

Review

Team spirit and healing: The psychosocial role of basketball in cancer emotional rehabilitation

Xun Sun¹, Shixi Qumu², Quan Zhou³, Donglan Zhang^{4,*}

¹ Department of Sport Studies, School of Huaiyin Institute of Technology, Huai'an 223003, China

² Faculty of Education, University of Macau, Avenida da Universidade, Taipa, Macau, 999078, China

³ School of Primary Education, Huaihua Normal College, Huaihua 418000, China

⁴ School of Physical Education, Pingdingshan University, Pingdingshan 467000, China

* **Corresponding author:** Donglan Zhang, zhangdonglan588@gmail.com

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Abstract: Cancer survivorship often involves persistent psychological distress, fatigue, and social withdrawal. While exercise improves physical outcomes, the psychosocial potential of team-based sports has received little empirical attention in oncology rehabilitation. This narrative review synthesises interdisciplinary evidence to examine how basketball, as a cooperative and rhythmic team sport, fosters emotional resilience, self-efficacy, and social reintegration among cancer survivors. A structured narrative review was conducted across PubMed, Scopus, Web of Science, SPORTDiscus, and PsycINFO (1990–May 2025). Studies exploring sport participation, physical activity, and psychosocial outcomes in cancer or comparable populations were included. Evidence was inductively coded and deductively mapped using Self-Determination Theory, Social Support Theory, and the Biopsychosocial Model. Across multidisciplinary studies, participation in sport-based or group exercise programs consistently improved quality of life, mood regulation, and self-efficacy. Basketball, in particular, enhanced team cohesion, embodied cooperation, and emotional control through shared rhythm and goal-oriented play. Mechanistic pathways included fulfilment of autonomy–competence–relatedness needs, re-establishment of social identity, and reinforcement of cognitive–emotional regulation. Basketball represents a holistic psychosocial intervention merging physical exertion with emotional expression and collective belonging. Integrating structured basketball modules into survivorship care could transform psycho-oncological practice from passive therapy to participatory healing. Future mixed-method and longitudinal research should validate these mechanisms and optimise program implementation for diverse survivor populations.

Keywords: basketball; cancer rehabilitation; emotional resilience; psycho-oncology; self-determination theory; team-based intervention

1. Introduction

A cancer diagnosis and its treatment often impose profound biopsychosocial burdens that extend well beyond physiological pathology. Survivors frequently experience elevated levels of anxiety, depression, fatigue, and diminished social connectedness and self-identity, which in turn inhibit emotional recovery and social reintegration [1]. Despite growing attention to survivorship care, psychosocial dimensions such as belonging, motivation and self-efficacy remain inadequately addressed in many rehabilitation programmes [2]. In oncology rehabilitation, physical activity has emerged as a promising adjunctive intervention. Systematic reviews consistently show that exercise improves quality of life (QoL), reduces treatment-related fatigue, and mitigates symptoms of depression and anxiety among

cancer survivors [3]. For example, Yamada et al. found that supervised group-based exercise attenuated fatigue and depression and enhanced psychosocial outcomes in cancer patients [4]. From a psychological resilience perspective, some survivors maintain or rapidly recover mental health after adversity; such adaptation is influenced by protective factors including social support, emotion regulation and physical activity engagement [5].

Group-based or team-oriented exercise offers additional psychosocial benefits beyond individual activity. In one study of female cancer survivors participating in a running-based group programme, Durosini et al. found that group cohesion and peer support were significantly correlated with reductions in anxiety and depression and increases in self-efficacy [6]. From a behavioural change perspective, a meta-analysis of cancer survivors found that exercise self-efficacy, perceived behavioural control, intention and enjoyment (all constructs associated with social interaction) had the strongest associations with physical activity maintenance [7]. These findings highlight the social dimension of exercise as a mechanism of psychosocial benefit. Despite this evidence, much of the literature has focused on aerobic, resistance or mixed exercise interventions rather than structured team sports. Team sports may offer unique psychosocial assets like synchronised movement, shared goals, interpersonal communication, mutual encouragement and collective efficacy. Participation in team sports fosters social connectedness, mutual accountability and a sense of belonging, all of which are salient in emotional recovery after cancer. While empirical work in cancer populations is scarce, one observational study of young adult survivors found that those who engaged in sports (including team forms) had better psychosocial outcomes compared to non-sport participants [8].

