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STATE POLICY OF MILITARY RECREATION: TRANSFORMING PHYSICAL CULTURE AND REHABILITATION SYSTEMS AMID PROLONGED WARFARE

ДЕРЖАВНА ПОЛІТИКА ВІЙСЬКОВОЇ РЕКРЕАЦІЇ: ТРАНСФОРМАЦІЯ СИСТЕМ ФІЗИЧНОЇ КУЛЬТУРИ ТА РЕАБІЛІТАЦІЇ В УМОВАХ ТРИВАЛОЇ ВІЙНИ

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Abstracts

Introduction. This study aims to conceptualize military recreation as an integrated component of state-supported recovery for service members and veterans and to define its role at the intersection of rehabilitation, physical culture and sport, psychosocial recovery, and community reintegration, with particular attention to the Ukrainian context of prolonged warfare.

Materials and Methods. A structured qualitative documentary analysis was conducted of scientific publications, policy documents, and institutional sources published between 2004 and 2026. Searches were performed in PubMed, Scopus, Web of Science, and Google Scholar using combinations of terms related to military rehabilitation, military recreation, veteran physical culture, adaptive sport, community rehabilitation, occupational therapy, and rehabilitation policy in Ukraine. The search identified 347 records; after removal of duplicates, 303 records remained for screening and 94 were retained for further assessment. The final bibliography comprised 53 sources, including 45 sources in the core analytical corpus. A deductive analytical framework was developed around five interconnected dimensions: governance and institutional coordination; continuity and accessibility of recovery services; physical, psychosocial, and adaptive recovery; community and social reintegration; and monitoring, evaluation, and policy learning. The analysis was qualitative and did not involve frequency-based coding or statistical inference.

Results. The qualitative synthesis identified six interconnected transformation gaps: regulatory fragmentation; insufficiently developed workforce capacity; unequal geographical availability of rehabilitation and recreational infrastructure; limited integration across institutional sectors; potential discontinuity between military, rehabilitation, veteran, and community services; and the absence of a unified monitoring approach within the reviewed evidence. These gaps were interpreted through five analytical dimensions: governance and institutional coordination; continuity and accessibility; physical, psychosocial, and adaptive recovery; community and social reintegration; and monitoring, evaluation, and policy learning. Based on this synthesis, the study proposes an integrated governance model linking needs assessment, coordinated referral, rehabilitation and recreational services, community participation, and feedback from monitoring to policy development. A preliminary framework of 12 indicators covers access, program coverage, workforce capacity, continuity of care, adaptive-sport participation, functional outcomes, community recreation, family participation, workforce development, infrastructure equity, policy evaluation, and quality of life. The findings represent a conceptual synthesis of the selected literature rather than a verified audit of Ukrainian institutional practice or an empirical validation of the proposed model.

Conclusions. Military recreation should be incorporated into integrated state recovery policy rather than treated as separate recreational or sporting domain. For Ukraine, this requires a shift from fragmented program provision

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toward interconnected recovery pathways linking rehabilitation, physical culture and sport, psychosocial support, veteran services, and community-based provision. The strategic value of military recreation lies in its potential to translate clinical and functional recovery into sustained participation, social connection, and reintegration into community life. Further development should especially focus on empirical validation of integrated service pathways, measurable standards, and outcome-oriented governance.

Keywords: military recreation, veterans, rehabilitation policy, adaptive sport, state policy, community reintegration, Ukraine.

Мета. Дослідження має на меті концептуалізувати військову рекреацію як інтегровану складову державної системи відновлення військовослужбовців і ветеранів та визначити її роль на перетині реабілітації, фізичної культури і спорту, психосоціального відновлення та соціальної реінтеграції з особливою увагою до українського контексту тривалої війни.

Матеріали та методи. Проведено структурований якісний документальний аналіз наукових публікацій, нормативно-політичних та інституційних документів, опублікованих у 2004–2026 роках. Пошук здійснювали в базах даних PubMed, Scopus, Web of Science та Google Scholar із використанням комбінацій термінів, пов'язаних із військовою реабілітацією, військовою рекреацією, фізичною культурою ветеранів, адаптивним спортом, громадською реабілітацією, ерготерапією та реабілітаційною політикою в Україні. У результаті пошуку було виявлено 347 записів; після вилучення дублікатів 303 записи залишилися для скринінгу, а 94 – для подальшої оцінки. Фінальна бібліографія включала 53 джерела, з яких 45 увійшли до основного аналітичного корпусу. Дедуктивну аналітичну рамку сформовано навколо п'яти взаємопов'язаних вимірів: управління та інституційна координація; безперервність і доступність послуг відновлення; фізичне, психосоціальне та адаптивне відновлення; громадська та соціальна реінтеграція; моніторинг, оцінювання та формування політики на основі отриманих даних. Аналіз мав якісний характер і не передбачав частотного кодування або статистичних висновків.

Результати. Якісний синтез виявив шість взаємопов'язаних прогалин: нормативну фрагментацію; недостатньо розвинений кадровий потенціал; нерівномірну територіальну доступність реабілітаційної та рекреаційної інфраструктури; обмежену інтеграцію між інституційними секторами; потенційні розриви між військовою медичною допомогою, реабілітацією, ветеранськими та громадськими послугами; відсутність єдиного підходу до моніторингу в межах розглянутого корпусу. Прогалини проаналізовано за п'ятьма вимірами: управління та інституційна координація; безперервність і доступність; фізичне, психосоціальне й адаптивне відновлення; громадська та соціальна реінтеграція; моніторинг, оцінювання та навчання на основі результатів політики. На основі синтезу запропоновано концептуальну модель управління, що поєднує оцінювання потреб, координацію направлень, реабілітаційні й рекреаційні послуги, участь у житті громади та використання результатів моніторингу для коригування політики. Попередня система з 12 індикаторів охоплює доступність послуг, охоплення програмами, кадровий потенціал, безперервність допомоги, участь в адаптивному спорті, функціональні результати, громадську рекреацію, участь сімей, розвиток кадрів, територіальну рівність інфраструктури, оцінювання політики та якість життя. Результати є концептуальним синтезом відібраної літератури, а не перевіреним аудитом української інституційної практики чи емпірично валідованою моделлю.

Висновки. Військову рекреацію доцільно інтегрувати в державну політику відновлення, а не розглядати як окрему рекреаційну чи спортивну сферу. Для України це потребує переходу від фрагментованого надання послуг у межах окремих програм до взаємопов'язаних шляхів відновлення, які поєднують реабілітацію, фізичну культуру і спорт, психосоціальну підтримку, ветеранські послуги та послуги на рівні громади. Стратегічне значення військової рекреації полягає в її потенціалі трансформувати клінічне та функціональне відновлення у стійку участь, соціальну взаємодію та реінтеграцію в життя громади. Подальший розвиток має бути спрямований на емпіричну валідацію інтегрованих шляхів відновлення, розроблення вимірюваних стандартів та управління, орієнтованого на результати.

Ключові слова: військова рекреація, ветерани, реабілітаційна політика, адаптивний спорт, державна політика, соціальна реінтеграція, Україна.

1. Introduction

Prolonged warfare creates recovery needs that extend beyond the treatment of acute injuries and cannot be adequately addressed through episodic clinical rehabilitation alone. Service members and veterans may simultaneously experience physical impairment, psychological stress, reduced physical activity, disrupted social participation, and difficulties in the transition between military service and civilian life. Rehabilitation increasingly needs to be understood as a longitudinal process that encompasses not only

restoration of physical functioning but also participation, psychosocial recovery, adaptive physical activity, and reintegration into family and community life [23, 28, 45]. This broader understanding is particularly relevant to Ukraine, where sustained hostilities have generated large and continuously evolving rehabilitation and reintegration needs. Recent Ukrainian studies address physical and sports rehabilitation, inclusive physical activity, psychosocial adaptation, rehabilitation in veteran spaces, and community-oriented approaches to recovery [4, 16, 17, 19, 21, 26, 39, 52]. International evidence similarly demonstrates the relevance of adaptive sport, recreational activity, psychosocial support, and community-based rehabilitation for military personnel and veterans [2, 11, 27, 49]. Together, these studies indicate that recovery extends beyond the clinical setting and increasingly involves activities that maintain physical capacity, support psychological well-being, facilitate social participation, and sustain long-term functioning.

Within this broader recovery landscape, military recreation can be considered potentially important policy domain. In this study, the term refers not simply to leisure activities, but to state-supported opportunities for structured physical, recreational, adaptive, psychosocial, and community-based activity that complement rehabilitation and contribute to longer-term recovery and participation. Such understanding places military recreation at the intersection of physical culture, rehabilitation, public health, social policy, and community services.

The policy relevance of this intersection is reinforced by international rehabilitation frameworks. The WHO Rehabilitation 2030 initiative emphasizes rehabilitation as an essential component of health systems and promotes integrated, person-centered and coordinated rehabilitation services [46]. The WHO analysis of rehabilitation in Ukraine similarly identifies the need to strengthen rehabilitation capacity and coordination within the national system [47]. The NATO Allied Joint Doctrine for Medical Support provides a military-policy framework in which medical support and rehabilitation extend across different stages of service-related recovery [31]. These documents were used in the present study to construct analytical framework rather than treated as part of empirical analytical corpus.

