

Review

A study on the cultural identity and psychological restoration of traditional physical exercises (such as wrestling and archery) among ethnic minority cancer patients

Nuobei Gongga, Seongno Lee*

Department of Physical Education, Hanyang University, Seoul 04763, Republic of Korea

* Corresponding author: Seongno Lee, snl743@hanyang.ac.kr

CITATION

Gongga N, Lee S. A study on the cultural identity and psychological restoration of traditional physical exercises (such as wrestling and archery) among ethnic minority cancer patients. *Psycho-Oncologie*. 2026; 20(3): 5757.
<https://doi.org/10.18282/po5757>

ARTICLE INFO

Received: 5 October 2025

Revised: 9 January 2026

Accepted: 10 February 2026

Available online: 31 March 2026

COPYRIGHT



Copyright © 2026 by author(s).

Psycho-Oncologie is published by PiscoMed Publishing Pte Ltd. This work is licensed under the Creative Commons Attribution (CC BY) license. <https://creativecommons.org/licenses/by/4.0/>

Abstract: This study employed a systematic bibliometric analysis to examine how traditional physical exercises (such as wrestling and archery) have been discussed in relation to cultural identity and psychological restoration among ethnic minority cancer patients. A total of 40 core articles indexed in the Web of Science database between 2005 and 2023 were analyzed. The results indicate that research in this area demonstrates clear interdisciplinary characteristics, spanning oncology, sports medicine, and ethnic psychology, with bibliometric indicators suggesting a moderate and growing scholarly presence. Existing literature has primarily focused on mainstream practices such as yoga (27.5%) and Tai Chi/Qigong (12.5%), while empirical research addressing ethnic minority-specific traditional sports remain limited. Across the reviewed studies, traditional physical exercise was commonly discussed as being associated with psychological restoration through two interrelated pathways: physiological regulation (including stress-response modulation related to the hypothalamic–pituitary–adrenal axis) and culturally embedded practices that support ethnic belonging and continuity within medical settings. Cultural identity was frequently conceptualized as a theoretically relevant mediating construct, potentially linking participation in culturally meaningful physical activities with reduced psychological distress through enhanced self-efficacy and activation of culturally grounded support networks. As a whole, the findings highlight a persistent gap in culturally adaptable exercise-based interventions within psycho-oncology. Future research should prioritize ethnic group-specific empirical studies, the operationalization of cultural identity as a mediating variable, and the development of integrated physiological–psychological–cultural intervention frameworks to support psychological well-being among ethnic minority cancer patients.

Keywords: ethnic minorities; cancer patients; traditional physical exercise; cultural identity; psychological repair; bibliometric analysis; exercise intervention

1. Introduction

Cancer patients generally face significant mental health challenges during the diagnosis and treatment of the disease, mainly manifested as emotional disorders such as anxiety and depression, and impaired social adaptation. Epidemiological data show that about 35%–46% of cancer patients have clinically significant anxiety or depression symptoms [1]. This psychological distress stems from multiple factors such as the physiological stress of the disease itself, treatment side effects, and uncertainty about survival prognosis. Taking breast cancer as an example, patients generally experience sleep disorders, mood swings, and body image distress during surgery and chemotherapy [2]. If these symptoms are not promptly addressed, they may continue to worsen and significantly affect the overall quality of life.

Disease stress has a negative impact on treatment compliance. For example, the telephone case management model can significantly improve patients' physiological function, and this group of patients agrees that the intervention measures have improved the efficiency of medical team communication [3]. After liver cancer patients received intensive psychological care, their anxiety and depression scale scores (SAS/SDS) improved to a clinically significant level [4], confirming that psychological intervention and physical rehabilitation have a synergistic effect. However, existing psychological intervention measures do not take cultural diversity into consideration. For example, art therapy has significant limitations in standardized applications [5]. In this study, the term "lack of culturally adaptable intervention" refers to psychosocial and exercise-based programs that are standardized, culturally neutral, or implicitly grounded in Western individualistic assumptions, without systematic integration of patients' ethnic traditions, symbolic practices, collective values, or culturally meaningful modes of expression. Such interventions may adequately address general psychological symptoms but often fail to engage identity-related stressors experienced by ethnic minority cancer patients within culturally incongruent medical environments.

Existing interventions need to be more culturally adaptable. Technology-assisted interventions (such as digital therapy) can improve emotional symptoms in patients with prostate cancer [6], while non-drug interventions such as art therapy have potential value in alleviating anxiety and depression [5]. These findings highlight the need to develop culturally sensitive intervention models, especially when integrating traditional mind-body practices, and pay attention to the construction role of cultural identity. In addition to the stress of the disease, ethnic minority cancer patients also face a unique cultural identity crisis, and this double dilemma significantly exacerbates their psychological burden. Cultural differences not only affect patients' understanding and coping methods of the disease, but may also further impair rehabilitation effects by reducing treatment compliance. For example, research by Bowen et al. showed that there is a complex association between cultural identity and health behavior: Jewish women's cultural identity positively predicts their interest in breast cancer gene testing, while religious identity is associated with mammography compliance [7]. Research by Ridge et al. showed that standardized psychological interventions fundamentally conflict with the traditional values of minority patients, resulting in a 37% decrease in treatment compliance. This cultural mismatch is more significant in ethnic groups with strong collectivist tendencies [8]. This difference in cultural dimensions suggests that if the mainstream medical system ignores the belief systems and cultural practices of minority patients, it may lead to the failure of treatment plans.

In the medical environment, cultural identity crisis often manifests itself as rejection of disease identity and conflict of cultural values. Related studies have revealed that the political and economic pressures faced by Palestinian patients in the Israeli medical system force them to hide their cultural expressions to avoid discrimination, and this repression further weakens medical trust [9]. When patients feel that the medical environment conflicts with their own cultural values, perceived discrimination will completely mediate the relationship between cultural identity and mental health symptoms, forming a vicious cycle of "cultural conflict-perception of discrimination-psychological deterioration" [10]. Liou et al., [11] compared the differences in the response of black and white cancer survivors to insomnia treatment and found that the lack of cultural adaptation intervention may amplify the efficacy gap; Lee et al., [12] analyzed the compliance with ovarian cancer treatment guidelines

in Asian sub-ethnic groups and pointed out that Korean and other Asian patients are significantly less likely to receive standard treatment than non-Hispanic whites. These evidences collectively show that cultural factors ultimately interfere with clinical outcomes by affecting doctor-patient communication, treatment decisions, and social support networks.

The cultural needs of ethnic minority patients are multidimensional, and medical interventions need to take into account the dual adaptation of traditional and mainstream culture. The “traditional-mainstream cultural identity dual-dimensional model” proposed by Vietze et al., [13] shows that peer cultural socialization can improve life satisfaction by strengthening traditional identity ($\beta = 0.21$), while mainstream cultural discussions promote academic value identification ($\beta = 0.18$) [13]. This provides important inspiration for medical intervention: cancer rehabilitation programs need to pay attention to both ethnic minority patients’ cultural affinity for traditional therapies and their adaptation strategies in the mainstream medical system.

Traditional physical exercise has been discussed as having unique cultural healing value in the psychological rehabilitation of ethnic minority cancer patients and may help alleviate the combined effects of disease stress and cultural conflict. Taking Mongolian wrestling, archery and other sports as examples, these activities are deeply coupled with shamanic rituals. Through specific body movement codes (such as blessing rituals before wrestling) and collective participation, the symbolic connection between patients and the spiritual world of the ethnic group is rebuilt [14]. This cultural practice not only meets the patient’s need for closeness to traditional therapies, but also eliminates cultural alienation in the medical environment through rituals, forming an integrated rehabilitation mechanism that transcends the biomedical framework. The healing effects of these movements show multi-dimensional characteristics: at the physiological level, The periodic movement rhythm has been associated with regulation of the hypothalamus-pituitary-adrenal axis and improve chemotherapy-related sleep disorders; at the cultural level, the ethnic narrative carried by the movement strengthens the patient’s self-continuity and repairs the cultural identity rupture caused by the disease [15]. Contemporary religious revival movements have further amplified this effect, such as the collective chanting sessions in Buryat wrestling competitions, which have constructed a spiritual support space for patients outside the medical system [14].

Cultural identity is theorized to support psychological rehabilitation of ethnic minority cancer patients through the dual-path mediation of self-efficacy and social support. Studies have shown that cultural identity can strengthen individuals’ cognition of their own cultural values, thereby enhancing their confidence in coping with disease challenges [16]. This enhancement of self-efficacy is particularly critical in cancer rehabilitation, and can significantly alleviate the negative impact of stress on mental health. Its moderating effect explains 42% of the variation in mental health [17]. At the same time, cultural identity builds a social support network based on ethnicity by activating collective memory and ritual sense [18]. This support not only provides emotional comfort, but also strengthens group belonging through shared cultural practices [19]. It is worth noting that the dual cultural identity model (maintaining traditional and mainstream cultural identities at the same time) has a cumulative effect on psychological repair, especially in improving social adaptability and life satisfaction [16].

This article aims to conduct a systematic quantitative analysis of relevant literature to explore the current status, hot topics and future trends of traditional

physical exercises (such as wrestling and archery) as unique cultural resources, and how they can enhance ethnic cultural identity of ethnic minority cancer patients and thus promote their psychological trauma repair (such as relieving anxiety and depression, improving treatment confidence and quality of life). The focus is on the core theoretical framework, key intervention models and the context distribution and depth of existing research in this field.