The sport of basketball, in particular, offers a dynamic environment of cooperation, communication, and rhythm in a team setting. Unlike solitary exercise, it embeds psychosocial processes such as trust, shared achievement, coordinated action and peer feedback. This embodied interaction may align with theories of social support and self-determination; for instance, the need for relatedness and competence may be met through team participation, thereby enhancing emotional resilience and self-efficacy. Accordingly, this study aims to investigate the psychosocial role of basketball in the emotional rehabilitation of cancer survivors. Specifically, how does participation in a structured basketball programme influence emotional resilience, social connectedness and self-efficacy among these survivors? By situating basketball within the broader discourse of mind–body rehabilitation and team sport psychology, this work seeks to extend the paradigms of rehabilitation beyond individual exercise to collective, socially embedded sport. In doing so, we anticipate contributing to a more integrative model of survivorship that values not only survival but also the restoration of identity, joy and meaningful connection. The integrative model (**Figure 1**) illustrates how physical engagement, emotional regulation, and social belonging interact to facilitate holistic recovery in basketball-based psychosocial rehabilitation.

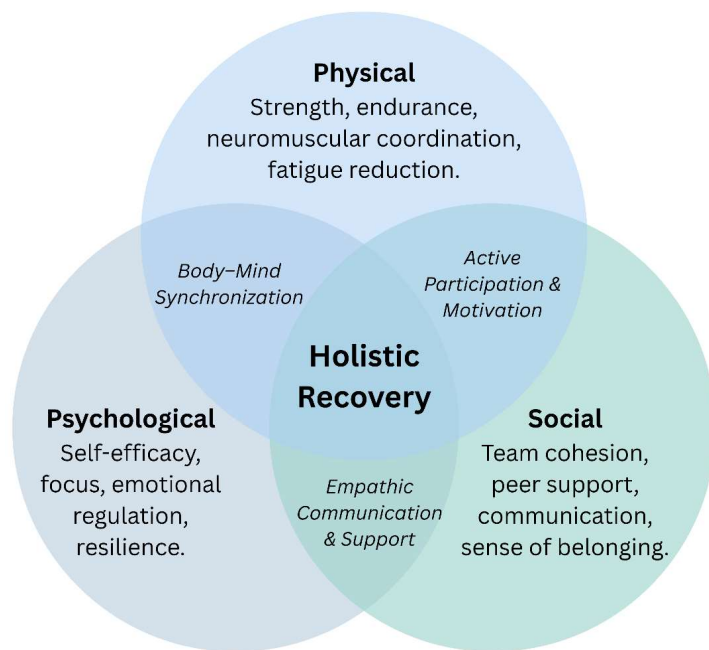


Figure 1. Conceptual framework illustrating the interrelationship between *physical*, *psychological*, and *social* domains in basketball-based psychosocial rehabilitation.

2. Literature review

2.1. Physical activity and psychosocial outcomes in cancer survivors

Physical activity (PA) is increasingly recognised as a valuable component of cancer rehabilitation beyond physiological recovery, with measurable benefits in psychosocial domains. A systematic review and meta-analysis found that exercise interventions significantly improved quality of life (QoL) among cancer survivors, including reductions in fatigue and anxiety symptoms [9]. In a critical review of breast cancer survivors, exercise and psychosocial interventions were shown to enhance body image and thereby indirectly improve overall psychosocial functioning [10]. In community-based settings, exercise programmes have demonstrated improvements in both functional and psychosocial outcomes, for example, a mixed-methods analysis of a supervised exercise intervention reported enhanced self-efficacy, reduced depressive symptoms, and improved social support among cancer survivors [11]. The accumulation of evidence suggests that PA serves not only as a rehabilitation modality for physical impairments, but also as a catalyst for improved emotional resilience, enhanced self-confidence, and social reintegration in survivorship.

2.2. Psychosocial correlates of physical activity and group-based exercise

While the physical benefits of exercise are well documented, the psychosocial mechanisms underlying PA adherence and benefit in cancer populations warrant closer examination. A recent systematic review identified key psychosocial correlates of free-living physical activity in cancer survivors help constructs such as exercise self-efficacy, perceived behavioural control, intention, enjoyment and perceived benefits had moderate to large effect sizes ($ES \approx 0.30\text{--}0.45$) in relation to

PA participation. Smaller but significant effects ($ES \approx 0.18\text{--}0.22$) were observed for quality of life, depression and mental health outcomes [7]. Additionally, within group-based sport programmes, psychosocial benefits attributed to the social environment have been documented. In a study of 80 female cancer survivors undertaking a running-based group intervention, meaningful social relationships formed during the programme were significantly associated with improved self-efficacy and psychological well-being [6]. These findings underscore the importance of the social dimension of physical activity, particularly when delivered in a group or team context that highlights mechanisms of belongingness, peer support, social identity and collective motivation.