The literature nevertheless remains distributed across relatively distinct areas of inquiry. Some studies focus primarily on physical rehabilitation and functional recovery [18–20, 22, 25], whereas others examine mental health, psychosocial adaptation, recreational activity, adaptive sport, or community reintegration [5, 6, 9, 13, 27, 40, 41]. Other sources address institutional development, public-sector governance, or the organization of recreational services [1, 15, 30]. This distribution makes it difficult to view military recreation as an integrated policy system rather than as a collection of separate activities and services.

Central problem addressed in this study is, thus, not the lack of evidence concerning individual rehabilitation or recreational interventions. Rather, it is the limited integration of these elements into a coherent policy perspective that connects institutional governance, service accessibility and continuity, physical and psychosocial recovery, community reintegration, and monitoring of policy outcomes. In the Ukrainian context, this question is particularly relevant because recovery needs may extend across military, healthcare, social, physical-culture, and community settings. The present study examines how these domains are represented in the selected literature and develops a conceptual approach to connecting them; it does not independently establish the extent of fragmentation in current Ukrainian institutional practice. The selected documentary evidence provides a basis for examining how these dimensions can be conceptually connected within a state-supported system.

2. The Aim of The Study

Accordingly, the aim of this study is to conceptualize military recreation as a component of state-supported physical culture, rehabilitation, and long-term recovery for service members and veterans under conditions of prolonged warfare, and to develop literature-informed governance model and preliminary monitoring framework with particular reference to Ukraine. To achieve this aim, the study pursues five objectives:

- To clarify the conceptual position of military recreation at the intersection of physical culture, rehabilitation, recreation, psychosocial recovery, and community reintegration;
- To develop a deductive analytical framework for examining the institutional and policy dimensions of military recreation;

- To identify major transformation gaps in the organization and coordination of physical, psychosocial, recreational, and community-based recovery services within the selected documentary evidence;
- To synthesize Ukrainian and international evidence into a proposed integrated governance model for state-supported military recreation; and
- To propose a preliminary set of policy-monitoring indicators that can support future evaluation and development of such a system.

The study does not seek to estimate the frequency or prevalence of particular themes in the literature pool. Instead, it uses structured qualitative documentary analysis to compare the substantive content of the selected sources and to identify relationships between policy domains, institutional responsibilities, recovery pathways, and mechanisms of coordination. This approach allows the study to retain the breadth of the available evidence while avoiding the artificial reduction of complex policy issues to binary frequency counts.

3. Materials and Methods

Study design. The study employed structured qualitative documentary analysis as the primary research design. The approach was selected to examine how physical culture, rehabilitation, recreation, psychosocial recovery, and community reintegration are represented and connected within policy-oriented and scientific literature concerning military personnel and veterans. Rather than quantifying the occurrence of predefined themes, the analysis focused on the substantive content of the selected documents, the institutional relationships they describe, and the policy implications that can be derived from their comparison. The study was designed as a qualitative documentary synthesis and does not constitute a systematic review or meta-analysis. Database searching was used to identify the documentary evidence base, while targeted retrieval was used to identify relevant international and national policy documents. Comparative interpretation was subsequently applied to the selected materials to examine common policy challenges and possible approaches to their integration.

Search strategy and source selection. The source identification process covered publications and policy materials from 2004 to 2026. Searches were conducted in PubMed, Scopus, Web of Science, and Google Scholar using combinations of terms related to military rehabilitation, military recreation, veteran physical culture, prolonged-war recovery, adaptive sport, community rehabilitation, occupational therapy, and rehabilitation policy in Ukraine. Targeted retrieval was additionally used for relevant documents issued by international organizations and public institutions.

The search process identified an initial pool of 347 records. After removal of duplicates, 303 records remained for screening, and 94 records were retained for further assessment. The final documentary evidence base used in the present study comprised 53 references listed in the bibliography.

For analytical purposes, the 53 references were classified into three groups according to their role in the study. Four framework sources (references 31 and 46–48) were used exclusively to establish conceptual and analytical framework and were not treated as evidence in the main synthesis. Four contextual sources (references 33 and 36–38) were used to describe broader wartime governance, psychosocial, sporting, and policy conditions; they were also excluded from the core analytical synthesis. The remaining 45 sources constituted the core analytical corpus. All findings reported as results of the documentary synthesis, including the six transformation gaps presented in Table 3, were derived exclusively from this 45-source corpus. Framework and contextual references are cited elsewhere only to explain the study's conceptual orientation or broader context and are not presented as evidence generated by the core corpus.

The remaining 45 sources constituted the main analytical corpus. Inclusion of a source in the analytical corpus required substantive relevance to at least one of the following areas: rehabilitation, physical culture, recreation, adaptive physical activity or sport, psychosocial recovery, community reintegration, service continuity, or institutional organization of recovery services for military personnel or veterans. Peer-reviewed studies, academic theses, and relevant policy or institutional materials were considered. Sources focused exclusively on high-performance or commercial sport without a demonstrable rehabilitation or recovery relevance were not included in the analytical corpus. The source-role structure is presented in Table 1.

Table 1

Role of sources in the documentary analysis

Source group	References	Function in the study	Included in main analytical corpus
Framework sources	[31, 46–48]	Construction of the conceptual and analytical framework for state-supported rehabilitation and recovery	No
Contextual sources	[33, 36–38]	Contextualization of wartime governance, psychosocial conditions, sport, and broader policy responses	No
Core analytical sources	45 remaining sources	Qualitative documentary synthesis of rehabilitation, physical culture, recreation, adaptive activity, psychosocial recovery, community reintegration, governance, and monitoring	Yes
Total bibliography	53 sources	-	45 analytical sources

Source: developed by the authors

The distinction between these groups was introduced to avoid treating framework-setting documents and contextual literature as equivalent to sources providing substantive evidence for the main analytical synthesis.

Inclusion and exclusion criteria. Sources were included in the core analytical corpus when they provided substantive evidence relevant to at least one dimension of military or veteran recovery: rehabilitation, physical culture and physical activity, adaptive sport, recreation, psychosocial recovery, community reintegration, continuity of care, or the institutional organization of recovery services. In addition to studies directly involving military personnel or veterans, a limited number of sources addressing adjacent populations or general service-delivery mechanisms were retained when their findings offered a clearly identifiable analytical contribution to recovery pathways, physical activity, or service coordination. These sources were interpreted as transferable or contextual evidence rather than as direct evidence of outcomes in military or veteran populations. Sources focused on unrelated populations or activities without a defensible connection to the analytical framework were excluded from the core corpus. Framework and contextual sources were retained in the bibliography but were not used as evidence for the six transformation gaps.

Construction of the analytical framework. The analytical framework was developed deductively from conceptual orientation of the study and the four framework sources. The framework was subsequently applied consistently across the 45-source analytical corpus. Five analytical dimensions were used:

1. Governance and institutional coordination – the distribution of responsibilities, regulatory arrangements, interagency cooperation, accountability, and institutional coordination related to recovery services.

2. Continuity and accessibility of recovery services – access to rehabilitation and recreational services, geographical availability, referral pathways, and continuity between military, rehabilitation, veteran, and community services.

3. Physical, psychosocial, and adaptive recovery – the integration of physical rehabilitation, physical culture, adaptive physical activity and sport, occupational and psychosocial approaches within broader recovery pathways.

4. Community and social reintegration – community-based recreation, family participation, veteran-oriented environments, social participation, and transition from institutional rehabilitation to community life.

5. Monitoring, evaluation, and policy learning – outcome assessment, indicators, data collection, evaluation mechanisms, and the use of evidence to inform subsequent policy development.

These dimensions were treated as analytically interconnected (Table 2) rather than mutually exclusive categories. A single source could, thus, contribute evidence ‘pool’ within several dimensions. The purpose of the framework was not to assign numerical scores to sources, but to organize the qualitative comparison of evidence and identify relationships between institutional arrangements, recovery needs, and policy responses.