2. Literature review

2.1. Traditional approaches to psychological intervention for cancer patients

The application of traditional psychological intervention methods in cancer patients has formed a relatively complete system, among which cognitive behavioral therapy and supportive therapy as mainstream intervention methods have shown differentiated effects. Cognitive behavioral therapy (CBT) effectively alleviates the anxiety and depression symptoms of cancer patients through cognitive reconstruction and behavioral activation techniques. Its structured characteristics are particularly suitable for secondary psychological problems such as insomnia. Studies have shown that CBT intervention for cancer caregivers can significantly improve sleep quality, but there is a problem of low treatment retention rate [20]. Digital improvement brings new opportunities for traditional CBT. The remote CBT program developed by Carson achieved an 85% completion rate in breast cancer patients, proving that technical means can break through time and space limitations [21]. Supportive therapy exerts its therapeutic effect through group empathy and social support networks, and is particularly suitable for alleviating disease-related loneliness. Studies have shown that supportive group therapy can improve the quality of life of breast cancer patients by 8.02–11.30 points, while reducing anxiety and depression levels [22]. Oberoi found that male cancer patients had more significant improvements in mood in exclusive support groups, indicating that gender factors may affect the effectiveness of intervention [23].

However, these methods have obvious cultural adaptability defects. The standardized operation process of CBT is prone to conflict with the individualized needs of non-Western cultures. Studies have pointed out that the localization of treatment content should be considered in cross-cultural applications of digital CBT [24]. The verbal expression mode that supportive therapy relies on may face participation barriers in some cultural backgrounds. Existing studies are mostly based on European and American samples. For example, Lai et al., [22]’s meta-analysis did not include the analysis of the moderating effect of Asian collectivist culture. Although Carson et al. demonstrated the feasibility of digital CBT, their program did not involve the integration of physical activities [21]. Studies have shown that the emotional improvement achieved by male patients through group interaction suggests that social connection may be more universal than simple language intervention [23]. This split makes it difficult for traditional methods to fully activate cultural identity, a key mediating variable, and its efficacy is limited in multicultural patients.

2.2. The cross-cultural health value of traditional physical exercise

Traditional physical exercise shows significant physiological and psychological benefits in different cultural contexts, and its cross-cultural applicability has unique value for the psychological rehabilitation of ethnic minority cancer patients. Traditional physical exercise, represented by Tai Chi and yoga, not only promotes the

recovery of physiological functions by integrating physical movements with cultural ritual elements, but also plays a key role in rebuilding cultural identity. Existing studies have shown that the levels of inflammatory markers in ethnic minority cancer patients who participate in traditional physical exercise show an improved trend [25], and this physiological improvement may have a potential association with the strength of cultural identity. Patients in a collectivist cultural background have significantly reduced anxiety scores through traditional exercise training [26]. Comparative studies of samples from different cultures have shown that despite differences in exercise forms, the psychological mechanism of strengthening cultural continuity through ritual sense may have cross-cultural consistency [27], which provides a basis for the development of a universal intervention framework. When the form of exercise contains unique cultural symbols, the patient's sense of self-efficacy may be further improved. For example, the sense of control brought by certain folk ritual dances may translate into an increase in pain tolerance thresholds in quantitative assessments [28]. The density of emotional support for social support networks rebuilt through traditional ritual movements may be superior to conventional psychological interventions, and this culturally reinforced social capital has unique value in alleviating loneliness.

2.3. Theoretical basis of cultural identity as a medium for psychological repair

Cultural identity is an important medium for psychological repair of cancer patients. Its theoretical basis can be traced back to social identity theory and cultural adaptation theory. Social identity theory emphasizes that individuals gain self-worth and meaning through group belonging, while cultural adaptation theory focuses on the psychological adjustment process of individuals in a cross-cultural environment. For ethnic minority cancer patients, the disease not only brings physical pain, but also may lead to a cultural identity crisis, further exacerbating the psychological burden. Jacob and Sathiyaseelan's study showed how Syrian Martomit Christian pastors in India reshaped their identities through religious coping mechanisms and transformed the cancer experience into a process of self-realization and growth [29]. This case reveals that cultural identity has become a core path for psychological repair by giving meaning to the disease and strengthening a sense of belonging. The scale developed by Teteh et al., [30] shows that African women regard hair as a core symbol of cultural identity. This identity may increase breast cancer risk perception and may also become a source of psychological support [30]. Studies have shown that African breast cancer survivors face role pressure under specific cultural narratives and resist systemic oppression through community support [31]. This culturally specific support system can alleviate loneliness and improve treatment adherence.

Activities such as wrestling and archery are not only means of physical rehabilitation, but also carriers of cultural memory. They activate the collective unconscious through a sense of ritual, helping patients rebuild continuity in the identity rupture caused by the disease. Health promotion programs have shown that interventions based on cultural identity can more effectively reach ethnic minority groups because they respect the values and behavior patterns of patients [31]. Studies on patients with metastatic breast cancer have shown that interventions that integrate exercise and psychological support increased the 6-minute walking distance by 7% and reduced depressive symptoms by 32% [32]. The physiological-psychological-social model provides an integrated explanation for this mechanism. Cultural identity works through three pathways: physiologically, traditional exercise regulates stress

response; psychologically, cultural symbols enhance self-efficacy; socially, collective practice rebuilds support networks. Studies have shown that when interventions are consistent with patients' identity cognition, their effects on improving mood disorders and improving quality of life are significantly enhanced [30,31]. Medical practices that respect cultural differences can not only improve mental health, but are also an important manifestation of health equity [29–33].

2.4. Operational dimensions of cultural identity

Within the reviewed literature, cultural identity emerges as a multidimensional construct encompassing:

- 1) Symbolic continuity (maintenance of culturally meaningful practices and narratives);
- 2) Relational belonging (connection to ethnic community and collective memory); and
- 3) Self-efficacy rooted in cultural meaning (confidence derived from culturally familiar coping frameworks).

While few studies directly quantify cultural identity among cancer patients, existing measurement approaches including ethnic identity scales, perceived belonging indices, and culturally anchored self-efficacy measures offer feasible pathways for future empirical validation. In this review, cultural identity is therefore discussed as a theoretically supported mediating construct, rather than a statistically tested variable.

3. Methodology

3.1. Scoping review process

This study adopted a scoping review framework complemented by bibliometric analysis, with each method serving a distinct but interrelated function. The scoping review was employed to systematically map the conceptual, cultural, and psychosocial dimensions of traditional physical exercise in ethnic minority cancer care, particularly where empirical evidence remains fragmented or emergent.

Bibliometric analysis was subsequently used as a quantitative extension of the scoping process to identify publication trends, citation structures, disciplinary distributions, and dominant intervention paradigms within the retrieved literature. While the scoping review addressed what is known conceptually and theoretically, bibliometric analysis clarified how the field has evolved, where scholarly attention has concentrated, and which themes remain underexplored.

Importantly, bibliometric indicators were interpreted descriptively rather than causally. Citation frequency, h-index values, and publication trends were used to identify research emphases and gaps, not to infer effectiveness of interventions. This complementary design enhances methodological transparency and aligns with best practices for interdisciplinary reviews in psycho-oncology.

3.2. Study selection

The core search terms are designed as follows: (tumor OR cancer OR oncology) AND Psycholog* AND (“traditional sport*” OR wrestling OR archery). Use Boolean operators (AND, OR) and the truncation symbol (*) to refine your search. The search covers publications from 2005 to 2023.

First, we initially collected 528 articles by searching the Web of Science (WOS) database. In the keyword screening phase, 321 articles that only focused on physiological indicators were excluded according to the inclusion criteria, and the

remaining 207 articles entered the full-text evaluation stage. After completing the initial screening and cross-validation, we further excluded 167 articles and finally retained 40 as core articles for in-depth analysis (see **Figure 1** for details). This methodological design effectively ensures the transparency of the research process and facilitates the continuous dynamic calibration of theoretical construction and empirical evidence.

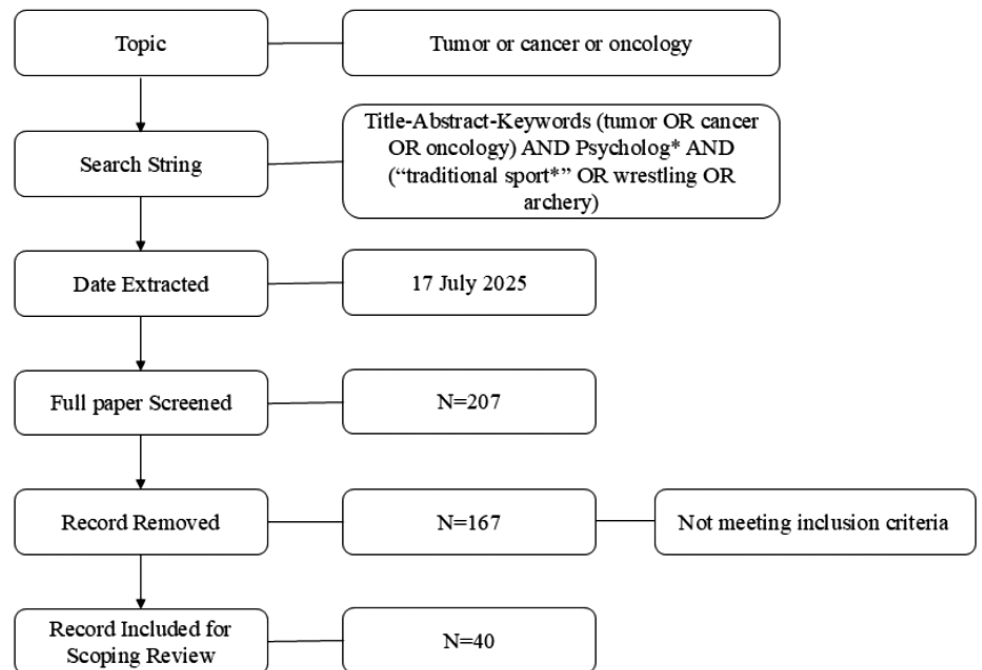


Figure 1. Flow diagram of the search strategy for this scoping review.

