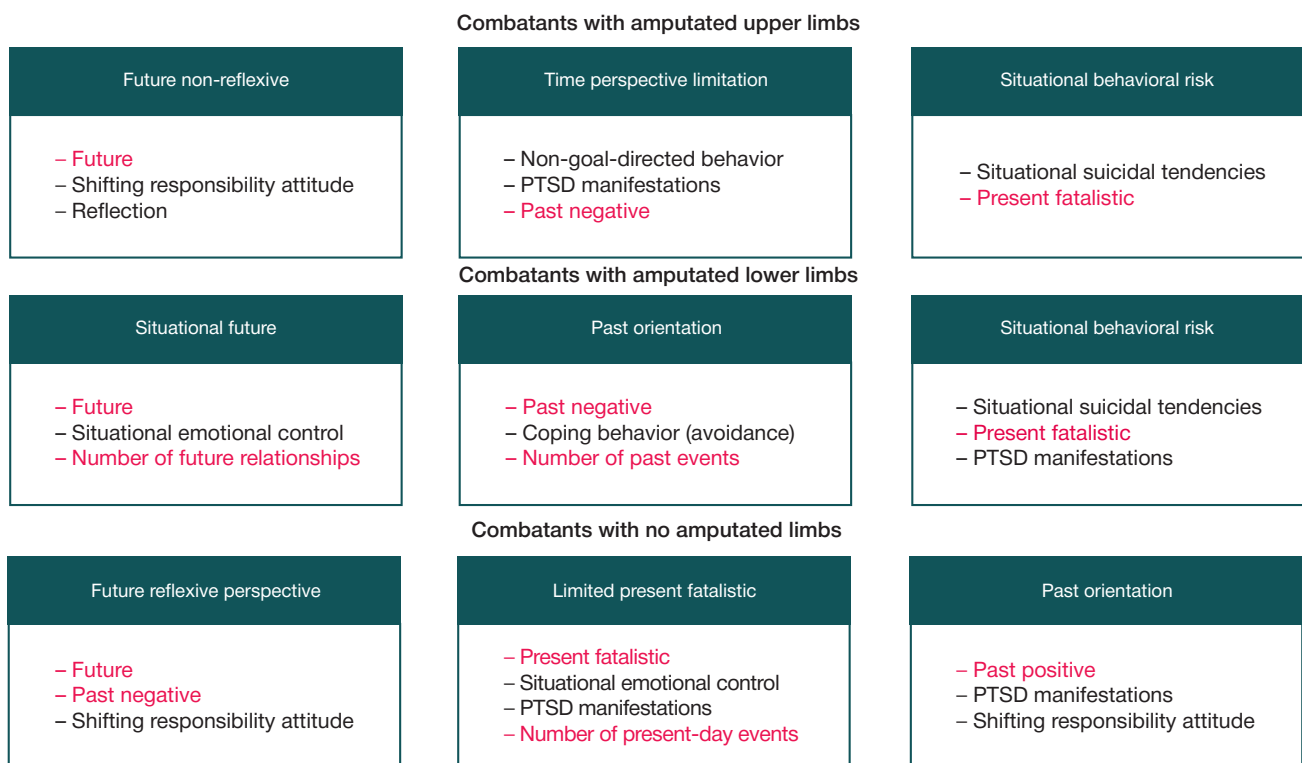


Fig. 8. Time perspective factor structure in combatants considering the fact of limb amputation

in combatants are, on the one hand, traumatic events (either combat experience, or combat experience combined with the acquired physical defect in the form of limb amputation), and on the other hand, the level of personal maturity (or rather, on the contrary, the degree of infantilism), as well as suicidal tendencies. According to the findings, a pattern has been identified confirming our hypothesis that the more severe the PTSD manifestations, the higher the degree of infantilism (which is observed in the group of combatants with traumatic amputation of the limbs), the more inconsistent the time perspective is.

Inconsistency of the time perspective structural organization in combatants with amputated upper limbs seems to be the most challenging, since it is this group, where manifestations of destructive emotional and behavioral status are more severe (more severe PTSD manifestations and stronger suicidal tendencies), which significantly limits the future perspective and future planning. They tend to shift responsibility for future events while the present, which, in turn, results from the past (stressful) events, is fatalistic. In cases of lower limb amputation, the combatants' time perspective structural organization is similar to the earlier reported, however, it has some specific features. The event-related limitation of the future with selective situational emotional control is ensured mainly by the past events (each event of the future results from the past events with traumatic content). Furthermore, event fullness of the past is realized through avoidance behavior: traumatic events are not designated as traumatic; these are more often assessed as negative.

The time perspective structural organization of combatants with no amputated limbs is also characterized by chronological and event (substantial) limitation of the future, along with fatalistic nature of the present and positively assessed past. In this case, traumatic events represent the content of present fatalistic: these events have not yet been transferred to the chronological past. This fact significantly limits the possibilities of forward planning and prediction of the future perspective.

CONCLUSIONS

The study of the time perspective structural organization in combatants has revealed fatalistic nature of the present along with future orientation in the group of males having a history of limb amputation and in the group of males with the mine blast and gunshot soft tissue injuries and no amputated limbs. Furthermore, the future chronologically reduced to 1–3 months is characterized by the lack of life goals, imprecise and chaotic ways to achieve the goals, as well as by developing the attitude with the lack of responsibility and avoidance behavior in the situations, when coping is required. Inconsistency of the combatants' time perspective structural organization is more pronounced in the groups with amputated limbs (both upper and lower), than in the group of combatants with no amputated limbs. The time perspective inconsistency associated with amputation of the limbs (both lower and upper) results from more severe PTSD manifestations. Dissociation being one of the key PTSD manifestations also manifests itself at the level of time perspective, clearly delimiting events of the past, present, and future. The medium degree of infantilism reported for this group of subjects manifests itself in developing a pronounced parasitic attitude in the context of the future, as well as in the chaotic behavior and situational suicidal tendencies (as one of manifestations of coping behavior in the form of avoidance). Combatants with no amputated limbs assess their past as negative, limiting it to the events related to their combat experience and subsequent injury. The present limited by the duration of current moment (not exceeding 24 h) is characterized by avoidance behavior based on the hedonic values. No suicidal tendencies are reported. Retrospective assessment of the past disordered in terms of motivation represents an obstacle on the way to shaping the promising future involving sorting the goals, as well as methods and means to achieve the goals.

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