Table 2

Analytical framework for assessing state policy of military recreation

Analytical dimension	Main analytical question	Key elements examined	Representative sources
1. Governance and institutional coordination	How are responsibilities for recovery distributed and coordinated?	Institutional mandates; regulation; interagency coordination; accountability; financing and policy organization	[1, 3, 15, 30, 31, 44]
2. Continuity and accessibility of recovery services	How can recovery remain accessible and continuous across military, rehabilitation, veteran, and community settings?	Access; referral pathways; transition after discharge; geographical availability; service continuity	[7, 18, 23, 28, 40, 48, 51]
3. Physical, psychosocial, and adaptive recovery	How are physical rehabilitation, psychological recovery, physical activity, and adaptive sport connected?	Physical therapy; occupational therapy; mental health; adaptive sport; physical activity; functional recovery	[5, 6, 9, 17–22, 27, 34, 39, 41, 49]
4. Community and social reintegration	How does recovery extend from clinical settings into family and community life?	Community recreation; veteran spaces; family participation; social participation; reintegration	[2, 4, 11, 12, 26, 27, 44, 49, 52, 53]
5. Monitoring, evaluation, and policy learning	How are recovery outcomes and policy performance assessed?	Outcome indicators; registries; evaluation; data systems; feedback into policy	[8, 23, 30, 46–49, 51]

Source: developed by the authors

Analytical procedure. The 45 sources were examined for substantive evidence relevant to five analytical dimensions. The analysis proceeded in four stages. First, evidence concerning the organization and delivery of recovery services was identified within each source. Second, findings were compared across Ukrainian and international contexts to identify recurring institutional problems and approaches. Third, related findings were synthesized into broader transformation gaps affecting the organization of military recreation and rehabilitation. Fourth, these findings were used to formulate a conceptual governance model and a preliminary set of policy-monitoring indicators. Analysis distinguished between findings directly supported by the reviewed documents and policy proposals developed by the authors. The latter are presented as conceptual recommendations rather than validated interventions or established national standards.

Data extraction, interpretive procedures, and assessment of evidence. For each source, analysis recorded its publication type, country and institutional context, population or service setting, recovery domain, principal findings relevant to the five analytical dimensions, identified organizational or service-delivery constraints, and implications for continuity, accessibility, participation, or monitoring. One author conducted initial extraction and synthesis, while other authors reviewed analytical categories and discussed interpretive disagreements until agreement was reached. The analysis distinguished direct findings concerning military personnel and veterans from transferable findings derived from adjacent populations or general service-delivery research. The six transformation gaps were developed by comparing source-level findings across the five analytical dimensions and grouping related observations into policy-relevant problems. Each gap was retained as a distinct analytical category only when it represented a specific system-level issue and could be linked to relevant sources in the core corpus. The proposed governance model and indicators were subsequently developed as author-generated policy proposals informed by these categories. Given the heterogeneity of the included publications and documents, evidence was interpreted in relation to source type, population, context, and methodological scope; findings from different types of sources were not assumed to have equivalent evidential weight.

No frequency counts, percentages, binary coding scores, or inferential statistics were used. Consequently, the results describe patterns and relationships identified within the selected documentary corpus rather than statistical prevalence of particular themes in wider literature.

The distinction between evidence-derived findings and author-developed proposals was maintained throughout the analysis. Governance model and monitoring indicators presented below are treated as conceptual outputs of the study rather than as empirically validated policy instruments.

Development of the proposed governance model and indicators. The integrated governance model was developed by synthesizing relationships identified across the five analytical dimensions. Particular attention was paid to interfaces between state governance, military organizations, healthcare and rehabilitation institutions, physical culture and sport institutions, community services, and veteran reintegration. The proposed monitoring indicators were derived from the transformation gaps identified through the documentary analysis. They are intended as a preliminary policy-monitoring framework rather than as validated measures. Their future implementation would require separate assessment of data availability, institutional ownership, legal access, measurement reliability, and interoperability between information systems.

4. Results and discussion

Military recreation as an integrated policy domain. Qualitative synthesis indicates that literature increasingly presents recovery of military personnel and veterans as a multidimensional process extending beyond acute clinical treatment. Physical rehabilitation is accompanied by evidence concerning physical activity, adaptive sport, psychosocial support, recreation, family participation, and community reintegration [2, 4, 11, 17–23, 26–28, 39, 49, 52, 53]. At the same time, Ukrainian studies particularly demonstrate diversification of recovery-oriented practices, including physical and sports rehabilitation [17, 19, 22], rehabilitation in veteran spaces [52], inclusive physical training for persons with serious injuries [39], ICF-oriented personalization of physical-health programs [16], and social reintegration through adaptive sport [4]. International sources similarly describe rehabilitation and recovery pathways involving adaptive sport, recreational activity, psychosocial support, and community participation [2, 6, 10, 27, 28, 40, 50].

However, these components are generally examined through separate professional or institutional perspectives. Clinical rehabilitation, mental health, physical culture, adaptive sport, recreation, and social reintegration are documented as related but not necessarily as components of one explicitly defined state policy domain. On this basis, the present study defines military recreation as a state-supported system of structured physical, psychosocial, adaptive, and community-based activities that complements clinical rehabilitation, supports functional recovery and participation, and contributes to the long-term health, resilience, and social reintegration of service members, veterans, and their families. This conceptualization is broader than medical rehabilitation because it includes non-clinical and community-based activities, while remaining distinct from general leisure since its activities are explicitly connected with recovery, participation, and public policy.

Governance and institutional coordination. The first major result concerns governance level at which rehabilitation, physical culture, recreation, and veteran reintegration are organized. The reviewed sources describe these functions through the lens of different institutional perspectives, including healthcare and rehabilitation [1, 18, 23, 25], veteran policy [3, 30], physical culture and sport [4, 17, 19, 26, 39], and broader public-sector governance [33]. The evidence, therefore, suggests a need to strengthen coordination between institutions whose responsibilities converge around recovery but whose mandates may remain institutionally differentiated. The NATO medical-support framework [31] and WHO rehabilitation framework [46–48] provide broader principles for coordinated and person-centered rehabilitation, but they do not themselves constitute a Ukrainian governance model for military recreation. This finding supports development of integrated governance architecture in which military, healthcare, rehabilitation, physical culture and sport, social services, and community institutions have clearly defined but interconnected functions.

Accessibility and continuity of recovery services. The second result concerns the continuity of recovery across institutional and geographical boundaries. Ukrainian and international sources emphasize the importance of rehabilitation capacity, access to specialized services, and continuity after military discharge [18, 23, 28, 40, 48]. The evidence indicates that recovery should not be conceptualized as ending when a service member leaves an acute or military medical

setting. Instead, rehabilitation may continue through physical activity, adaptive sport, psychosocial support, recreational participation, and community-based services. The transition from military to veteran status, actually, represents significant organizational interface requiring explicit referral and follow-up mechanisms. Geographical accessibility is also relevant. Evidence concerning rehabilitation needs in Ukraine [23] and the broader organization of rehabilitation services [1, 48] indicates the importance of infrastructure, workforce distribution, and service availability when designing a national recovery system.

Integration of physical, psychosocial, and adaptive recovery. The third result concerns convergence of physical and psychosocial dimensions of recovery. Studies of military and veteran populations document relationships between physical activity, mental health, functional recovery, and participation [6, 13, 27, 34, 40, 46]. Research on adaptive sport further indicates that sport-based activity may function not only as physical exercise but also as a pathway toward participation and social reintegration [4, 10, 49]. The Ukrainian evidence similarly demonstrates growing interest in combining physical rehabilitation, sports rehabilitation, inclusive physical activity, and adaptive approaches [4, 16, 17, 19, 22, 26, 39, 53].

These findings support integrated interpretation in which physical culture and recreation complement rather than replace clinical rehabilitation and mental-health services. The policy implication is that physical activity, adaptive sport, and recreational participation can be incorporated into longitudinal recovery pathways while remaining connected to appropriate clinical and psychosocial support.

Community and social reintegration. The fourth result concerns movement of recovery beyond specialized institutions. Community-based recreation, veteran spaces, family participation, and social environments appear in the literature as mechanisms that can support longer-term participation and reintegration [2, 4, 11, 12, 26, 27, 50, 53]. This evidence broadens the policy meaning of recreation. Recreational infrastructure can function not only as a location for leisure but also as an environment for structured physical activity, peer interaction, family participation, adaptive sport, and gradual return to community life. Accordingly, the proposed policy approach treats community recreation as a component of the recovery pathway rather than as an isolated service category.

Six transformation gaps. The comparison of analytical corpus resulted in six interconnected transformation gaps (Table 3). First, regulatory fragmentation concerns the separation of rehabilitation, physical culture, recreation, healthcare, and veteran support across different policy and institutional arrangements. The evidence suggests that this fragmentation can make it difficult to establish a continuous recovery pathway and a clearly defined institutional mandate for military recreation. Second, workforce capacity represents a constraint on the expansion of integrated recovery services. The reviewed sources point to the importance of qualified physical therapists, occupational therapists, rehabilitation professionals, recreation specialists, and other multidisciplinary personnel. Under conditions of prolonged warfare, workforce development becomes an essential component of system capacity. Third, infrastructure inequality concerns the uneven availability of appropriate rehabilitation, physical activity, and recreational facilities. The issue is particularly relevant to peripheral, rural, and conflict-affected areas, where geographical accessibility can determine whether available services can actually be used. Fourth, interagency coordination represents a structural challenge at the boundaries between military, healthcare, social, physical-culture, sport, and community institutions. The evidence indicates the need for mechanisms that allow these sectors to operate as components of a coordinated recovery pathway rather than as isolated service providers. Fifth, continuity of care concerns the transition between military medical services, rehabilitation institutions, veteran services, and community-based support. The literature indicates that discharge from one institutional setting does not necessarily correspond to completion of recovery, making structured transition and follow-up mechanisms important elements of long-term recovery. Sixth, monitoring and evidence development concerns the limited articulation of common outcome measures capable of connecting individual recovery, service performance, and policy evaluation. The sources reviewed support importance of outcome measurement, but unified

monitoring architecture for military recreation was not identified within the selected corpus.