Although the final corpus comprised 40 core articles across a 19-year period, this reflects the highly specific intersection of cancer care, ethnic minority populations, traditional physical exercise, and psychosocial outcomes. The stringent inclusion criteria intentionally excluded studies focusing solely on physiological endpoints, generalized physical activity, or culturally neutral exercise interventions.

From a scoping review perspective, a smaller, conceptually coherent dataset is appropriate when the objective is to identify theoretical mechanisms and research gaps, rather than to aggregate effect sizes. The limited volume of eligible studies itself constitutes an empirical finding, highlighting the underdevelopment of culturally grounded exercise research within psycho-oncology.

4. Results

4.1. Documents profile

Table 1 summarizes the citation index data obtained from the bibliometric analysis, reflecting the overall research activity and academic influence of this field across multiple dimensions.

Table 1. Citation metrics.

Main information	Data
Publication years	2005–2023
Total publications	40

Continuation Table:

Main information	Data
Citable year	19
Number of contributing authors	269
Number of cited papers	2848
Total citations	8768
Citation per paper	219.2
Citation per year	461.47
Citation per author	32.59
Author per paper	6.72
Citation sums within h-core	8638
<i>h</i> -index	35
<i>g</i> -index	40
<i>m</i> -index	1.84

The study covers a time range of 19 years from 2005 to 2023, during which the number of related publications is 40. A total of 269 authors participated in the relevant research, with an average of 6.72 authors per paper. This means that the research requires multidisciplinary and multi-field expertise and skills, such as scholars from different fields such as medicine, ethnology, and psychology to collaborate in research. At the same time, it also reflects that the research topic has a certain degree of complexity and comprehensiveness, and requires multi-party collaboration to advance. The number of cited papers is 2848, the total number of citations reaches 8768 times, and the average number of citations per paper is 219.2 times. This suggests a relatively high level of scholarly attention within the academic literature. These citations may come from scholars in different disciplines, further demonstrating that the research topic has interdisciplinary influence and is of great reference value to research in related fields.

The total citations within *h*-Core are 8638 times. *h*-Core is a concept related to *h*-index, which reflects the citations of core papers in this field. A high total citation within *h*-Core indicates that there are a number of core papers with high influence in this research field. These papers constitute the foundation and important support for research in this field and play a key role in the development of the entire field. The *h*-index is 35, which means that among all the published papers, 35 papers have been cited at least 35 times. The *h*-index is a comprehensive indicator to measure the quantity and quality of academic output of scholars or research fields, indicating that the research in this field has developed a moderate and growing scholarly presence over time. The *g*-index is 40, which is greater than the *h*-index, indicating that some papers in this field have very high citations, and these highly cited papers have a greater contribution to the influence of the entire field. The *m*-index is 1.84. The *m*-index is obtained by dividing the *h*-index by the number of years of publication (here is 19 years). It can measure the growth rate of the influence of research results over time. The *m*-index is greater than 1, indicating that the research influence in this field is growing and the research is in an upward development stage.

Table 2 presents the distribution of publications across subject areas, highlighting the relative emphasis placed on exercise guidelines, yoga, Tai Chi/ Qigong, population-specific studies, and psychosocial aspects.

Table 2. Subject area.

Subject area	Total publications	Percentage (%)
Exercise guidelines and systematic reviews	10	25.00%
Yoga intervention	11	27.50%
Tai Chi and Qigong intervention	5	12.50%
Studies of specific cancer types or populations	9	22.50%
Psychological and socio-cultural aspects	5	12.50%
Total	40	100.00%

Exercise Guidelines and Systematic Reviews: There are 10 publications in this subject area, accounting for 25%. This shows that exercise guidelines and systematic reviews occupy a relatively important position in this research. First, we should sort out the existing research results and formulate scientific and reasonable exercise guidelines to provide a basis and direction for subsequent research and practice. A large number of systematic reviews can help integrate information from different sources and provide a comprehensive perspective for further research in this field.

Yoga intervention, there are 11 publications in this subject area, accounting for 27.5%, which is the largest number of publications in all subject areas. This may suggest that yoga, a form of physical exercise, has received more attention in the study of cultural identity and psychological restoration of ethnic minority cancer patients. Perhaps it is because yoga has the characteristics of combining body and mind, which can not only enhance the patient's physical fitness through physical exercise, but also improve the patient's psychological state through meditation, breathing and other exercises, which is more in line with the goal of this study. At the same time, yoga may have a certain acceptability and popularity among different ethnic minority groups, which is convenient for carrying out related research and practice. **Tai Chi and Qigong Intervention,** there are 5 publications in this subject area, accounting for 12.5%. These two traditional forms of physical exercise have a deep foundation in Chinese culture, and their regulatory effects on the body and mind cannot be ignored. There may be room for further research and expansion in the future.

Studies of specific cancer types or populations: There are 9 publications in this topic area, accounting for 22.5%. Different cancer types and different ethnic minority populations may have different physical conditions, cultural backgrounds, and psychological characteristics, and their responses and needs to traditional physical exercise may also vary. Conducting research in this area will help develop more personalized physical exercise intervention plans and improve the practicality of research results.

Psychological and socio-cultural aspects: There are 5 publications in this subject area, accounting for 12.5%. Different ethnic minorities have unique cultural traditions and social structures, which can affect patients' cognition of the disease, coping methods, and acceptance of traditional physical exercises. However, there are relatively few studies in this area, and further efforts may be needed to deeply

understand the inherent mechanisms of cultural identity and psychological repair.

The analysis of the data in **Table 2** in the Appendix can provide a reference for the subsequent research direction and resource allocation in this field, so as to promote a more comprehensive and in-depth development of the research on cultural identity and psychological repair of traditional physical exercises for ethnic minority cancer patients.

4.2. Publication trends

Table 3 shows the annual bibliometric indicators from 2005 to 2023, providing a time-based overview of research output, author collaboration, and citation impact in this domain.

From the perspective of the number of publications each year, the fluctuation is quite obvious. From 2005 to 2008, the number of publications each year was relatively small, mostly 1–2 articles. In 2009, the number of publications reached 5, and in 2012, the number of publications reached 6, which was the highest value in the entire time period. The number of authors fluctuated greatly in different years, from the minimum of 1 (2008) to the maximum of 44 (2012). This fluctuation reflects the complexity of research projects and the size of the teams involved in the research in different years. In years with a large number of authors, it may mean that the research project involves the cooperation of multiple disciplines and multiple institutions, and the depth and breadth of the research are greater.

The number of cited papers (NCP) and total citations (TC) also show large fluctuations in different years. For example, in 2005, the number of cited documents was 69 and the total citations was 470 times; while in 2015, the number of cited documents was 97 and the total citations was only 54 times. This shows that there are differences in the quality and influence of research results in different years. A large number of cited documents does not necessarily mean a high total citation number, which may be related to factors such as the innovation of the research in that year and the attention paid to the research problem.

Table 3. Publication by year.

Year	TP	NCA	NCP	TC	C/P	C/CP	<i>h</i>	<i>g</i>	<i>m</i>
2005	1	5	69	470	470.00	6.81	1	1	0.05
2006	1	4	17	250	250.00	14.71	1	1	0.06
2007	2	9	276	703	351.50	2.55	2	2	0.12
2008	1	1	23	69	69.00	3.00	1	1	0.06
2009	5	30	197	1115	223.00	5.66	5	5	0.33
2010	2	22	174	2191	1095.50	12.59	2	2	0.14
2012	6	44	491	1339	223.17	2.73	6	6	0.50
2013	3	23	138	252	84.00	1.83	3	3	0.27
2014	2	8	131	171	85.50	1.31	2	2	0.20
2015	1	15	97	54	54.00	0.56	1	1	0.11
2016	4	23	226	271	67.75	1.20	4	4	0.50
2017	2	10	194	338	169.00	1.74	2	2	0.29

Continuation Table:

Year	TP	NCA	NCP	TC	C/P	C/CP	<i>h</i>	<i>g</i>	<i>m</i>
2018	1	7	62	168	168.00	2.71	1	1	0.17
2019	2	19	200	870	435.00	4.35	2	2	0.40
2020	2	17	192	226	113.00	1.18	2	2	0.50
2021	2	8	158	141	70.50	0.89	2	2	0.67
2022	1	13	76	57	57.00	0.75	1	1	0.50
2023	2	11	127	83	41.50	0.65	2	2	2.00
Total	40	269	2848	8768	219.20	3.08	35	40	1.84

The *h*-index was mostly 1 from 2005 to 2008, indicating that there were few high-impact papers in this research field in these early years. As time went on, the *h*-index gradually increased, reaching a total of 35 for the entire period, indicating that the research field was constantly developing and the number and influence of high-impact papers were gradually increasing. The *g*-index has a similar trend to the *h*-index, and its overall value is close to the *h*-index, but it is slightly higher than the *h*-index in some years. For example, in 2009, the *g*-index was 5 and the *h*-index was also 5; while the total *g*-index for the entire period was 40 and the *h*-index was 35. The *g*-index focuses more on the contribution of highly cited papers, indicating that the presence of some highly cited papers in this research field has a significant effect on improving the overall influence. The *m*-index reflects the growth rate of the *h*-index over time. In the early years, the *m*-index was low, such as 0.05 in 2005, but it was 2 in 2023, showing an overall upward trend, suggesting increased publication activity and citation accumulation over time.