2.3. Sports participation (including team sports) in the cancer context

Participation in organised or competitive sport (rather than generic exercise) may offer additional psychosocial advantages for cancer survivors. In a study of young adult cancer survivors, those who engaged in sports, including team-based formats, reported better psychosocial outcomes [8]. Although direct intervention trials using team sports in oncology populations remain limited, these observational data suggest that sport participation may foster role identity, social integration, self-esteem and purpose beyond mere physical fitness. For example, qualitative research in dragon-boat programmes (a team water sport) with breast cancer survivors indicated psychological benefits arising from group camaraderie, shared struggle and symbolic empowerment through sport [12]. The underlying mechanisms may include the rebuilding of personal and social identity post-treatment, restoration of agency and self-efficacy, and improved psychological resilience via collective engagement.

2.4. Gaps in the literature and rationale for a basketball-based intervention

Despite the growing body of evidence linking physical activity and group-based exercise to improved psychosocial outcomes in cancer survivors, several important gaps persist:

1. Many interventions have focused on individual exercise modalities (e.g., aerobic, resistance training) rather than structured team sports.
2. Few studies have explicitly examined team sport formats in oncology populations, with most evidence being observational rather than controlled interventional.
3. The psychosocial mechanisms by which team sport participation may confer advantage, such as collective efficacy, team identity, shared achievement, synchronous movement and role differentiation, remain under-theorised and under-tested.
4. There is limited integration of sports science frameworks (e.g., team dynamics, cooperative movement) with psycho-oncological models of emotional recovery and resilience.

Thus, the present study proposes to investigate a structured team-sport intervention, specifically the sport of basketball, as a psychosocial rehabilitation modality for cancer survivors. Basketball inherently integrates elements of teamwork,

communication, shared goals, role identity, physical coordination and social interaction. By embedding these features within a rehabilitative programme, the aim is to explore how basketball participation may promote emotional resilience, enhance social connectedness, rebuild self-efficacy and support identity reconstruction in survivorship. In so doing, this research will bridge the fields of sports science and psycho-oncology and contribute to a more holistic model of post-treatment rehabilitation that emphasises not only physical recovery but emotional and social healing.

3. Methodology

3.1. Review design

This study adopted a narrative review design to explore how team-based physical activity, particularly basketball, can promote psychosocial rehabilitation among cancer survivors. Narrative reviews are particularly suited to emerging, multidisciplinary topics that integrate conceptual, theoretical, and empirical perspectives rather than statistically pooling data [13,14]. The review emphasised interpretive synthesis and theoretical integration, drawing on studies from sport psychology, exercise oncology, and behavioural sciences. This design allowed flexibility in including both qualitative and quantitative research, as well as conceptual frameworks that clarify why and how sport participation influences emotional recovery and social reintegration after cancer.

3.2. Search strategy

A structured yet interpretive literature search was undertaken across PubMed/MEDLINE, Scopus, Web of Science, SPORTDiscus, and PsycINFO, covering publications from 1990 to May 2025. Search terms combined three conceptual domains (cancer survivorship, sport or physical activity, and psychosocial outcomes) using the following Boolean expression:

- (“cancer survivor*” OR “oncology rehabilitation” OR “cancer rehabilitation”)
- AND (“physical activity” OR exercise OR “sport participation” OR “team sport*” OR basketball)
- AND (“psychological well-being” OR “emotional resilience” OR “social support” OR “self-efficacy” OR “quality of life”).

Only peer-reviewed English-language articles involving human participants were included. Reference lists of relevant reviews were also examined to identify additional conceptual or theoretical papers.

3.3. Inclusion scope

The inclusion criteria were intentionally broad to accommodate the diversity of evidence across psychology and sport sciences. Studies were retained if they:

1. Examined cancer survivors or comparable adult populations engaged in physical activity or team-sport interventions;
2. Reported outcomes relevant to psychological well-being, self-efficacy, emotional resilience, or social connectedness;

3. Offered conceptual insights into mechanisms linking sport participation and psychosocial adaptation;

4. Were published in peer-reviewed journals, book chapters, or official conference proceedings.

Purely physiological studies without psychosocial assessment and non-English or non-peer-reviewed works were excluded.