Table 3

Transformation gaps identified in the documentary synthesis

System level	Transformation gap	Evidence identified in the analytical corpus	Policy implication
Legal and regulatory	Fragmentation between rehabilitation, physical culture, recreation, healthcare, and veteran-support arrangements	The core sources address rehabilitation, veteran policy, and recreational-service organization through distinct institutional and professional perspectives [1, 3, 15, 30]. Their comparison supports the need to examine how these policy domains can be connected; it does not, by itself, establish the existence or extent of regulatory fragmentation.	Clarify policy mandates, institutional responsibilities, and the interfaces between rehabilitation, veteran support, physical culture, and recreational services
Service delivery and workforce	Uneven capacity of rehabilitation and recreation-related professional services	Rehabilitation needs and workforce capacity are repeatedly identified as important components of recovery systems [1, 18, 23, 28]	Develop workforce planning, competency standards, interprofessional training, and measures to retain and geographically distribute qualified rehabilitation and recreation personnel
Unequal availability	Unequal availability of rehabilitation, physical-activity, and recreational environments	Accessibility and rehabilitation-system capacity are emphasized in Ukrainian evidence [1, 23]	Prioritize accessible facilities, regional service mapping, and mobile or outreach provision where fixed-site services are insufficient
Governance and coordination	Limited integration across military, healthcare, rehabilitation, sport, social, and community institutions	Core corpus covers healthcare and rehabilitation, veteran policy, and recreational-service management as related but distinct fields [1, 3, 15, 18, 23, 30]. This supports examining coordination mechanisms as a policy-development priority but does not establish that all relevant Ukrainian institutions currently operate in a fragmented manner	Establish explicit referral responsibilities, named coordination points, shared minimum information requirements, and procedures for confirming transfer between participating services
Continuity of care	Potential discontinuity between military medical care, veteran services, and community-based recovery	Military and veteran rehabilitation studies highlight the importance of transitions and longer-term recovery [7, 18, 28, 40]. Evidence from broader trauma-care research may inform continuity-of-care concepts, but its applicability to military and veteran pathways should be treated as indirect [51]	Strengthen referral, discharge, follow-up, and longitudinal recovery pathways
Monitoring and policy learning	Inconsistent connection between service delivery, outcome measurement, and policy evaluation	The reviewed sources address rehabilitation needs, veteran-policy development, and selected approaches to intervention or service evaluation [23, 30, 35]. However, reviewed evidence does not establish the existence or absence of a unified monitoring system for military recreation in Ukraine. The need for a common monitoring framework is therefore identified as a policy-development priority rather than a documented finding about current national practice.	Define a common set of process and outcome indicators, assign responsibility for data collection and reporting, and establish a documented procedure for using evaluation findings in subsequent policy decisions

Source: developed by the authors

These six gaps are not interpreted as quantitative rankings. Rather, they represent analytically distinct areas in which the documentary evidence points to a need for institutional or policy development.

The qualitative synthesis indicates that selected literature increasingly treats recovery of military personnel and veterans as a multidimensional process extending beyond acute medical treatment. Across the analytical corpus, physical rehabilitation, adaptive physical activity, psychosocial support, recreational activity, and social participation appear as interconnected components of longer-term recovery. At the same time, these components are generally addressed through partially separated professional, institutional, or policy perspectives. Clinical rehabilitation is typically discussed in relation to restoration of function, while physical activity and sport are considered in relation to physical fitness, adaptive participation, or social reintegration. Psychosocial studies emphasize mental health and adaptation, whereas community-oriented sources focus on participation, family involvement, or veteran spaces. This distribution of evidence suggests that the individual components of recovery are increasingly documented, while their integration into a single state-supported policy architecture remains less clearly developed.

Taken together, these findings point to a central policy challenge: connecting the different components of recovery within a coherent, state-supported framework. Although clinical rehabilitation, physical activity, psychosocial support, and community participation are addressed in the reviewed literature, their integration into a coordinated recovery pathway remains insufficiently developed at the conceptual level. This observation provides the rationale for the governance model presented below, which focuses on linking clinical rehabilitation with sustained physical activity, psychosocial support, and community participation.

Proposed integrated governance model. The six transformation gaps were synthesized into a proposed governance model for state-supported military recreation (Figure 1). At the highest level, state policy and governance provide the regulatory, financial, organizational, and standard-setting conditions for the system. These functions connect four major operational domains: military organizations, healthcare and rehabilitation institutions, physical culture and sport institutions, and community-based services. Within this structure, assessment of individual needs provides the starting point for an integrated recovery pathway. Depending on the person's needs and stage of recovery, the pathway may include clinical rehabilitation, physical activity, adaptive sport, occupational and psychosocial support, recreational participation, family activities, and community reintegration. A monitoring and evaluation component is positioned at the end of the pathway and linked back to policy development. This feedback mechanism is presented as a proposed feature of the model, rather than as a characteristic demonstrated to exist uniformly in the reviewed policy systems.

Illustrative recovery pathway and institutional handoffs. To clarify operational meaning of the proposed model, the authors suggest a six-step pathway. First, a designated professional in the service member's or veteran's current care setting conducts an initial needs assessment or arranges an assessment by the appropriate multidisciplinary team. Second, a named pathway coordinator, designated by the participating institutions under an agreed local protocol, records the person's agreed recovery goals and identifies the next responsible service. Third, the coordinator initiates a referral to the selected rehabilitation, adaptive physical activity, psychosocial, veteran, or community service, with the person's consent and subject to applicable information-protection requirements. Fourth, the referring service transmits only the information necessary for continuity, including functional needs, relevant restrictions, agreed goals, accessibility requirements, and contact details for the responsible professional. Fifth, the receiving service confirms acceptance, identifies the professional responsible for the next stage, and reports whether the planned service has commenced; unresolved referrals are returned to the coordinator for follow-up. Sixth, aggregated information on referral completion, waiting time, participation, functional outcomes, and service-user-reported experience is reviewed by the designated governance body and used to adjust service planning, workforce allocation, and regional provision. Meanwhile, this sequence is author-proposed coordination mechanism, and not a validated clinical protocol or description of established nationwide Ukrainian procedure.

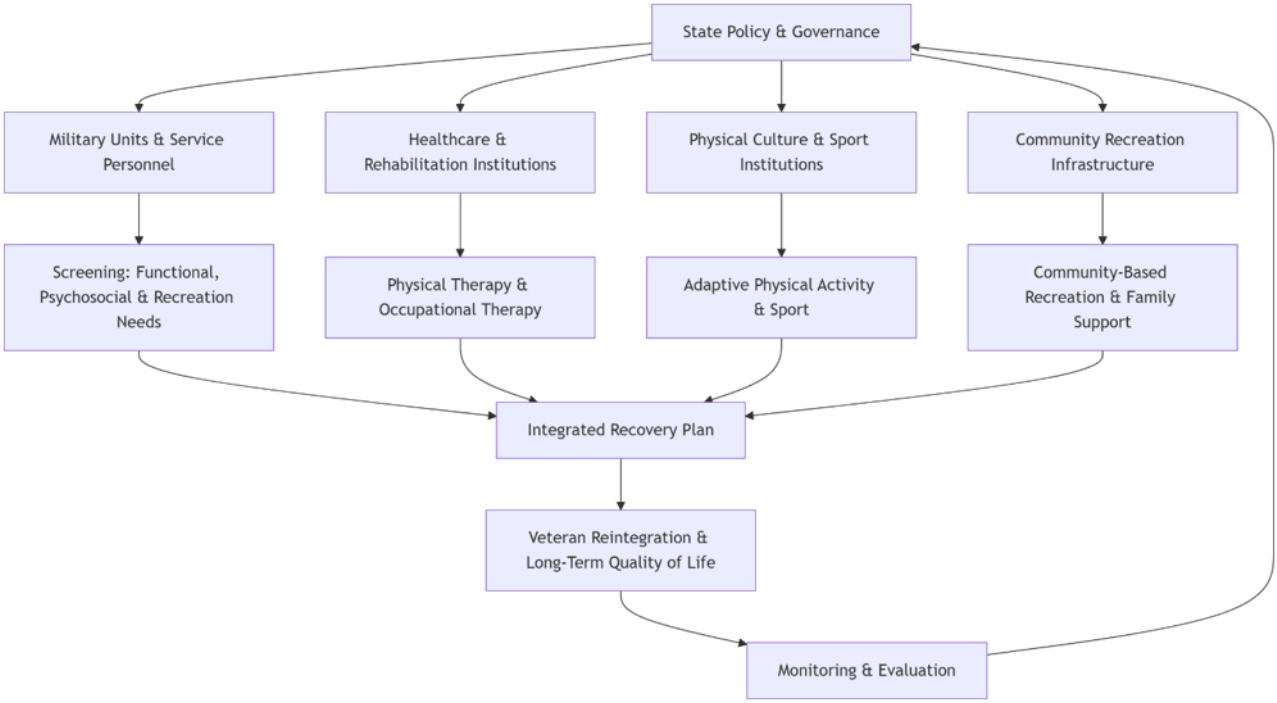

Figure 1. Proposed integrated state policy model of military recreation under conditions of prolonged warfare