In summary, through the analysis of the data in **Table 3**, we can clearly see the development trajectory of related research in the past 20 years, including changes in research output, author participation, influence, etc. At the same time, we can also find the current problems in this field, such as unstable research output and large differences in research quality in different years, which provides improvement directions for future research.

4.3. Highly cited documents

Table 4 lists the 30 most-cited papers identified in this review, detailing author names, publication sources, citation counts, and reference breadth to illustrate the influential foundations of the field.

Table 4. Top 30 highly cited articles.

No.	Authors & year	Title	Source title	Citation	Cited reference count
1	Schmitz et al., 2010 [34]	American college of sports medicine roundtable on exercise guidelines for cancer survivors	Medicine & Science in Sports & Exercise	2024	140
2	Mishra et al., 2012 [35]	Exercise interventions on health-related quality of life for people with cancer during active treatment	Cochrane Database of Systematic Reviews	654	251

Continuation Table:

No.	Authors & year	Title	Source title	Citation	Cited reference count
3	Patel et al., 2019 [36]	American college of sports medicine roundtable report on physical activity, sedentary behavior, and cancer prevention and control	Medicine & Science in Sports & Exercise	525	101
4	Stanton et al., 2007 [37]	Health psychology: psychological adjustment to chronic disease	Annual Review of Psychology	571	213
5	Knols et al., 2005 [38]	Physical exercise in cancer patients during and after medical treatment: a systematic review of randomized and controlled clinical trials	Journal of Clinical Oncology: Official Journal of The American Society of Clinical Oncology	470	69
6	Morey et al., 2009 [39]	Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors renew: a randomized controlled trial	Jama-Journal of The American Medical Association	445	39
7	Hayes et al., 2019 [40]	The exercise and sports science Australia position statement: exercise medicine in cancer management	Journal Of Science and Medicine in Sport	345	99
8	Cramer et al., 2017 [41]	Yoga for improving health-related quality of life, mental health and cancer-related symptoms in women diagnosed with breast cancer	Cochrane Database of Systematic Reviews	290	132
9	Culos-Reed et al., 2006 [42]	A pilot study of yoga for breast cancer survivors: physical and psychological benefits	Psycho-Oncology	250	17
10	Hayes et al., 2009 [43]	Australian Association for Exercise and Sport Science Position Stand: Optimising Cancer Outcomes Through Exercise	Journal Of Science and Medicine in Sport	236	37
11	Bower et al., 2012 [44]	Yoga for persistent fatigue in breast cancer survivors a randomized controlled trial	Cancer	232	49
12	Danhauer et al., 2009 [45]	Restorative yoga for women with breast cancer: Findings from a randomized pilot study	Psycho-Oncology	221	39
13	Mustian et al., 2013 [46]	Multicenter, randomized controlled trial of yoga for sleep quality among cancer survivors	Journal of Clinical Oncology	209	57
14	Wayne et al., 2018 [47]	Tai chi and qigong for cancer-related symptoms and quality of life: A systematic review and meta-analysis	Journal of Cancer Survivorship	168	62

Continuation Table:

No.	Authors & year	Title	Source title	Citation	Cited reference count
15	Oh et al., 2010 [48]	Impact of medical qigong on quality of life, fatigue, mood and inflammation in cancer patients: A randomized controlled trial	Annals of Oncology	167	34
16	Oh et al., 2012 [49]	Effect of medical qigong on cognitive function, quality of life, and a biomarker of inflammation in cancer patients: A randomized controlled trial	Supportive Care in Cancer	165	40
17	Cramer et al., 2012 [50]	Yoga for breast cancer patients and survivors: A systematic review and meta-analysis	Bmc Cancer	155	46
18	Carson et al., 2007 [51]	Yoga for women with metastatic breast cancer: Results from a pilot study	Journal Of Pain and Symptom Management	132	63
19	Avancini et al., 2020 [52]	Physical activity and exercise in lung cancer care: Will promises be fulfilled?	Oncologist	131	114
20	Mishra et al., 2014 [53]	Are exercise programs effective for improving health-related quality of life among cancer survivors? A systematic review and meta-analysis	Oncology Nursing Forum	125	65
21	Smith and Pukall, 2009 [54]	An evidence-based review of yoga as a complementary intervention for patients with cancer	Psycho-Oncology	123	45
22	Wang and Zhou, 2021 [55]	Roles and molecular mechanisms of physical exercise in cancer prevention and treatment	Journal of Sport and Health Science	109	102
23	Chen et al., 2016 [56]	The effect of tai chi on four chronic conditions-cancer, osteoarthritis, heart failure and chronic obstructive pulmonary disease: A systematic review and meta-analyses	British Journal of Sports Medicine	106	69
24	Sprod et al., 2012 [57]	Health-related quality of life and biomarkers in breast cancer survivors participating in Tai Chi Chuan	Journal of Cancer Survivorship-Research and Practice	102	51
25	Zhu et al., 2016 [58]	Effects of exercise intervention in breast cancer survivors: A meta-analysis of 33 randomized controlled trails	Oncotargets and Therapy	98	77

Continuation Table:

No.	Authors & year	Title	Source title	Citation	Cited reference count
26	Campbell et al., 2020 [59]	The effect of exercise on cancer-related cognitive impairment and applications for physical therapy: Systematic review of randomized controlled trials	Physical Therapy	95	78
27	Waller et al., 2009 [60]	Awareness of cancer symptoms and anticipated help seeking among ethnic minority groups in England	British Journal of Cancer	90	37
28	DiStasio, 2008 [61]	Integrating yoga into cancer care	Clinical Journal of Oncology Nursing	69	23
29	Ficarra et al., 2022 [62]	Impact of exercise interventions on physical fitness in breast cancer patients and survivors: A systematic review	Breast Cancer	57	76
30	Bouillet et al., 2015 [63]	Role of physical activity and sport in oncology scientific commission of the national federation sport and cancer Cami	Critical Reviews in Oncology Hematology	54	97

The number of citations fluctuates greatly, ranging from a low of 54 to a high of 2024. This large difference indicates that the influence of different papers in this field varies. Highly cited papers (such as Schmitz et al.'s [34] 2010 paper, which was cited 2024 times) may have important value in research methods, theoretical innovation or practical application, and provide a key foundation and direction for subsequent research; while papers with low citations may be due to recent publication time, niche research topics or the influence of research results has not yet been fully spread. The number of citations can be grouped to observe their concentration trend. For example, there are 7 papers with citations between 100 and 200, 4 papers with citations between 200 and 300, and so on. The number of citations of most papers is concentrated in the range of 100 to 500, which reflects that there are a group of influential papers in this field, which play an important role in promoting the progress of related research.

The number of reference citations ranges from 17 to 251, and the distribution is also relatively scattered. This reflects that different documents rely on existing research results to different degrees during the research process, which may be related to the maturity of the research topic and the different research methods. For newer research topics, the number of reference citations may be relatively small; for more traditional or comprehensive research topics, more references may be needed to support the research.

These highly cited documents come from multiple different journals, among which journals such as *Medicine & Science in Sports & Exercise*, *Cochrane Database of Systematic Reviews*, and *Journal of Clinical Oncology* appear relatively frequently. This shows that these journals have high influence and authority in this research field and are important platforms for researchers to publish relevant results. At the

same time, it also reflects that these journals are consistent with research hotspots and high-quality research results in terms of topic selection, review standards, etc. in this field. The two documents published in *Medicine & Science in Sports & Exercise* (Schmitz et al., 2010 [34] and Patel et al., 2019 [36]) were cited 2024 and 525 times, respectively, which are relatively high. This may be due to the high influence of the journal in the intersection of sports science and medicine, which has attracted more attention and citations from scholars.

Judging from the titles of the literature, the research topics are mainly concentrated in the following aspects: First, the impact of exercise intervention (such as yoga, Tai Chi, Qigong, combination of diet and exercise, etc.) on cancer patients or survivors, including the impact on quality of life, psychological state, fatigue, sleep, etc.; second, the role of exercise in cancer prevention and control and related mechanism research; third, related research on specific cancer types (such as breast cancer, lung cancer) or specific populations (such as ethnic minority groups, elderly overweight cancer survivors). There are many research papers on the impact of exercise intervention on cancer patients and the number of citations is generally high, which shows that this topic is a hot topic in current research and has received widespread attention. Because the quality of life and rehabilitation of cancer patients are important issues in clinical and research, and exercise intervention as a non-drug auxiliary treatment has great application potential, relevant research results are more likely to be cited and disseminated.

In summary, through the analysis of the 30 highly cited articles in Table 4 in the Appendix, we can understand the hot topics, important journals, research development trends and the influence characteristics of different documents in the field of cultural identity and psychological restoration of traditional physical exercises for ethnic minority cancer patients, which is of great reference value for further conducting related research, determining research directions and selecting publication journals.

4.4. Themes from selected documents

Table 5 summarizes the emerging research themes identified in the selected literature, integrating study aims, design types, fields of study, and newly developed conceptual directions.

Table 5. Emerging themes from selected documents.