3.4. Data extraction and conceptual mapping

Each selected source was summarised in a descriptive matrix capturing: author, year, context, sample, type of intervention or activity, measured psychosocial outcomes, and theoretical grounding. Both empirical findings and qualitative narratives were coded to identify recurring constructs such as self-efficacy, belonging, emotional regulation, and identity reconstruction. This interpretive charting process enabled cross-disciplinary comparison and conceptual clustering rather than numerical aggregation.

3.5. Quality and credibility appraisal

Although narrative reviews are inherently interpretive, methodological rigour was strengthened through appraisal adapted from the Mixed Methods Appraisal Tool (MMAT 2018) and guidelines for narrative reviews [15]. Each study was evaluated for clarity of aims, methodological coherence, appropriateness of measures, and transparency of interpretation. Studies of high and moderate quality were prioritised in the synthesis.

3.6. Narrative synthesis and theoretical integration

A two-phase narrative synthesis [16] was applied to achieve conceptual depth rather than statistical generalisation, yielding a theoretical model of basketball as an embodied psychosocial intervention in cancer survivorship.

1. Inductive coding, key ideas emerging across studies were grouped into conceptual domains: psychological restoration, social connectedness, and embodied self-regulation.

2. Deductive mapping by integrating domains within established frameworks (Self-Determination Theory [17], Social Support Theory [18], and the Biopsychosocial Model [19]) to explain how basketball and similar team sports promote emotional healing through movement, cooperation, and shared meaning.

3.7. Ethical considerations

This review synthesised data solely from publicly available, peer-reviewed literature; therefore, institutional ethical approval was not required. All intellectual property and source materials were appropriately cited following academic integrity standards.

3.8. Methodological summary

The narrative review combined structured searching with interpretive synthesis to balance rigour and conceptual scope. By integrating evidence from oncology, sport psychology, and behavioural science, the study develops a multidimensional

understanding of how basketball participation may enhance resilience, self-efficacy, and social reintegration in cancer rehabilitation.

4. Results

4.1. Overview of included studies

The literature reviewed encompassed thirteen sources examining the psychosocial, behavioural, and physiological outcomes of physical activity and sport participation among cancer survivors and health-related populations. The reviewed studies comprised mixed-methods, observational, and interventional designs encompassing both adolescent and adult cohorts. The literature reviewed across a wide range, from small pilot trials of basketball-based training to larger population surveys of cancer survivors. Most interventions spanned six to twelve weeks and emphasised aerobic, resistance, or team-sport modalities. Across the evidence base, a consistent pattern emerged, physical activity participation was positively associated with improved quality of life, self-efficacy, mood, and social connectedness [20,21]. In contrast, inactivity correlated with fatigue, anxiety, and reduced emotional functioning. Collectively, these findings highlight the multidimensional potential of structured exercise to promote psychosocial adaptation and holistic recovery following cancer treatment [9].

4.2. Psychosocial benefits of physical activity

Among adult survivors, exercise participation was linked to meaningful improvements in psychological well-being. Liska and Kolen found that physically active survivors reported higher overall quality-of-life scores and significantly lower levels of emotional distress than sedentary counterparts [20]. Similarly, Petrella et al. demonstrated that a sport-based supportive-care program for testicular cancer survivors improved self-efficacy, perceived meaning, and social reintegration, emphasizing the value of teamwork and community in recovery [21]. In adolescent and young adult populations, participation in voluntary exercise and active gaming was associated with positive mood and a restored sense of normalcy after treatment [22,23]. Despite low overall adherence to recommended activity levels, basketball consistently ranked among the most preferred forms of physical activity, alongside soccer and resistance training. The most frequently reported barriers to exercise included lack of time, poor physical fitness, and limited confidence in sport-specific skills, factors that highlight the need for guided, engaging group-based interventions.