Source: developed by the authors

Table 4

Preliminary indicators for monitoring state-supported military recreation

Indicator	Definition	Potential data source	Policy dimension
1. Rehabilitation access rate	Proportion of eligible service members accessing rehabilitation within a defined period after referral	MoD/MoH administrative data	Access
2. Recreation program coverage	Proportion of military units or eligible settings providing structured recreation programs	Military and physical-culture institutions	Coverage
3. Rehabilitation and recreation workforce density	Number of qualified specialists relative to the relevant military/veteran population	Workforce registry	Workforce capacity
4. Care-transition completion rate	Proportion of discharged service members with documented transfer to appropriate civilian or veteran services	Veteran and healthcare records	Continuity
5. Adaptive sport participation	Number or proportion of eligible veterans participating in supported adaptive sport or adapted physical activity	Sport and veteran-service records	Participation
6. Functional outcome attainment	Proportion of participants reaching a predefined functional recovery target	Rehabilitation records	Physical outcomes
7. Community recreation utilization	Proportion of registered veterans using supported community recreation services	Community and social-service records	Reintegration
8. Family program reach	Proportion of eligible families participating in supported recreation or social-recovery programs	Social-service records	Family and social recovery
9. Annual workforce growth	Number of newly qualified specialists entering relevant rehabilitation or recreation services	Education and professional registries	Workforce development
10. Infrastructure equity	Distribution of certified rehabilitation and recreation facilities across regions	Infrastructure registry	Geographical equity
11. Policy evaluation reporting	Number of publicly available evidence-informed evaluations of military recreation policy	Government and institutional reports	Accountability
12. Veteran quality of life	Standardized quality-of-life measure suitable for longitudinal monitoring	Validated patient-reported outcome system	Long-term outcome

Source: developed by the authors

Preliminary monitoring framework. The documentary synthesis also provided a basis for formulating monitoring indicators. Rather than presenting them as immediately operational national indicators, they are proposed as a kind of preliminary framework for future policy evaluation (Table 4).

The indicators are intended to connect different levels of the proposed governance model: access and infrastructure, workforce capacity, continuity and participation, and longer-term outcomes. Their inclusion does not imply that required national data systems currently exist or that the indicators have already been validated for the Ukrainian context. Their feasibility, institutional ownership, data availability, interoperability, and measurement properties require separate assessment.

Discussion. From clinical rehabilitation to an integrated recovery policy. The core contribution of our study is conceptualization of military recreation as a component of a broader state-supported recovery system rather than as an auxiliary leisure activity. The documentary synthesis demonstrates that rehabilitation of service members and veterans extends across several domains, including physical recovery, psychosocial support, adaptive physical activity, recreation, family participation, and community reintegration [2, 4, 11, 17–23, 26–28, 39, 49, 52, 53]. These domains are well represented in the literature, but they are commonly discussed from separate clinical, sport, social, or institutional perspectives. This fragmentation is characterized with important policy consequence. When physical rehabilitation, adaptive sport, psychosocial support, and recreation are considered as separate services, the overall recovery pathway may be organized around individual programs rather than around the long-term needs of the person. The present analysis, therefore, extends the conventional rehabilitation perspective by positioning recreation and physical culture within a continuum of recovery and participation.

Such interpretation is consistent with broader rehabilitation principles emphasizing person-centered, function-oriented, and integrated rehabilitation systems [46–48]. The NATO medical-support framework similarly provides a basis for considering rehabilitation within coordinated military medical support rather than as an isolated clinical intervention [31]. However, the present study extends these principles into military recreation domain by emphasizing activities that take place beyond conventional clinical settings. One should note that distinction is important. Military recreation, as defined in this study, does not replace medical rehabilitation or mental-health treatment. Instead, it provides an additional layer through which rehabilitation gains may be maintained and translated into everyday physical activity, social participation, family life, and community engagement. This makes recreation relevant to state policy not because recreation itself is necessarily therapeutic in every circumstance, but because structured access to physical, adaptive, and community activities can form part of a longer recovery pathway.

Governance and institutional coordination as the central policy challenge.

The five-dimensional framework indicates that the principal challenge is not simply the availability of individual rehabilitation or recreation programs but the organization of relationships between the institutions responsible for them. The reviewed literature addresses healthcare, rehabilitation, veteran policy, physical culture and sport, social services, and community support through partly differentiated institutional perspectives [1, 3, 15, 18, 23, 26, 30, 39]. This observation supports a shift from a service-centered to a governance-centered understanding of military recreation. A national recovery system requires not only specialized professionals and facilities but also clear institutional responsibilities, referral mechanisms, financing arrangements, standards, and mechanisms for coordination.

For Ukraine, this issue is especially relevant today, since prolonged warfare creates a recovery population whose needs extend over different stages of service and civilian life. A service member may move from military medical care to rehabilitation, from rehabilitation to adaptive physical activity, and subsequently to veteran and community services. These transitions are presented here as interfaces requiring policy attention, rather than as documented evidence that particular Ukrainian institutions systematically fail to coordinate. The study does not map statutory mandates, appropriations, or operational referral procedures across all relevant authorities. Accordingly, recommendations concerning institutional responsibilities and information

exchange should be interpreted as proposals for policy development that require verification against current Ukrainian legislation, administrative regulations, and institutional practice. These transitions involve different institutional actors. Without coordination between them, the existence of individual services does not necessarily produce a continuous recovery pathway. The findings, thus, support a governance architecture in which military institutions, healthcare and rehabilitation providers, physical culture and sport organizations, social services, and community institutions retain their respective mandates but operate within a common policy framework. The proposed model in Figure 1 should be understood in this sense: it is not intended to create a new institution, but to provide an organizational logic for connecting existing and developing services. Moreover, international frameworks examined in this study provide useful principles for such integration [31, 46–48]. At the same time, they do not provide a ready-made Ukrainian model of military recreation. Adaptation to national institutional arrangements, regional inequalities, wartime constraints, and the transition between military and civilian systems is, therefore, necessary.

Continuity and accessibility across the recovery pathway. Another important implication concerns continuity. The literature indicates that rehabilitation needs do not disappear when an individual leaves a military or clinical setting [18, 23, 28, 40]. Long-term recovery may require continued physical activity, adaptive sport, psychosocial support, recreational participation, and access to community-based services. This suggests that transition from military service to veteran status should be considered a policy interface rather than simply an administrative event. Referral and follow-up mechanisms acquire importance since the location of care changes while recovery needs may persist. The same principle applies geographically: a national recovery policy cannot depend exclusively on highly specialized centers if access to appropriate services varies substantially between regions [1, 23, 48].

Implications for military recreation are evidently broader than the provision of facilities. Accessibility includes the availability of programs, qualified personnel, referral pathways, information, transport and geographically distributed infrastructure. In this context, community recreation can complement specialized rehabilitation services by providing opportunities for continued activity and participation closer to where veterans live. The policy objective, thus, should be continuity of function and participation rather than continuity of a particular institution. This distinction is important for designing a system capable of operating over prolonged periods of warfare and during the subsequent transition to long-term veteran policy.

Physical, psychosocial, and adaptive recovery as interconnected domains. The findings also reinforce the need to avoid an overly narrow interpretation of physical rehabilitation. Military and veteran populations may experience interconnected physical, psychological, and social consequences of injury, prolonged service, and exposure to combat [6, 13, 27, 40]. Physical activity and adaptive sport can, thus, have relevance beyond physical conditioning, particularly when they create opportunities for participation and interaction [4, 10, 50]. At the same time, the evidence does not justify treating sport or recreation as substitutes for clinical mental health care. Rather, the appropriate policy position is one of complementarity. Physical rehabilitation, occupational approaches, psychosocial services, adaptive activity, and recreation can contribute different functions within an integrated recovery pathway.

This conceptual separation is critical for national policy indicators design, since clinical recovery and social participation represent related but non-equivalent dimensions of rehabilitation. Engagement in recreation or adaptive sport cannot, by itself, serve as a proxy for clinical recovery, while clinical measures may overlook changes in participation, autonomy, social connectedness, and quality of life. Accordingly, a comprehensive policy framework should combine functional health indicators with participation-based measures that capture the broader social and personal outcomes of rehabilitation. Ukrainian-context literature provides evidence of expanding rehabilitation and physical-activity infrastructure oriented toward service members and veterans [4, 16, 17, 19, 22, 26, 39, 53]. The policy opportunity is to connect these developments rather than allowing them to evolve as isolated program areas.