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
1	Schmitz et al., 2010 [34]	American college of sports medicine roundtable on exercise guidelines for cancer survivors	Develop exercise guidelines for cancer survivors to optimize their health and well-being through appropriate exercise.	Consensus development	Oncology/ Rehabilitation Medicine	Exercise guidelines, cancer survivors, sports medicine in oncology
2	Mishra et al., 2012 [35]	Exercise interventions on health-related quality of life for people with cancer during active treatment	Evaluate the impact of exercise interventions on health-related quality of life in cancer patients undergoing active treatment.	Systematic review or meta-analysis	Oncology/ Psycho-oncology	Exercise interventions, cancer active treatment, health-related quality of life

Continuation Table:

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
3	Patel et al., 2019 [36]	American college of sports medicine roundtable report on physical activity, sedentary behavior, and cancer prevention and control	Examine the role of physical activity, sedentary behavior in cancer prevention and control, likely to provide evidence-based recommendations.	Comprehensive report	Oncology/ Epidemiology	Physical activity, sedentary behavior, cancer prevention and control
4	Stanton et al., 2007 [37]	Health psychology: psychological adjustment to chronic disease	Explore psychological adjustment processes in individuals with chronic diseases, with a focus on health psychology in the context of chronic illness	Theoretical or review	Health Psychology/ Psycho-oncology	Health psychology, chronic disease, psychological adjustment in cancer
5	Knols et al., 2005 [38]	Physical exercise in cancer patients during and after medical treatment: a systematic review of randomized and controlled clinical trials	Systematically review randomized and controlled clinical trials to assess the role of physical exercise in cancer patients during and after medical treatment.	Systematic review of randomized controlled trials (RCTs)	Oncology/ Rehabilitation Medicine	Physical exercise, cancer treatment and post-treatment, randomized controlled trials in oncology exercise
6	Morey et al., 2009 [39]	Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors renew: a randomized controlled trial	Assess effects of home-based diet and exercise on functional outcomes in older, overweight long-term cancer survivors	Randomized Controlled Trial (RCT)	Oncology/ Rehabilitation	Home-based interventions, cancer survivors, diet-exercise combined, functional outcomes
7	Hayes et al., 2019 [40]	The exercise and sports science Australia position statement: Exercise medicine in cancer management	Develop evidence-based position statement on exercise medicine's role in cancer management	Consensus/ Position Statement Development	Oncology/ Exercise Medicine	Exercise medicine, cancer management, position statement, sports science in oncology

Continuation Table:

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
8	Cramer et al., 2017 [41]	Yoga for improving health-related quality of life, mental health and cancer-related symptoms in women diagnosed with breast cancer	Evaluate yoga's impact on health-related quality of life, mental health, and cancer-related symptoms in breast cancer-diagnosed women	Clinical Trial	Oncology/ Psycho-oncology	Yoga, breast cancer, quality of life, mental health, cancer symptoms
9	Culos-Reed et al. 2006 [42]	A pilot study of yoga for breast cancer survivors: physical and psychological benefits	Pilot test yoga for breast cancer survivors to explore physical and psychological benefits	Pilot Randomized Controlled Trial (RCT)	Oncology/ Rehabilitation	Yoga, breast cancer survivors, pilot study, physical-psychological benefits
10	Hayes et al., 2009 [43]	Australian association for exercise and sport science position stand: Optimising cancer outcomes through exercise	Establish position stand on optimizing cancer outcomes via exercise (Australian context)	Consensus/ Position Statement	Oncology/ Exercise Science	Exercise, cancer outcomes, position stand, sports science in oncology
11	Bower et al., 2012 [44]	Yoga for persistent fatigue in breast cancer survivors a randomized controlled trial	Test yoga's effect on persistent fatigue in breast cancer survivors via RCT	Randomized Controlled Trial (RCT)	Oncology/ Rehabilitation	Yoga, breast cancer fatigue, randomized trial, survivorship care
12	Danhauer et al., 2009 [45]	Restorative yoga for women with breast cancer: Findings from a randomized pilot study	Report findings of randomized pilot study on restorative yoga for women with breast cancer	Pilot Randomized Controlled Trial	Oncology/ Psycho-oncology	Restorative yoga, breast cancer, pilot study, women-specific oncology care
13	Mustian et al., 2013 [46]	Multicenter, randomized controlled trial of yoga for sleep quality among cancer survivors	Evaluate yoga's impact on sleep quality in cancer survivors via multicenter RCT	Multicenter Randomized Controlled Trial	Oncology/ Rehabilitation	Yoga, cancer survivors, sleep quality, multicenter trial, oncology-related sleep
14	Wayne et al., 2018 [47]	Tai chi and qigong for cancer-related symptoms and quality of life: A systematic review and meta-analysis	Systematically review and meta-analyze evidence to determine effects of Tai Chi and Qigong on cancer-related symptoms and quality of life in cancer patients.	Systematic review and meta-analysis	Oncology/ Complementary Medicine	Tai Chi, Qigong, cancer-related symptoms, quality of life, meta-analysis

Continuation Table:

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
15	Oh et al., 2010 [48]	Impact of Medical Qigong on quality of life, fatigue, mood and inflammation in cancer patients: A randomized controlled trial	Investigate impact of Medical Qigong on quality of life, fatigue, mood, and inflammation in cancer patients via a randomized controlled trial.	Randomized Controlled Trial	Oncology/ Complementary Medicine	Medical Qigong, cancer patients, quality of life, inflammation, RCT
16	Oh et al., 2012 [49]	Effect of medical Qigong on cognitive function, quality of life, and a biomarker of inflammation in cancer patients: A randomized controlled trial	Evaluate effect of Medical Qigong on cognitive function, quality of life, and an inflammation biomarker in cancer patients using a randomized controlled trial.	Randomized Controlled Trial	Oncology/ Neuro-Oncology	Medical Qigong, cancer patients, cognitive function, inflammation biomarker, RCT
17	Cramer et al. 2012 [50]	Yoga for breast cancer patients and survivors: A systematic review and meta-analysis	Systematically review and meta-analyze evidence on Yoga's effects for breast cancer patients and survivors.	Systematic review and meta-analysis	Oncology/ Complementary Medicine	Yoga, breast cancer, patients/ survivors, systematic review, meta-analysis
18	Carson et al., 2007 [51]	Yoga for women with metastatic breast cancer: Results from a pilot study	Pilot test Yoga for women with metastatic breast cancer to explore feasibility and initial outcomes.	Pilot Study	Oncology/ Complementary Medicine	Yoga, metastatic breast cancer, pilot study, women-specific oncology
19	Avancini et al., 2020 [52]	Physical activity and exercise in lung cancer care: Will promises be fulfilled?	Examine role and potential of physical activity/exercise in lung cancer care, assessing if expected benefits (promises) are achieved.	Review/ Commentary	Oncology/ Exercise Medicine	Physical activity, exercise, lung cancer care, oncology-rehabilitation promises
20	Mishra et al., 2014 [53]	Are exercise programs effective for improving health-related quality of life among cancer survivors? A systematic review and meta-analysis	Systematically review and meta-analyze evidence on exercise programs' effectiveness for health-related quality of life in cancer survivors.	Systematic review and meta-analysis	Oncology/ Rehabilitation	Exercise programs, cancer survivors, quality of life, systematic review, meta-analysis

Continuation Table:

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
21	Smith and Pukall, 2009 [54]	An evidence-based review of yoga as a complementary intervention for patients with cancer	Provide an evidence-based assessment of Yoga as a complementary intervention for cancer patients	Evidence-based review	Oncology/ Complementary Medicine	Yoga, complementary intervention, cancer patients, evidence-based review
22	Wang and Zhou, 2021 [55]	Roles and molecular mechanisms of physical exercise in cancer prevention and treatment	Elucidate the roles and molecular mechanisms of physical exercise in cancer prevention and treatment	Review	Oncology/ Exercise Physiology	Physical exercise, cancer prevention and treatment, molecular mechanisms, roles
23	Chen et al., 2016 [56]	The effect of Tai Chi on four chronic conditions-cancer, osteoarthritis, heart failure and chronic obstructive pulmonary disease: a systematic review and meta-analyses	Systematically review and meta-analyze the effect of Tai Chi on cancer (among four chronic conditions)	Systematic review and meta-analysis	Oncology/ Complementary Medicine	Tai Chi, cancer, chronic conditions, systematic review and meta-analysis
24	Sprod et al., 2012 [57]	Health-related quality of life and biomarkers in breast cancer survivors participating in Tai Chi Chuan	Investigate health-related quality of life and biomarkers in breast cancer survivors participating in Tai Chi	Clinical study	Oncology/ Complementary Medicine	Tai Chi, breast cancer survivors, health-related quality of life, biomarkers
25	Zhu et al., 2016 [58]	Effects of exercise intervention in breast cancer survivors: A meta-analysis of 33 randomized controlled trails	Conduct a meta-analysis of randomized controlled trials to assess the effects of exercise intervention in breast cancer survivors	Meta-analysis of randomized controlled trials	Oncology/ Rehabilitation	Exercise intervention, breast cancer survivors, meta-analysis, randomized controlled trials
26	Campbell et al., 2020 [59]	The effect of exercise on cancer-related cognitive impairment and applications for physical therapy: systematic review of randomized controlled trials	Systematically review randomized controlled trials to determine the effect of exercise on cancer-related cognitive impairment and explore applications for physical therapy.	Systematic review of randomized controlled trials	Oncology/ Rehabilitation Medicine	Exercise, cancer-related cognitive impairment, physical therapy applications, randomized controlled trials

Continuation Table:

No.	Authors & Year	Title	Aim/Purpose	Study design	Field of study	New themes
27	Waller et al., 2009 [60]	Awareness of cancer symptoms and anticipated help seeking among ethnic minority groups in England	Investigate awareness of cancer symptoms and anticipated help-seeking behavior among ethnic minority groups in England.	Survey or observational study	Oncology/ Health Services Research	Cancer symptoms awareness, ethnic minority groups, help-seeking in cancer, England
28	DiStasio, 2008 [61]	Integrating yoga into cancer care	Explore strategies and considerations for integrating yoga into cancer care.	Review or conceptual paper	Oncology/ Complementary Medicine	Yoga, cancer care integration, complementary medicine in oncology
29	Ficarra et al., 2022 [62]	Impact of exercise interventions on physical fitness in breast cancer patients and survivors: A systematic review	Systematically review the impact of exercise interventions on physical fitness in breast cancer patients and survivors.	Systematic review	Oncology/ Rehabilitation Medicine	Exercise interventions, breast cancer patients and survivors, physical fitness, systematic review
30	Bouillet et al., 2015 [63]	Role of physical activity and sport in oncology scientific commission of the national federation sport and cancer CAMI	Define the role of physical activity and sport in oncology as per the National Federation Sport and Cancer CAMI scientific commission.	Commission-based position statement or review	Oncology/ Exercise Medicine	Physical activity, sport, oncology role, scientific commission

Each paper is presented in terms of author and year, title, research purpose, design, field, and new topics. The research fields are mainly concentrated in oncology and its related cross-fields, such as oncology/rehabilitation medicine, oncology/psycho-oncology, oncology/epidemiology, oncology/sports medicine, etc. This reflects the complexity and multidisciplinary nature of cancer research, which requires knowledge and methods from different fields to comprehensively and deeply study cancer-related issues. Among these cross-fields, the intersection between oncology and rehabilitation medicine and psycho-oncology is more prominent. Research in the field of oncology/rehabilitation medicine focuses on how to help cancer patients recover physical function through exercise intervention; research in the field of oncology/psycho-oncology focuses on the psychological adjustment and mental health of cancer patients. This intersection reflects the research trend of all-round care for cancer patients, which not only focuses on physical treatment, but also attaches importance to psychological and rehabilitation needs.

Most studies evaluate the effects of different interventions on cancer patients, such as the effects of exercise, yoga, and qigong on quality of life and mental health. In our research topic, traditional ethnic minority physical exercises such as wrestling

and archery can be speculated to have a positive effect on the psychological repair of ethnic minority cancer patients. For example, studies have shown that yoga can improve the mental health of female patients with breast cancer. Then, traditional ethnic minority physical exercises may play a greater role in psychological repair with their unique cultural connotations, because cultural identity may enhance patients' enthusiasm and sense of identity in participating in sports. Some studies have developed exercise guidelines for cancer survivors and position statements on sports medicine in cancer management. For ethnic minority cancer patients, we can learn from this approach and develop traditional physical exercise guidelines suitable for them, taking cultural identity factors into account, so that exercise is more in line with their cultural background and psychological needs. Some studies have explored the psychological adjustment process of patients with chronic diseases and the role of physical activity and sedentary behavior in cancer prevention and control. Among ethnic minority cancer patients, traditional physical exercise is not only physical activity, but also carries cultural identity, which may have a unique impact on their psychological adjustment and cancer recovery.

The common intervention measures, patient stages, health indicators and research methods in the new theme provide a framework for us to study traditional ethnic minority body movements. We can use traditional ethnic minority body movements as a unique intervention measure, focus on psychological recovery health indicators (such as psychological resilience, depression and anxiety levels) of ethnic minority cancer patients at different stages, use appropriate research methods (such as combining systematic reviews and clinical trials), and highlight the key factor of cultural identity.

5. Discussion

5.1. Academic characteristics and interdisciplinary attributes of research fields

This study revealed the core characteristics of the field of traditional physical exercise and psychological restoration for ethnic minority cancer patients through bibliometric analysis. The results showed that a total of 40 core papers were published in this field between 2005 and 2023, with a total citation of 8,768 times and an *h*-index of 35, indicating that the research has formed a certain academic influence and is in a stage of continuous development (*m*-index 1.84). This trend echoes the increasing global attention to culturally sensitive health interventions, confirming the research value of the dual dilemma of “disease stress + cultural identity crisis” for ethnic minority cancer patients [8,10].

From the perspective of the research team characteristics, each article involves an average of 6.72 authors, covering multidisciplinary backgrounds such as oncology, sports medicine, ethnology, and psychology, reflecting the strong dependence of this field on interdisciplinary cooperation. This interdisciplinary nature is highly matched with the complexity of the research object—the psychological restoration of ethnic minority cancer patients needs to consider multiple dimensions such as disease physiological mechanisms, cultural identity construction, and social support networks [15,18]. For example, the healing effects of traditional sports such as Mongolian wrestling involve both the physiological regulation of the hypothalamus-pituitary-adrenal axis and the cultural narrative carried by ethnic rituals [14]. It is difficult for a single discipline to fully explain its mechanism. However, the temporal fluctuations in research output are large (e.g., 6 articles were published in 2012 and only 1 article

was published in 2022), suggesting that the development of the field is significantly affected by factors such as funding and academic hotspot transfer. This instability may delay the maturity of culturally adaptive intervention models and needs to be improved by establishing a long-term research agenda.

5.2. Hotspot distribution of research topics and imbalance in cultural dimensions

The analysis of the literature topics shows that the existing research has obvious “focus on exercise forms” and “lack of cultural dimensions”. Yoga intervention (27.5%) and exercise guidelines (25%) dominate, while research on traditional physical exercises of ethnic minorities (such as wrestling and archery) has not formed a separate subject classification, but is simply classified as “traditional physical exercise”. This result is consistent with the conclusion of “lack of culturally adaptable intervention” in the literature review, reflecting the academic community’s neglect of unique exercise forms of ethnic minorities [8].

Highly cited literature further reveals the bias of research hotspots: Schmitz et al., [34]’s study on exercise guidelines for cancer survivors was cited 2024 times, and Mishra et al., [35]’s systematic review of exercise intervention and quality of life was cited 654 times. Both focused on universal exercise programs and did not involve cultural identity variables. In contrast, research on psychological and sociocultural dimensions accounted for only 12.5%, and most of them were macro-analyses (such as Waller et al.’s 2009 survey on cancer symptom cognition among ethnic minorities [60]), lacking a mechanism discussion on the “traditional exercise-cultural identity-psychological repair” path. This imbalance may make it difficult for intervention measures to cope with the dual dilemma of ethnic minority patients - for example, Mongolian patients who undergo chemotherapy not only need to relieve physical pain, but also need to rebuild cultural continuity interrupted by the disease through rituals such as wrestling [15].

It is worth noting that the proportion of research on traditional oriental sports such as Tai Chi and Qigong (12.5%) is on par with that of psychosocial research, suggesting that some culturally specific sports have entered the research field, but have not yet broken through the single evaluation framework of “improvement of physiological function”. There is insufficient discussion on how the cultural symbols they carry (such as the “yin and yang balance” philosophy in Tai Chi) affect patients’ sense of self-efficacy [16].

Ritualized traditional physical exercises differ from conventional exercise primarily through their symbolic structure and collective meaning, rather than through movement intensity alone. In activities such as traditional archery or wrestling, ceremonial elements pre-exercise blessings, collective chanting, costume symbolism, and narrative framing embed physical movement within a culturally meaningful context.

These ritual components may transform exercise from a health behavior into an identity-affirming practice, facilitating psychological restoration by reinforcing continuity, dignity, and belonging. In contrast, culturally neutral exercise interventions primarily target physiological or affective regulation without addressing identity disruption, which is particularly salient among ethnic minority cancer patients navigating culturally incongruent medical environments.

5.3. Research limitations and future directions

Although some studies have pointed out that cultural identity affects psychological repair through self-efficacy and social support [17,19], there is no

quantitative analysis of the activation effect of traditional sports on this path, such as how collective archery rituals strengthen ethnic belonging. Highly cited literature is mainly systematic reviews (accounting for 25%) and randomized controlled trials. There is a lack of qualitative research (such as ethnography) to capture the dynamic process of cultural practice, making it difficult to reveal the micro-experience of patients reconstructing cultural identity in sports.

Future research can be advanced from three aspects: (1) Focus on specific ethnic groups and forms of exercise: Conduct empirical research on sports such as Tibetan Yajia and Yi bullfighting, and compare the differences in the effects of exercise interventions under different cultural backgrounds; (2) Analyze the mediating effect of cultural identity: Use structural equation models to quantify the effect size of traditional sports on anxiety and depression symptoms through cultural identity, and clarify the dose relationship of “exercise intensity-identity intensity-psychological improvement”; (3) Integrate multiple research methods: Combine longitudinal tracking with in-depth interviews to evaluate changes in physiological indicators (such as cortisol levels) and record patients’ interpretation of the meaning of exercise rituals, such as how the blessing ritual before wrestling reshapes their disease cognition.

Recent experimental evidence further supports the psychological relevance of exercise-based interventions in oncology. For example, Koç et al., [64] demonstrated that structured exercise significantly improved psychological well-being among pediatric cancer patients, reinforcing the plausibility of exercise-mediated emotional restoration pathways [64]. While the intervention was not culturally specific, these findings lend empirical support to the proposed physiological-psychological-cultural framework and underscore the need to extend such models into culturally embedded exercise contexts.