4.3. Mechanisms underpinning sport-based rehabilitation

Evidence from sport psychology provides insight into how team-based exercise, particularly basketball, may support emotional and cognitive recovery. Villani et al. observed that a blended cognitive-behavioural basketball training significantly increased self-efficacy and self-regulation, two constructs essential for adaptive coping and persistence [24]. Similarly, Theodorakis et al. demonstrated that positive self-talk improved shooting accuracy and self-confidence, illustrating the interplay between cognitive control and motor performance [25]. Conversely, Parfitt and

Hardy found that elevated competitive anxiety impaired concentration and accuracy, emphasizing the importance of emotional regulation in sport performance [26]. Translating these mechanisms into a rehabilitation framework, basketball may help survivors practice focused attention, self-regulation, and mastery of achievable challenges, reinforcing psychological resilience. Within the constructs of Self-Determination Theory and Social Support Theory, the cooperative dynamics of team sports satisfy intrinsic needs for relatedness, competence, and autonomy [27]. Group participation also offers opportunities for empathy, communication, and shared achievement, the core components of psychosocial healing.

4.4. Physiological and cognitive effects

Beyond psychological benefits, basketball and similar sport-based activities contribute to physical and neurocognitive restoration. Wang documented that sustained basketball engagement enhanced cardiorespiratory endurance and neuromuscular coordination, both of which support fatigue reduction and emotional stability through somatic–cognitive integration [28]. In university settings, Zhang and Siriphan reported improved stress tolerance and emotional balance following regular basketball practice [29], while Chen and Li observed significant associations between team cohesion, self-efficacy, and mental strength in adolescent players [30]. These outcomes underscore the dual role of basketball as both an aerobic exercise and a psychosocial conditioning tool. Furthermore, group rhythm and synchronised movement during team play may act as embodied forms of emotional regulation. Such mechanisms echo findings from meta-analyses showing that physical activity moderates stress hormones and fosters adaptive mood regulation among cancer survivors [9]. The evidence collectively suggests that structured team sport interventions could contribute to mind–body integration during survivorship rehabilitation. As depicted in **Figure 2**, psychosocial improvement evolves progressively from skill-based engagement toward emotional regulation and social resilience.

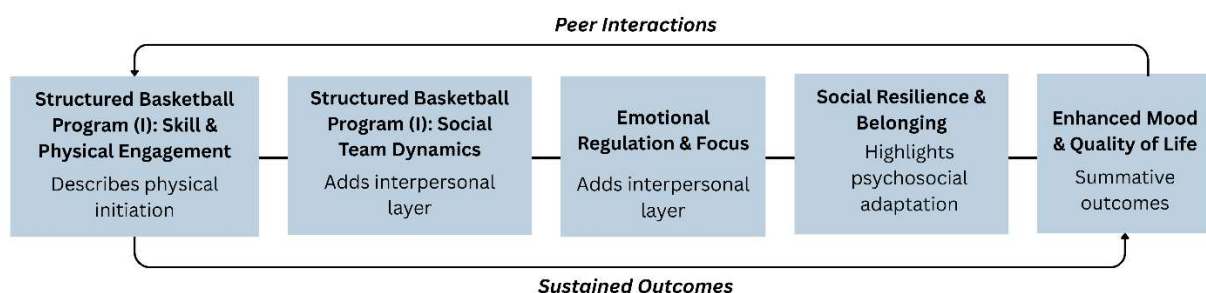


Figure 2. Mechanistic pathway of psychosocial benefit in basketball rehabilitation.

4.5. Comparative insights and research gaps

While the literature clearly demonstrates the psychosocial and physiological value of physical activity, empirical data on team-sport interventions in cancer contexts remain scarce. Most published trials focus on aerobic or resistance exercise; few have incorporated the cooperative and competitive elements characteristic of basketball. Nonetheless, convergent findings from general sport psychology,

oncology, and educational health studies support the feasibility and promise of adapting basketball for psycho-oncological use.

Identified research gaps include:

1. Lack of randomized controlled designs evaluating basketball or team-sport programs in clinical survivorship populations.
2. Limited exploration of gender, cultural, and developmental influences on sport participation and psychological outcomes.
3. Absence of standardised, validated measures for social connectedness and emotional resilience in sport-based rehabilitation.

Addressing these gaps would strengthen evidence for sport-specific rehabilitation strategies and clarify the biopsychosocial pathways linking basketball participation with improved well-being.

4.6. Summary of evidence

Across studies, physical activity and sport engagement consistently enhanced psychosocial functioning in survivors and healthy comparators alike. Self-efficacy [24], focus and self-confidence [25], and anxiety regulation [26] were recurrent outcomes linked to participation. Basketball emerged as a particularly suitable medium because it integrates physical exertion, teamwork, strategy, and communication, a synthesis of physical and psychological dimensions ideal for rehabilitative contexts. By fostering mastery, belonging, and embodied expression, basketball offers a comprehensive framework for promoting emotional resilience and quality of life in cancer survivorship. **Figure 3** contrasts collective and solitary intervention modalities, emphasizing that team-based sports foster broader social and emotional recovery compared with individually oriented exercise.