Community recreation and reintegration. One of the most significant implications of analysis

conducted is relocation of part of the recovery process from specialized institutions into ordinary community environments. Studies of therapeutic recreation, adaptive sport, veteran spaces, and family-oriented activities indicate that participation can extend beyond the boundaries of clinical rehabilitation [2, 4, 11, 12, 26, 27, 50]. This is particularly relevant to reintegration. Recovery is not complete when a functional deficit has improved; it also involves the person's ability to participate in family, social, recreational, and community life. Recreation facilities and programs can provide relatively accessible environments in which such participation can be practiced and sustained. The implication is that community infrastructure should be considered part of the recovery ecosystem. Municipal sports facilities, parks, veteran spaces, adaptive sport programs, and family-oriented recreational activities can potentially serve as extensions of rehabilitation and social reintegration pathways when appropriately designed and linked to professional support.

This interpretation also changes the role of families. Family participation should not be regarded only as a social outcome of successful rehabilitation. In some recovery pathways, family-oriented recreation may itself be part of maintaining activity, social connection, and adaptation. The proposed monitoring framework, thus, includes family program reach alongside individual participation and functional outcomes.

Monitoring, evaluation, and policy learning. The final analytical dimension addresses methodological and policy problem: a complex recovery system cannot be effectively governed without information about access, continuity, participation, service capacity, and outcomes. The reviewed core sources address rehabilitation needs, veteran-policy development, and selected approaches to intervention or service evaluation [23, 30, 35]. However, documentary synthesis does not establish existence of unified monitoring architecture for military recreation. The twelve indicators proposed in Table 4 are, therefore, author-developed 'candidates' for future policy evaluation rather than indicators already established in the reviewed evidence base. The present study, therefore, proposes a preliminary monitoring framework rather than a definitive indicator set. The twelve indicators in Table 4 are intended to connect different levels of the policy system, from access and workforce capacity to participation, continuity, and long-term quality of life.

The value of this approach lies in linking service processes with recovery outcomes. For example, an increase in the number of recreation programs would not necessarily demonstrate improved recovery if access remained geographically unequal or if participants did not experience meaningful functional or social benefits. Similarly, a high level of program participation could not by itself establish clinical effectiveness. National monitoring system should combine several types of information: system capacity, accessibility, continuity, participation, functional outcomes, and longer-term quality of life. Such a system would also require clear institutional ownership, standardized definitions, interoperable data structures, and appropriate protection of personal information. These requirements cannot be assumed to be currently available and should be treated as part of the future implementation agenda.

Importantly, the proposed feedback connection between monitoring and policy in Figure 1 represents an author-developed governance principle. The documentary analysis supports importance of evaluation and measurement [46–49], but it does not demonstrate that fully integrated feedback mechanism currently operates across Ukrainian military recreation and rehabilitation systems.

Implications for policy development in Ukraine. Taken together, the findings suggest that the development of military recreation policy in Ukraine should be approached as an issue of system integration rather than program multiplication. The creation of additional sports, recreational, or rehabilitation programs may be valuable, but their long-term contribution will depend on how effectively they are connected with existing clinical, psychosocial, veteran, and community services.

Five policy directions follow directly from the analytical framework. First, military recreation should be recognized within a broader state recovery architecture, with its relationship to rehabilitation, physical culture and sport, psychosocial support, and veteran policy explicitly defined. Second, institutional responsibilities and referral pathways should be clarified across military, healthcare, rehabilitation, social-service, sport, and community levels. This would reduce

the risk that individuals encounter disconnected services during transitions between institutions. Third, accessibility should be addressed through geographically responsive infrastructure and workforce planning. This is particularly important in a prolonged-war context in which the distribution of rehabilitation needs and service capacity may change over time. Fourth, community-based and adaptive forms of physical activity should be integrated into longer recovery pathways rather than treated exclusively as independent sport or leisure programs. Fifth, policy development should incorporate a common monitoring framework capable of connecting service provision with participation and long-term recovery outcomes. The indicators proposed in Table 4 provide a starting point for such development, but they require consultation with relevant institutions, assessment of data availability, and empirical validation before national implementation.

Overall, the study supports a model in which military recreation is positioned between rehabilitation and ordinary community life. Its policy value lies precisely in this intermediate function: it can help translate clinical and functional recovery into sustained participation, physical activity, social connection, and reintegration.

Theoretical and practical contribution. The study contributes to appropriate scholarly and practical discourse in three ways. First, it brings together bodies of evidence that are frequently treated separately: military rehabilitation, physical culture, adaptive sport, psychosocial recovery, recreation, and community reintegration. Second, it reframes military recreation as a governance and policy issue rather than solely as a program or leisure activity. Third, it translates this conceptualization into a preliminary governance model and monitoring framework that can be subjected to future empirical testing. The contribution should nevertheless be interpreted within the limits of documentary evidence. The proposed governance architecture and indicators are analytical outputs derived from the reviewed literature; they are not evidence that such an integrated system has already been implemented or demonstrated to be effective. Their primary value at this stage is to provide a coherent structure for subsequent empirical research, stakeholder consultation, and policy design.

Limitations. A range of limitations should be considered when interpreting the findings. First, the study used structured qualitative documentary analysis rather than systematic review or meta-analysis. The purpose was to integrate heterogeneous evidence concerning rehabilitation, physical culture, recreation, adaptive activity, psychosocial recovery, governance, and community reintegration. Consequently, the findings should be interpreted as a qualitative policy synthesis rather than as an estimate of the prevalence, effectiveness, or relative importance of particular interventions. Also, the evidence base was heterogeneous. The 53 sources included empirical studies, reviews, academic theses, policy documents, and institutional materials. To improve analytical transparency, four framework sources were used to construct the analytical framework, four additional sources were retained as contextual literature, and 45 sources constituted the core analytical corpus. Although this distinction reduces the risk of treating conceptually different documents as equivalent evidence, the resulting synthesis remains dependent on the scope and characteristics of the available literature. Third, source-selection process involved targeted retrieval of policy and institutional materials in addition to database searching. This was necessary because important aspects of rehabilitation governance and public policy are not fully represented in clinical and academic publications. Nevertheless, targeted selection may introduce interpretive selection bias, and the study cannot claim to have identified every relevant policy document or publication. Further limitation concerns the institutional level of analysis. Although the study focuses on Ukraine, it does not constitute a legal or administrative audit of the current national recovery system. It does not systematically examine the statutory mandates of all responsible authorities, budget allocations, intergovernmental financing arrangements, or the operational procedures used to transfer individuals between institutions. Consequently, the findings identify policy-relevant coordination questions in the selected literature and propose an analytical model; they should not be interpreted as a verified inventory of deficiencies in Ukrainian public administration.

Moreover, analytical framework was deductively developed from four framework sources [31, 46–48]. This provides conceptual consistency across the analysis but also means that

the five dimensions reflect the analytical perspective adopted in this study. Alternative frameworks could organize the same evidence differently. The dimensions should, therefore. be regarded as an analytical structure for policy interpretation rather than as a definitive taxonomy of military recreation. Finally, the study did not empirically test the proposed governance model or the twelve monitoring indicators presented in Figure 1 and Table 4. The model and indicators represent conceptual outputs derived from the documentary synthesis. Their practical feasibility, institutional ownership, data availability, interoperability, validity, reliability, and usefulness for decision-making require subsequent empirical assessment. Also, available literature remains uneven across the different components of recovery. Clinical rehabilitation and physical recovery are more directly represented than some aspects of long-term community recreation, governance integration, and policy evaluation. Therefore, proposed interpretation should not be taken to indicate that all components of the recovery system are supported by evidence of equivalent depth or quality.

Moreover, Ukrainian context is central to the study, but the evidence also includes international literature and policy frameworks developed under different institutional and healthcare conditions. International principles can inform policy development, but their direct transfer to Ukraine requires adaptation to national legislation, institutional structures, wartime conditions, regional differences, and the evolving veteran population.

These limitations do not invalidate the proposed framework. Rather, they define its appropriate status: the study provides a structured conceptual and policy synthesis that can support subsequent empirical research, stakeholder consultation, and development of an evidence-informed national system of military recreation and recovery.

5. Conclusions

The study presented conceptualizes military recreation as a component of long-term recovery that connects rehabilitation with physical activity, adaptive sport, psychosocial support, family participation, and community reintegration. The qualitative documentary synthesis was organized around five analytical dimensions: governance and institutional coordination; continuity and accessibility of services; physical, psychosocial, and adaptive recovery; community and social reintegration; and monitoring, evaluation, and policy learning.

Comparison of selected literature resulted in six transformation gaps: regulatory fragmentation, workforce capacity, unequal infrastructure availability, interagency coordination, continuity of care, and monitoring and evidence development. These categories identify policy-development priorities within the reviewed corpus; they do not constitute a verified ranking of problems or an institutional audit of Ukraine's current recovery system.

The study’s practical contribution is a proposed governance model connecting individual needs assessment, referral coordination, rehabilitation and recreational services, community participation, and monitoring-based policy adjustment. The accompanying framework contains 12 preliminary indicators covering access, program coverage, workforce capacity and development, care transitions, adaptive-sport participation, functional outcomes, community recreation, family participation, infrastructure equity, policy evaluation, and quality of life. Together, the model and indicators translate the conceptual synthesis into a structure that can be examined by policymakers and participating institutions. For Ukraine, the proposed approach should be treated as a basis for further policy design rather than as a validated national operating model. Its development requires verification of institutional mandates, agreement on referral responsibilities and information exchange, assessment of financing and data availability, and consultation with relevant service providers and veterans. Future research should test the feasibility of the proposed recovery pathway and determine whether the 12 indicators can be measured consistently and used to improve service continuity, accessibility, participation, and long-term outcomes.