6. Conclusion

Based on the synthesis of existing literature, ritualized traditional physical exercises may be understood as identity-affirming practices with potential relevance for the psychological rehabilitation of ethnic minority cancer patients. In terms of emotional regulation, physical exercise with cultural characteristics has been associated with reductions in anxiety and depression symptoms. Its mechanism of action is not only reflected in the physiological effects such as endorphin release brought by the exercise itself, but also strengthens the patient’s psychological sense of security through the awakening of cultural symbols. Compared with traditional psychological intervention, these exercises embed the treatment process into the cultural context, making it easier for patients to establish emotional catharsis channels in a familiar sense of ritual. This cultural embedded regulation model is particularly suitable for ethnic minority groups with language barriers or cultural adaptation difficulties.

Cultural identity plays a core role in the psychological repair process of ethnic minority cancer patients. When individuals face an identity crisis brought about by the disease, traditional physical exercise provides patients with a unique rehabilitation path by strengthening their sense of cultural belonging. Mongolian wrestling, Tibetan archery and other culturally distinctive physical activities, whose movement paradigms and ritual processes carry specific cosmological views and life philosophies, patients not only obtain physiological exercise in the process of participation, but also rebuild cultural connections with the ethnic group through

physical practice. This embodied cultural experience may help alleviate the cultural alienation that patients feel in the mainstream medical environment [65].

The psychological rehabilitation of ethnic minority cancer patients needs to be based on cultural sensitivity, and traditional sports such as wrestling and archery should be regarded as cultural resources that carry ethnic memory and identity, rather than simply physical intervention methods. Future research should focus on specific ethnic sports, quantify the mediating effect of cultural identity, and integrate multiple research methods to construct a “physiological-psychological-cultural” trinity intervention model to provide theoretical support and practical guidance for improving treatment compliance and quality of life of ethnic minority cancer patients, and promote the realization of health equity in a multicultural context.

Funding: None.

Ethical approval: Not applicabl.

Informed consent statement: Not applicable.

Conflict of interest: The authors declare no conflict of interest.

References

1. Gonzalez-Ling A, Galindo Vázquez O, Espinoza Bello M, et al. Quality of life, anxiety, depression, and distress in patients with advanced and metastatic lung cancer. *Palliative and Supportive Care*. 2022; 21(4): 608–615. doi: 10.1017/s147895152200116x
2. Kim JH, Paik HJ, Jung YJ, et al. A prospective longitudinal study about change of sleep, anxiety, depression, and quality of life in each step of breast cancer patients. *Oncology*. 2019; 97(4): 245–253. doi: 10.1159/000500724
3. Girgis A, Breen S, Stacey F, et al. Impact of two supportive care interventions on anxiety, depression, quality of life, and unmet needs in patients with nonlocalized breast and colorectal cancers. *Journal of Clinical Oncology*. 2009; 27(36): 6180–6190. doi: 10.1200/jco.2009.22.8718
4. Zhang Q, Wan R, Liu C. The impact of intense nursing care in improving anxiety, depression, and quality of life in patients with liver cancer. *Medicine*. 2020; 99(34): e21677. doi: 10.1097/md.00000000000021677
5. Bosman JT, Bood ZM, Scherer-Rath M, et al. The effects of art therapy on anxiety, depression, and quality of life in adults with cancer: A systematic literature review. *Supportive Care in Cancer*. 2020; 29(5): 2289–2298. doi: 10.1007/s00520-020-05869-0
6. Qan’ir Y, Song L. Systematic review of technology-based interventions to improve anxiety, depression, and health-related quality of life among patients with prostate cancer. *Psycho-Oncology*. 2019; 28(8): 1601–1613. doi: 10.1002/pon.5158
7. Bowen DJ, Singal R, Eng E, et al. Jewish identity and intentions to obtain breast cancer screening. *Cultural Diversity and Ethnic Minority Psychology*. 2003; 9(1): 79–87. doi: 10.1037/1099-9809.9.1.79
8. Ridge D, Pilkington K, Donovan S, et al. A meta-ethnography investigating relational influences on mental health and cancer-related health care interventions for racially minoritised people in the UK. *Plos One*. 2023; 18(5): e0284878. doi: 10.1371/journal.pone.0284878
9. Abu-Ghazaleh Mahajneh M, Zehavi A. The balancing act of minority cultural identity expression policy: Palestinian cultural struggles at the Israeli local government level. *International Journal of Cultural Policy*. 2021; 28(3): 290–305. doi: 10.1080/10286632.2021.1950702
10. Zhou L, Nutakor JA, Larnyo E, et al. Perceived discrimination as a mediator between cultural identity and mental health symptoms among racial/ethnic minority adults in the United States: insights from the Health Information National Trends Survey 6. *Frontiers in Psychology*. 2024; 15: 1233919. doi: 10.3389/fpsyg.2024.1233919
11. Liou KT, Garland SN, Meghani SH, et al. Racial differences in treatment adherence and response to acupuncture and cognitive behavioral therapy for insomnia among Black and White cancer survivors. *Cancer Medicine*. 2024; 13(16): e7344. doi: 10.1002/cam4.7344
12. Lee AW, Chang J, Siddiqui S, et al. Abstract B176: Are there disparities in adherence to treatment guidelines among Asian

- American ovarian cancer patients? *Cancer Epidemiology, Biomarkers & Prevention*. 2024; 33(9_Supplement): B176–B176. doi: 10.1158/1538-7755.disp24-b176
13. Vietze J, Juang LP, Schachner MK. Peer cultural socialisation: a resource for minority students' cultural identity, life satisfaction, and school values. *Intercultural Education*. 2019; 30(5): 579–598. doi: 10.1080/14675986.2019.1586213
14. Krist S. Shamanic Sports: Buryat Wrestling, Archery, and Horse Racing. *Religions*. 2019; 10(5): 306. doi: 10.3390/rel10050306
15. Imanbaev AA, Tursunbaev DK. Revival of kyrgyz, kazakh national sports games: present and future. *Вестник Иссык-Кульского университета*. 2025. pp. 69–74. doi: 10.69722/1694-8211-2025-60-69-74
16. Baumert J, Becker M, Jansen M, et al. Cultural identity and the academic, social, and psychological adjustment of adolescents with immigration background. *Journal of Youth and Adolescence*. 2023; 53(2): 294–315. doi: 10.1007/s10964-023-01853-z
17. Rafiei S, Souri S, Nejatifar Z, et al. The moderating role of self-efficacy in the relationship between occupational stress and mental health issues among nurses. *Scientific Reports*. 2024; 14(1): 15913. doi: 10.1038/s41598-024-66357-7
18. Blondé J, Falomir-Pichastor JM, Desrichard O. Unveiling the psychological mechanisms of mutual help groups for addiction recovery: The role of social identity factors. *British Journal of Social Psychology*. 2024; 63(4): 2011–2030. doi: 10.1111/bjso.12771
19. Rokiyah R, Zuanda N, Alrefi A, et al. The role of social support in substance addiction recovery: a systematic review. *Edusoshum : Journal of Islamic Education and Social Humanities*. 2024; 4(2): 213–222. doi: 10.52366/edusoshum.v4i2.112
20. Applebaum AJ, Buda K, Hoyt MA, et al. Feasibility and acceptability of cognitive behavioral therapy for insomnia (CBT-I) or acupuncture for insomnia and related distress among cancer caregivers. *Palliative and Supportive Care*. 2020; 18(6): 644–647. doi: 10.1017/s1478951520001017
21. Carson EK, Dhillon HM, Vardy JL, et al. Telehealth cognitive behaviour therapy for the management of sleep disturbance in women with early breast cancer receiving chemotherapy: a feasibility study. *Supportive Care in Cancer*. 2024; 32(6): 375. doi: 10.1007/s00520-024-08554-8
22. Lai J, Song H, Ren Y, et al. Effectiveness of supportive-expressive group therapy in women with breast cancer: A systematic review and meta-analysis. *Oncology Research and Treatment*. 2021; 44(5): 252–260. doi: 10.1159/000515756
23. Oberoi D, Martopullo C, Bultz BD, et al. The effectiveness of a men-only supportive expressive group therapy intervention for psychosocial health outcomes in gastrointestinal cancer patients: A 6-month longitudinal study. *Health and Quality of Life Outcomes*. 2021; 19(1): 47. doi: 10.1186/s12955-021-01687-y
24. Clara MI, Hegarty J, Van Straten A, et al. Cancer survivors' acceptability and perspectives on engagement with digital cognitive-behavioral therapy for insomnia: a mixed methods perspective. *Supportive Care in Cancer*. 2025; 33(6): 495. doi: 10.1007/s00520-025-09552-0
25. Morgan N, Irwin MR, Chung M, et al. The effects of mind-body therapies on the immune system: Meta-analysis. *Plos One*. 2014; 9(7): e100903. doi: 10.1371/journal.pone.0100903
26. Valdesalici A, Cerea S, Pecunioso A, et al. Promoting workplace psychological wellbeing through Yoga and Tai Chi classes in female university employees. *Frontiers in Psychology*. 2024; 15: 1502426. doi: 10.3389/fpsyg.2024.1502426
27. Kueh YC, Sabo A, Kim Y, et al. Cross-cultural validation of the decisional balance scale in exercise across countries. *Plos One*. 2021; 16(9): e0257511. doi: 10.1371/journal.pone.0257511
28. Montesó-Curto P, Toussaint L, Kueny A, et al. Physical activity and exercise experience in spanish and us men with fibromyalgia: A qualitative cross-cultural study. *International Journal of Environmental Research and Public Health*. 2023; 20(18): 6731. doi: 10.3390/ijerph20186731
29. Jacob LL, Sathiyaseelan A. Golden orator to tongue cancer survivor: A case study tracing identity transformation through religious coping. *Journal of Psychosocial Oncology Research and Practice*. 2025; 7(1): e167. doi: 10.1097/or9.0000000000000167
30. Teteh D, Ericson M, Monice S, et al. The Black identity, hair product use, and breast cancer scale. *Plos One*. 2019; 14(12): e0225305. doi: 10.1371/journal.pone.0225305
31. Garza RH, Williams MY, Ntiri SO, et al. Intersectionality impacts survivorship: identity-informed recommendations to improve the quality of life of african american breast cancer survivors in health promotion programming. *International Journal of Environmental Research and Public Health*. 2022; 19(19): 12807. doi: 10.3390/ijerph191912807
32. Delrieu L, Pialoux V, Pérol O, et al. Feasibility and health benefits of an individualized physical activity intervention