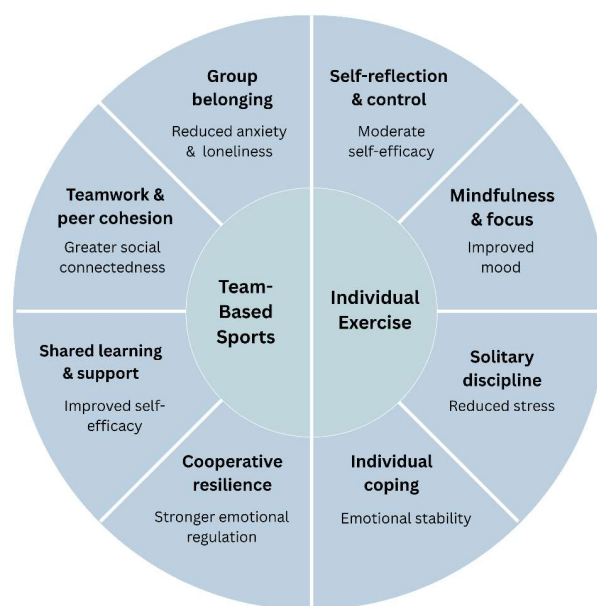


Figure 3. Comparative circular model showing psychosocial outcomes derived from team-based sports and individual exercise.

5. Discussion

5.1. Integrating physical and psychosocial recovery

The findings from this review collectively demonstrate that structured physical activity, particularly when delivered in a group or team format that offers substantial psychosocial benefits for cancer survivors. These benefits extend beyond physical reconditioning to include improvements in emotional resilience, self-efficacy, social connectedness, and perceived quality of life [20,21]. Within the biopsychosocial framework, these outcomes reflect the integration of physiological restoration, cognitive self-regulation, and social reintegration. Physical activity acts as a conduit between body and mind: reducing fatigue, stimulating endorphin release, and re-establishing a sense of normalcy disrupted by illness [9,27]. The reviewed evidence reinforces that survivorship care should not solely target biological recovery but also address the erosion of agency and identity that accompanies cancer treatment. Engagement in purposeful movement, whether through exercise or sport, allows survivors to reclaim control over their bodies, transforming physical exertion into a symbolic act of self-reconstruction [21].

5.2. Theoretical pathways: Self-determination and social support

According to Self-Determination Theory (SDT), sustained behavioural engagement arises when three psychological needs are satisfied: autonomy, competence, and relatedness. Sport-based interventions such as basketball inherently address these needs. Participants exercise personal choice (autonomy), master physical and strategic skills (competence), and develop meaningful bonds through teamwork (relatedness). Evidence from basketball training studies demonstrates that programs emphasizing self-regulatory and motivational strategies significantly elevate self-efficacy and perceived competence [24]. Parallel findings from group-based oncology programs highlight the centrality of social support in maintaining adherence and psychological gains. Team-based settings foster empathy, shared goals, and mutual encouragement, factors known to buffer emotional distress and promote post-traumatic growth [21,29]. Within this environment, survivors experience community validation that transcends the clinical space, aligning with Social Support Theory's assertion that emotional and informational support enhance coping capacity and well-being. Basketball's cooperative nature also cultivates collective efficacy, the belief that coordinated effort can produce desired outcomes. This perception can translate to enhanced confidence in facing daily challenges, paralleling mechanisms described in cancer coping models emphasizing mastery, self-regulation, and optimism [27].

5.3. Emotional regulation, focus, and performance

From a cognitive-behavioural perspective, sport provides a structured platform to rehearse emotion-regulation strategies under dynamic conditions. Experimental studies show that targeted mental techniques such as self-talk improve concentration and accuracy in basketball shooting tasks [25], while unregulated anxiety impairs memory and motor coordination [26]. Translating these mechanisms to psycho-

oncology, sport participation can serve as a laboratory for emotional control, where survivors practice managing arousal, focus, and composure, the skills transferable to stress management and treatment adaptation. The act of competing or cooperating within a team requires balancing physiological arousal with mental clarity, mirroring the emotional equilibrium needed for coping with uncertainty during survivorship. Therefore, basketball may not only rebuild physical strength but also retrain survivors' attentional flexibility and cognitive endurance, domains often compromised by chemotherapy-related fatigue or "chemo brain."