Conflicts of interests

The authors declare no conflict of interest.

References

1. Basko, A. V., Sobakar, A. O., & Myroniuk, S. A. (2024). Metody reabilitatsii viiskovosluzhbovtsiv, stan funktsionuvannia ta rozvytok tsentriv implementatsii yak odyn iz napriamiv diialnosti orhaniv mistsevoho samovriaduvannia [Methods of rehabilitation of military personnel, status of functioning and

development of implementation centers as one of the directions of activity of local government bodies]. *Rehabilitation & Recreation, 18*(1), 78-93. https://doi.org/10.32782/2522-1795.2024.18.9 [in Ukrainian]

2. Bennett, J., Piatt, J., & VanPuymbroeck, M. (2017). Outcomes of a therapeutic fly-fishing program for veterans with combat-related disabilities: A community-based rehabilitation initiative. *Community Mental Health Journal, 53*(7), 756-765. https://doi.org/10.1007/s10597-017-0124-9
3. Boyko, I. (2024). Derzhavna polityka okhorony zdorovia viiskovykh: Adaptatsiia do standartiv NATO i suchasnykh vyklykiv oboronnoho sektoru [State policy of military health care: Adaptation to NATO standards and modern challenges of the defense sector]. In *Legal doctrine, lawmaking and law enforcement: Problems of communication and ways of development* (pp. 376–377). https://doi.org/10.71404/PPSS.2024.2.108
4. Buryak, S., & Dyachuk, V. (2026). Adaptyvnyi sport yak zasib sotsialnoi reintehratsii ta pidvyshchennia rivnia fizychnoi aktyvnosti veteraniv MVS z boiovymy travmamy [Adaptive sports as a means of social reintegration and increasing the level of physical activity of veterans of the Ministry of Internal Affairs with combat injuries]. *Academic Visions, 51*, 1-11. https://doi.org/10.5281/zenodo.18272335 [in Ukrainian]
5. Castro, C. A., & Adler, A. B. (2012). An Occupational Mental Health Model for the Military. *Military Behavioral Health*, *1*(1), 41-45. https://doi.org/10.1080/21635781.2012.721063
6. Cifu, D. X., Taylor, B. C., Carne, W. F., Bidelspach, D., Sayer, N. A., Scholten, J., & Campbell, E. H. (2013). Traumatic brain injury, posttraumatic stress disorder, and pain diagnoses in OIF/OEF/OND veterans. *Journal of Rehabilitation Research & Development*, *50*(9), 1169-1176. https://doi.org/10.1682/jrrd.2013.01.0006
7. Daly, J., Smith, R., Li, C., & Sippel, J. (2025). History of clinical services, medical training, and research for spinal cord injuries and disorders in the United States Veterans Health Administration. *Archives of Rehabilitation Research and Clinical Translation*, *7*, 1-13. https://doi.org/10.1016/j.arrct.2025.100488
8. Dineen-Griffin, S., Garcia-Cardenas, V., Williams, K., & Benrimoj, S. I. (2019). Helping patients help themselves: A systematic review of self-management support strategies in primary health care. *PLoS One*, *14*(8), e0220116. https://doi.org/10.1371/journal.pone.0220116
9. Foran, H. M., Garber, B. G., Zamorski, M. A., Wray, M., Mulligan, K., Greenberg, N., Castro, C. A., & Adler, A. B. (2013). Post-deployment military mental health: The Canadian Armed Forces experience. *Canadian Journal of Psychiatry*, *58*(9), 488-495. https://doi.org/10.1037/a0032609
10. Haiachi, M.C, de Ávila, E.B., Cardoso, V.D., Canuto, S.C.M., Kumakura, R. S., de Oliveira, A.F.S., & MatarunaDos-Santos, L.J. (2020). Military rehabilitation programs and Paralympic Movement. *Journal of Human Sport and Exercise*, *15*(1proc), S46-S56. https://doi.org/10.14198/jhse.2020.15.Proc1.06
11. Hicks, N. R., Sharaievska, I., Tsykalova, L., Townsend, J., & Miller, B. L. (2025). Veteran perspectives on family-serving recreation and leisure programs. *Journal of Veterans Studies, 11*(1), 80-94. https://doi.org/10.21061/jvs.v11i1.675
12. Hoberman, R. (2026). A world of wounds: American nature and the rehabilitation and reintegration of military veterans, 1918–1955 [Doctoral dissertation, University of California, Davis]. University of California, Office of Graduate Studies.
13. Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, & D. I., Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, *351*(1), 13-22. https://doi.org/10.1056/NEJMoa040603
14. Jones, M., Fear, N. T., Greenberg, N., Jones, N., Hull, L., Hotopf, M., Wessely, S., & Rona, R. J. (2008). Do medical services personnel who deployed to the Iraq war have worse mental health than other deployed personnel? *European Journal of Public Health, 18*(4), 422-427. https://doi.org/10.1093/eurpub/ckn031
15. Karyy, O., Bondarenko, Y. H., Kulyniak, I., & Ohinok, S. (2025). Management of recreational services in Ukraine during wartime: The role of state policy and best practices from Europe. *The Actual Problems of Regional Economy Development, 1*(21), 41-55. https://doi.org/10.15330/apred.1.21.41-55
16. Kashuba, V., Stronska, E., Labinska, G., Yarmolynskyi, L. (2026). Vykorystannia mizhnarodnoi klasyfikatsii funktsionuvannia u personalizatsii fizkulturno-ozdorovchykh prohram dlia veteraniv viiny v umovakh fitnes-tsentriv ta parkiv aktyvnoho dozvillia [Using the international classification of functioning in personalizing physical education and health programs for war veterans in fitness centers and parks of active leisure]. *Physical Culture, Sports and Health of the Nation*, *21*(40), 41-56. https://doi.org/10.31652/2071-5285-2026-21(40)-41-56 [in Ukrainian]
17. Khotin, E., Andrushko, P. (2025). Sportyvna reabilitatsiia ta vidnovliuvana fizkultura viiskovosluzhbovtsiv [Sports rehabilitation and restorative physical education of military personnel]. *Health & Education, 4*, 205-209. https://doi.org/10.32782/health-2025.4.28 [in Ukrainian]
18. Klos, L. Ye., Blavt, O. Z., & Kovalchuk, O. P. (2024). Implementatsiia kompleksnoi reabilitatsii veteraniv rosiisko-ukrainskoi viiny z invalidnistiu u zakladakh vyshchoi osvity [Implementation of complex rehabilitation of disabled veterans of the Russian-Ukrainian war in institutions of higher education]. *Rehabilitation and Recreation, 18*(3), 10-21. https://doi.org/10.32782/2522-1795.2024.18.3.1 [in Ukrainian]
19. Kovalchuk, R., Shynkaruk, V., & Hrytsiv, M. (2025). Rol fizkulturno-sportyvnoi reabilitatsii u vidnovlenni funktsionalnykh mozhlyvostei viiskovosluzhbovtsiv pislia boiovykh poranen [The role of physical education and sports rehabilitation in restoring the functional capabilities of military personnel after combat injuries]. *Education. Innovation. Practice, 13*(2), 53-59.

https://doi.org/10.31110/2616-650X-vol13i2-007 [in Ukrainian]