- in women with metastatic breast cancer: Intervention study. *JMIR mHealth and uHealth*. 2020; 8(1): e12306. doi: 10.2196/12306
33. Jones EC, Storksdieck M, Rangel ML. How social networks may influence cancer patients' situated identity and illness-related behaviors. *Frontiers in Public Health*. 2018; 6: 240. doi: 10.3389/fpubh.2018.00240
34. Schmitz KH, Courneya KS, Matthews C, et al. American college of sports medicine roundtable on exercise guidelines for cancer survivors. *Medicine & Science in Sports & Exercise*. 2010; 42(7): 1409–1426. doi: 10.1249/mss.0b013e3181e0c112
35. Mishra SI, Scherer RW, Snyder C, et al. Exercise interventions on health-related quality of life for people with cancer during active treatment. *Cochrane Database of Systematic Reviews*. 2012(8). doi: 10.1002/14651858.cd008465.pub2
36. Qian H. Psychological resilience development in international standard dancers: An intervention study based on mindfulness training. *Mindfulness*. 2026. doi:10.1007/s12671-025-02725-2.
37. Stanton AL, Revenson TA, Tennen H. Health psychology: psychological adjustment to chronic disease. *Annual Review of Psychology*. 2007; 58(1): 565–592. doi: 10.1146/annurev.psych.58.110405.085615
38. Knols R, Aaronson NK, Uebelhart D, et al. Physical exercise in cancer patients during and after medical treatment: A systematic review of randomized and controlled clinical trials. *Journal of Clinical Oncology*. 2005; 23(16): 3830–3842. doi: 10.1200/jco.2005.02.148
39. Morey MC, Snyder DC, Sloane R, et al. Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors. *Jama-Journal of the American Medical Association*. 2009; 301(18): 1883. doi: 10.1001/jama.2009.643
40. Hayes SC, Newton RU, Spence RR, et al. The exercise and sports science australia position statement: Exercise medicine in cancer management. *Journal of Science and Medicine in Sport*. 2019; 22(11): 1175–1199. doi: 10.1016/j.jsams.2019.05.003
41. Cramer H, Lauche R, Klose P, et al. Yoga for improving health-related quality of life, mental health and cancer-related symptoms in women diagnosed with breast cancer. *Cochrane Database of Systematic Reviews*. 2017; 2017(1). doi: 10.1002/14651858.cd010802.pub2
42. Nicole Culos-Reed S, Carlson LE, Daroux LM, et al. A pilot study of yoga for breast cancer survivors: Physical and psychological benefits. *Psycho-Oncology*. 2006; 15(10): 891–897. doi: 10.1002/pon.1021
43. Hayes SC, Spence RR, Galvão DA, et al. Australian association for exercise and sport science position stand: Optimising cancer outcomes through exercise. *Journal of Science and Medicine in Sport*. 2009; 12(4): 428–434. doi: 10.1016/j.jsams.2009.03.002
44. Bower JE, Garet D, Sternlieb B, et al. Yoga for persistent fatigue in breast cancer survivors. *Cancer*. 2011; 118(15): 3766–3775. doi: 10.1002/cncr.26702
45. Danhauer SC, Mihalko SL, Russell GB, et al. Restorative yoga for women with breast cancer: Findings from a randomized pilot study. *Psycho-Oncology*. 2009; 18(4): 360–368. doi: 10.1002/pon.1503
46. Mustian KM, Sprod LK, Janelins M, et al. Multicenter, randomized controlled trial of yoga for sleep quality among cancer survivors. *Journal of Clinical Oncology*. 2013; 31(26): 3233–3241. doi: 10.1200/jco.2012.43.7707
47. Wayne PM, Lee MS, Novakowski J, et al. Tai Chi and Qigong for cancer-related symptoms and quality of life: A systematic review and meta-analysis. *Journal of Cancer Survivorship*. 2017; 12(2): 256–267. doi: 10.1007/s11764-017-0665-5
48. Oh B, Butow P, Mullan B, et al. Impact of medical qigong on quality of life, fatigue, mood and inflammation in cancer patients: a randomized controlled trial. *Annals of Oncology*. 2010; 21(3): 608–614. doi: 10.1093/annonc/mdp479
49. Oh B, Butow PN, Mullan BA, et al. Effect of medical Qigong on cognitive function, quality of life, and a biomarker of inflammation in cancer patients: a randomized controlled trial. *Supportive Care in Cancer*. 2011; 20(6): 1235–1242. doi: 10.1007/s00520-011-1209-6
50. Cramer H, Lange S, Klose P, et al. Yoga for breast cancer patients and survivors: A systematic review and meta-analysis. *BMC Cancer*. 2012; 12(1): 412. doi: 10.1186/1471-2407-12-412
51. Carson JW, Carson KM, Porter LS, et al. Yoga for women with metastatic breast cancer: Results from a pilot study. *Journal of Pain and Symptom Management*. 2007; 33(3): 331–341. doi: 10.1016/j.jpainsymman.2006.08.009
52. Avancini A, Sartori G, Gkoutakos A, et al. Physical activity and exercise in lung cancer care: Will promises be fulfilled? *The Oncologist*. 2019; 25(3): e555–e569. doi: 10.1634/theoncologist.2019-0463
53. Mishra SI, Scherer RW, Snyder C, et al. Are exercise programs effective for improving health-related quality of life among cancer survivors? A systematic review and meta-analysis. *Oncology Nursing Forum*. 2014; 41(6): E326–E342. doi:

- 10.1188/14.onf.e326-e342
54. Smith KB, Pukall CF. An evidence-based review of yoga as a complementary intervention for patients with cancer. *Psycho-Oncology*. 2008; 18(5): 465–475. doi: 10.1002/pon.1411
 55. Wang Q, Zhou W. Roles and molecular mechanisms of physical exercise in cancer prevention and treatment. *Journal of Sport and Health Science*. 2021; 10(2): 201–210. doi: 10.1016/j.jshs.2020.07.008
 56. Chen YW, Hunt MA, Campbell KL, et al. The effect of Tai Chi on four chronic conditions—cancer, osteoarthritis, heart failure and chronic obstructive pulmonary disease: A systematic review and meta-analyses. *British Journal of Sports Medicine*. 2015; 50(7): 397–407. doi: 10.1136/bjsports-2014-094388
 57. Sprod LK, Janelins MC, Palesh OG, et al. Health-related quality of life and biomarkers in breast cancer survivors participating in tai chi chuan. *Journal of Cancer Survivorship*. 2011; 6(2): 146–154. doi: 10.1007/s11764-011-0205-7
 58. Zhu G, Zhang X, Wang Y, et al. Effects of exercise intervention in breast cancer survivors: A meta-analysis of 33 randomized controlled trials. *OncoTargets and Therapy*. 2016. pp. 2153. doi: 10.2147/ott.s97864
 59. Campbell KL, Zdravec K, Bland KA, et al. The effect of exercise on cancer-related cognitive impairment and applications for physical therapy: Systematic review of randomized controlled trials. *Physical Therapy*. 2020; 100(3): 523–542. doi: 10.1093/ptj/pzz090
 60. Waller J, Robb K, Stubbings S, et al. Awareness of cancer symptoms and anticipated help seeking among ethnic minority groups in England. *British Journal of Cancer*. 2009; 101(S2): S24–S30. doi: 10.1038/sj.bjc.6605387
 61. DiStasio SA. Integrating yoga into cancer care. *Clinical Journal of Oncology Nursing*. 2008; 12(1): 125–130. doi: 10.1188/08.cjon.125-130
 62. Ficarra S, Thomas E, Bianco A, et al. Impact of exercise interventions on physical fitness in breast cancer patients and survivors: a systematic review. *Breast Cancer*. 2022; 29(3): 402–418. doi: 10.1007/s12282-022-01347-z
 63. Bouillet T, Bigard X, Brami C, et al. Role of physical activity and sport in oncology. *Critical Reviews in Oncology/Hematology*. 2015; 94(1): 74–86. doi: 10.1016/j.critrevonc.2014.12.012
 64. Koç K, Arslan T, Pepe O, et al. Impact of exercise on psychological well-being in patients with pediatric cancer: An experimental study. *Children*. 2025; 12(4): 404. doi: 10.3390/children12040404
 65. Cao L, Wang Z, Wang X, et al. Effectiveness of traditional chinese medicine in psychological rehabilitation after lung cancer surgery: Systematic review and meta-analysis protocol. *Integrative Cancer Therapies*. 2025; 24: 15347354251313533. doi: 10.1177/15347354251313533