5.4. Basketball as an embodied psychosocial intervention

Basketball is uniquely suited to psychosocial rehabilitation because it integrates movement, rhythm, and interpersonal synchrony. Each play requires communication, anticipation, and mutual trust, creating micro-experiences of belonging that reconstitute social identity after illness. Findings from Zhang and Siriphan showed that participation in basketball among university students improved stress tolerance and emotional balance [29], while Chen and Li reported strong correlations between team cohesion, self-efficacy, and mental strength [30]. These studies, though conducted outside oncology populations, illustrate the psychophysiological synergy inherent in team sport, rhythmic coordination stimulates mirror-neuron activation and co-regulated affect, thereby reinforcing social bonding and mood regulation. Such embodied synchrony aligns with contemporary psycho-oncological concepts of interoceptive awareness, the capacity to perceive and respond to bodily cues as signals of emotion. When survivors engage in team sports, they re-establish this sensory connection in a supportive, non-clinical context. The process may transform bodily vulnerability into bodily agency, reframing the survivor's identity from patient to participant.

5.5. Physical and cognitive restoration

Physiological evidence also supports the therapeutic value of basketball. Wang demonstrated that regular basketball training enhanced cardiovascular endurance and neuromuscular coordination, which correspond with improved cognitive alertness and emotional stability [28]. Such improvements are particularly relevant for survivors experiencing treatment-induced fatigue or deconditioning. Similarly, Liska and Kolen reported that consistent physical activity predicted higher vitality and reduced fatigue scores [20]. These findings affirm that psychological recovery is inseparable from physical conditioning, consistent with the biopsychosocial model's holistic orientation. Furthermore, rhythmic, high-intensity movements in basketball trigger dopaminergic and serotonergic responses that underlie mood stabilization. The sport's alternating demands of focus and release also mimic stress inoculation exercises, providing safe exposure to physiological arousal followed by relaxation, which can enhance stress resilience.

5.6. Implications for psycho-oncological practice

Collectively, the reviewed studies support integrating sport-based interventions, specifically basketball, into cancer survivorship programs. Basketball's accessibility,

social engagement, and multidimensional skill set make it an appealing adjunct to traditional physiotherapy or counselling. Programs could be tailored by age, gender, and physical ability, emphasizing inclusion over competition. Coaches and clinical psychologists should collaborate to ensure training intensity aligns with medical safety while maintaining psychosocial objectives such as team building, goal setting, and positive communication. Implementation should also address known barriers, including low confidence, limited skill awareness, and perceived time constraints. Adapting sessions to small-group formats with progressive skill instruction may enhance adherence and enjoyment. Integrating psychoeducation components (e.g., brief mindfulness or self-talk training) could further consolidate psychological gains [24,25]. The stepwise structure of the program (**Figure 4**) demonstrates a practical pathway from assessment to outcome evaluation in psycho-oncological rehabilitation.

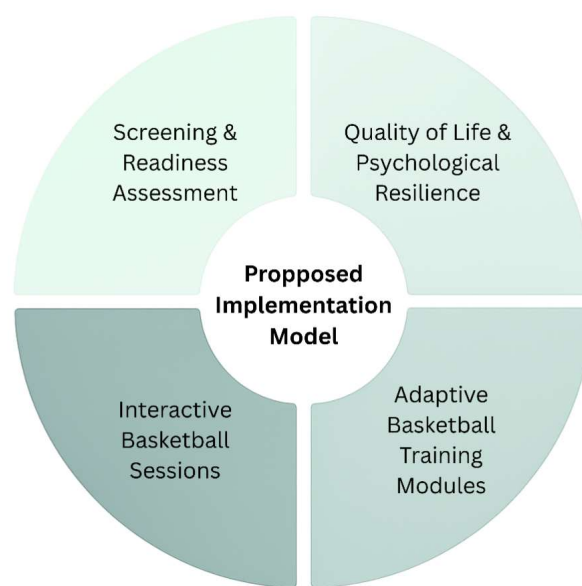


Figure 4. Four-phase implementation model outlining the translational framework of basketball-based psychosocial rehabilitation.