20. Kruk, I. M., & Grygus, I. M. (2022). Physical therapy of military personnel with the consequences of burnt injuries. *Rehabilitation and Recreation, 12*, 44-51. https://doi.org/10.32782/2522-1795.2022.12.6
21. Krupa, V. V. (2025). Psykhosotsialna adaptatsiia veteraniv: vyklyky ta mozhlyvosti sotsialnoi roboty [Psychosocial adaptation of veterans: challenges and opportunities for social work]. [PhD thesis] Ternopil. ZUNU. https://dspace.wunu.edu.ua/handle/316497/54717 [in Ukrainian]
22. Krushynska, N., Kohut, I. & Goncharenko, Ie. (2023). Impact of physical and sports rehabilitation on the level of physical fitness of combatants. *Slobozhanskyi Herald of Science and Sport*, *27*(1), 42-47. https://doi.org/10.15391/snsv.2023-1.006
23. Lawry, L. L., Korona-Bailey, J., Hamm, T. E., Maddox, J., Janvrin, M., Jurnan, L., Berezyuk, O., Smolinski, G., Brim, W., & Koehkmoos, T. (2025). A qualitative assessment of war-related rehabilitation needs and gaps in Ukraine. *Journal of Health, Population and Nutrition, 44*, 175. https://doi.org/10.1186/s41043-025-00912-4
24. Lew, H. L., Poole, J. H., Alvarez, S., & Moore, W. (2005). Soldiers with occult traumatic brain injury. *American Journal of Physical Medicine & Rehabilitation*, *84*(6), 393-398. https://doi.org/10.1097/01.phm.0000163703.91647.a7
25. Logvinenko, I. O., & Nesterchuk, N. E. (2021). Fizychna terapiia viiskovosluzhbovtsiv, uchasnykiv boiovykh dii, bezposerednio vziavshykh uchast v operatsii obiednanykh syl [Physical rehabilitation of military servants, participants of combat, participating directly in the joint force operation]. *Rehabilitation and Recreation*, *8*, 34-39. https://rehabrec.org/index.php/rehabilitation/article/view/142 [in Ukrainian]
26. Marynych, V., & Kohut, I. (2025). Mizhnarodnyi dosvid orhanizatsii inkliuzyvnoi fizkulturno-sportyvnoi diialnosti dlia veteraniv i chleniv yikhnikh simei [International experience in organizing inclusive physical education and sports activities for veterans and their family members]. *Sport Science Spectrum, 4*, 47-57. https://doi.org/10.32782/spectrum/2025-4-7 [in Ukrainian]
27. McDonagh, K. F. (2021). The relationship between participation in recreational therapy physical activity and symptoms of mental health issues in veterans [PhD dissertation]. University of Massachusetts, Boston Global Inclusion and Social Development Program. https://scholarworks.umb.edu/doctoral_dissertations/691/
28. McGill, G., Wilson, G., Caddick, N., Forster, N., & Kiernan, M. D. (2021). Rehabilitation and transition in military veterans after limb-loss. *Disability and Rehabilitation*, *43*(23), 3315-3322. https://doi.org/10.1080/09638288.2020.1734875
29. Mikula, J. (2018). Aerobic Exercise Prescription Considerations for Veterans with Complex Health Problems in a Recreation Therapy Fitness Program. *Physical Medicine & Rehabilitation Journal*, *2*(1), 113. https://scientificliterature.org/Physicalmedicine/Physicalmedicine-18-113.pdf
30. National Institute for Strategic Studies (2026). *Overview of veterans policy in territorial communities.* https://niss.gov.ua/en/news/komentari-ekspertiv/overview-veterans-policy-territorial-communities-june-2026
31. NATO Joint Medical Committee (2019). Allied Joint Doctrine for Medical Support (AJP-4.10). NATO Standardization Office.
32. Nindl, B. C., Williams, T. J., Deuster, P. A., Butler, N. L., & Jones, B. H. (2013). Strategies for optimizing military physical readiness and preventing musculoskeletal injuries in the 21st century. *Journal of Strength and Conditioning Research*, *29*(Suppl 11), S159-S165. https://pubmed.ncbi.nlm.nih.gov/24146239/
33. Orlova, I. S., Kushnir, V., Rodchenko, L., Chernenko, I., Druz, O., & Rudenko, M. (2023). Organizational development and educational changes management in public Sector (case of public administration during war time). *International Journal of Professional Business Review*, *8*(4), 46. https://doi.org/10.26668/businessreview/2023.v8i4.1699
34. Penedo, F. J., & Dahn, J. R. (2005). Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current Opinion in Psychiatry*, *18*(2), 189–193. https://doi.org/10.1097/00001504-200503000-00013
35. Perrin, P. B., Haun, J. N., Klyce, D. W., Melillo, C., Nakase-Richardson, R., Seel, R. T, Martindale-Adams, J., Nichols, L. O., Perera, R. A., Xia, B., Hahm, B., & Zuber, J. (2024). Efficacy and implementation planning across the veterans affairs polytrauma system of care: Protocol for the REACH intervention for caregivers of veterans and service members with traumatic brain injury. *JMIR Research Protocols*, *13*, e57692. https://doi.org/10.2196/57692
36. Popovych, I., Koval, I., Raievska, Y., Piletskyi, V., Buryanovatiy, O., & Hrynchuk, O. (2023). Dominating mental states of the representatives of individual sports under lockdown and martial law: Comparative analysis. *Journal of Physical Education & Sport*, *23*(1). https://doi.org/10.7752/jpes.2023.01021
37. Popovych, I., Kosmii, M., Hrys, A., Hoi, N., Dyhun, I., Hoian, I., & Nosov, P. (2023). Pre-competition expectation profiles among junior athletes in the context of altered sporting conditions. *Journal of Physical Education and Sport*, *23*(10), 2551-2562. https://doi.org/10.7752/jpes.2023.10293
38. Ptashchenko, O., Alekseieva, K., Maletych, M., Baranova, O., & Buryk, Z. (2023). State business support programs in wartime conditions. *Economic Affairs, 68*(1s), 231-242. https://doi.org/10.46852/0424-2513.1s.2023.26
39. Shynkaruk, V., & Pidskochista, Z. (2025). Teoretychni aspekty inkliuzyvnoi fizychnoi pidhotovky viiskovosluzhbovtsiv, yaki otrymaly vazhki poranennia [Theoretical aspects of inclusive physical training of military personnel who have received serious injuries].

Perspectives and Innovations of Science, 7(53), 1064-1071. https://doi.org/10.52058/2786-4952-2025-7(53)-1064-1071 [in Ukrainian]

40. Stevelink, S. A. M., Jones, M., Hull, L., Pernet, D., MacCrimmon, S., Goodwin, L., MacManus, D., Murphy, D., Jones, N., Greenberg, N., Rona, R. J., Fear, N. T., & Wessely, S. (2018). Mental health outcomes at the end of the British involvement in the Iraq and Afghanistan conflicts: a cohort study. *The British Journal of Psychiatry*, *5*(11), 1324-1335. https://doi.org/10.1192/bjp.2018.175
41. Tanielian, T., & Jaycox, L. H. (eds.) (2008). Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery. *RAND Corporation*. https://www.rand.org/pubs/monographs/MG720.html
42. Tinney, M. J., & Nguyen, C. (2024). Supporting a lifetime of fitness for the military veteran athlete: a narrative review. *Frontiers in Sports and Active Living*, *6*, 1510422. https://doi.org/10.3389/fspor.2024.1510422
43. Turner, M. A., Kiernan, M. D., McKechanie, A. G., Finch, P. J., McManus, F. B., & Neal L. A. (2013). Acute military psychiatric casualties from the war in Iraq. *British Journal of Psychiatry*, *186*(6), 476–479. https://doi.org/10.1192/bjp.186.6.476
44. Waddell, G., & Burton, A. K. (2006). *Is work good for your health and well-being?* London: TSO. https://huddersfield.box.com/s/kmyygl6clmsap4m3femp6wb7joaxd87d
45. Waldhauser, K., Hives, B., Liu Y., Puterman, E., Sharifian, N., Castaneda, Sh., Carey, F., Rull, R., & Beauchamp, M. (2025). Military veterans' psychological health and physical activity after separation from service. *American Journal of Preventive Medicine*, *69*, 107642. https://doi.org/10.1016/j.amepre.2025.04.012
46. World Health Organization (2023). Rehabilitation 2030: Meeting the Needs. WHO Press, Geneva. https://www.who.int/initiatives/rehabilitation-2030
47. World Health Organization. Regional Office for Europe (2021). Situation assessment of rehabilitation in Ukraine. World Health Organization. Regional Office for Europe. https://iris.who.int/handle/10665/349595.
48. World Health Organization (2011). World Report on Disability. WHO Press, Geneva. https://www.who.int/publications/i/item/9789240068759
49. Wilt, T. J., Greer, N., Balser, D., McKenzie, L., Nicholson, H., MacDonald, R., Rosebush, C., Senk, A., & Tonkin, B. (2019). *Adaptive sports for disabled veterans: Evidence synthesis program*. U.S. Department of Veterans Affairs. https://www.ncbi.nlm.nih.gov/books/NBK554909/
50. Yano, E. M., Simon, B. F., Lanto, A. B., & Rubenstein, L. V. (2007). The evolution of changes in primary care delivery underlying the Veterans Health Administration's quality transformation. *American Journal of Public Health*, *96*(12), 2151-2159. https://doi.org/10.2105/AJPH.2007.115709
51. Zatzick, D., Roy-Byrne, P., Russo, J., Rivara, F., Droesch, R., Wagner, A., Dunn, C., Jurkovich, G., Uehara, E., & Katon, W. (2004). A randomized effectiveness trial of stepped collaborative care for acutely injured trauma survivors. *Archives of General Psychiatry*, *61*(5), 498-506. https://doi.org/10.1001/archpsyc.61.5.498
52. Zhára, G. (2024). Fizkulturno-sportyvna reabilitatsiia veteraniv viiny v umovakh veteranskykh prostoriv [War veterans' physical and sports rehabilitation in the conditions of veterans' spaces]. *Science and Education*, *3*, 17-22. https://doi.org/10.24195/2414-4665-2024-3-3 [in Ukrainian]
53. Zhara, H. I. (2026). Kompleksna reabilitatsiia viiskovosluzhbovtsiv i veteraniv viiny v systemi hromadskoho zdorovia [Comprehensive rehabilitation of military personnel and war veterans in the public health system]. *Sportyvna Medytsyna, Fizychna Terapiia ta Erhoterapiia*, *1*, 25. https://doi.org/10.32782/spmed.2026.1.25 [in Ukrainian]