5.7. Limitations and future directions

Despite promising findings, empirical evidence directly evaluating basketball interventions among cancer survivors remains limited. Most existing studies derive from healthy or educational settings, requiring careful extrapolation to clinical populations. Randomized controlled trials with longitudinal follow-up are needed to quantify effects on resilience, anxiety, and social functioning. Moreover, inclusion of biomarkers of stress and inflammation may elucidate physiological pathways linking physical activity and psychological recovery. Future research should adopt mixed-method designs combining quantitative measures (e.g., QoL scales, cortisol levels) with qualitative interviews to capture lived experiences. Investigations could also compare team-based basketball with individual exercises to isolate the specific psychosocial contributions of cooperation, communication, and competition. Expanding such work across cultural contexts will enhance generalizability and inform evidence-based integration into survivorship care plans. Evidence synthesised across oncology and sport psychology literature underscores that basketball

embodies a multidimensional therapeutic framework: physically demanding yet socially enriching, cognitively engaging yet emotionally restorative. By merging movement, meaning, and mutual support, basketball offers cancer survivors an avenue to rebuild self-efficacy, restore social identity, and cultivate emotional resilience. Its application within psycho-oncological rehabilitation thus exemplifies the transition from treatment to empowerment, where healing becomes an active, embodied, and communal process.

6. Conclusion and recommendations

6.1. Conclusion

This review demonstrates that physical activity, particularly basketball-based and other team-sport formats, can serve as a viable psychosocial intervention for cancer survivors. The evidence consistently indicates that exercise contributes not only to physical reconditioning but also to psychological resilience, social reintegration, and restoration of self-efficacy. Within the biopsychosocial framework, basketball represents an embodied therapeutic practice that unites biological, psychological, and social recovery processes.

From the reviewed studies, four interrelated outcomes emerge:

1. Psychological restoration, where regular participation in sport is linked with reductions in anxiety, depression, and emotional fatigue, and improvements in mood and coping capacity.
2. Self-efficacy and motivation, where sport environments, especially those emphasizing self-talk, goal setting, and feedback, cultivate confidence and perseverance essential to long-term survivorship.
3. Social connection and identity rebuilding, the cooperative nature of basketball fosters teamwork, empathy, and a renewed sense of belonging, addressing post-treatment isolation.
4. Physiological and cognitive enhancement, where improvements in endurance, coordination, and concentration contribute to somatic and cognitive recovery, reinforcing mental well-being.

Together, these outcomes affirm that basketball integrates physical exertion with emotional expression, enabling survivors to translate bodily strength into psychological empowerment. While the majority of current research arises from healthy or educational populations, the underlying mechanisms (self-determination, social support, and embodied cognition) are transferable to oncology rehabilitation.

6.2. Practical recommendations

a. Program Design

1. Integrate basketball modules into survivorship care plans. Structured sessions of moderate intensity (30–45 min, 2–3 times weekly) can complement physiotherapy or counselling.
2. Adopt a progressive, adaptive framework. Initial sessions should emphasise coordination, ball control, and low-impact movement, gradually progressing to cooperative play as stamina improves.

3. Include psychoeducational components. Brief discussions on self-talk, goal setting, and mindfulness can reinforce cognitive-behavioural skills observed to enhance self-efficacy in sport settings.

4. Embed social support structures. Small teams and peer mentoring enhance relatedness, adherence, and emotional sharing, key determinants of sustained participation.

- b. Interdisciplinary Collaboration

1. Clinical-coaching partnerships should be established between psycho-oncologists, physiotherapists, and trained basketball coaches to ensure both safety and psychosocial effectiveness.

2. Monitoring and evaluation frameworks should track physical metrics (heart rate, endurance, fatigue) alongside psychological scales (self-efficacy, social connectedness, anxiety).

3. Training for facilitators must cover trauma-informed communication and motivational interviewing to manage emotional sensitivity among survivors.

- c. Research Priorities

1. Pilot clinical trials should test the feasibility and safety of basketball-based rehabilitation in diverse cancer types, age groups, and treatment stages.

2. Mixed-method designs combining quantitative outcomes and qualitative narratives are recommended to capture both efficacy and lived experience.

3. Comparative studies should evaluate basketball against individual exercise programs to isolate team-specific psychosocial effects.

4. Biomarker integration (e.g., cortisol, C-reactive protein, or heart-rate variability) could clarify physiological pathways underlying psychological change.

5. Cross-cultural validation is essential, as sport preferences and gender norms influence participation and meaning across populations.

- d. Policy and Implementation

1. Institutional partnerships between hospitals, community centres, and sports associations can facilitate sustainable programs.

2. Awareness campaigns highlighting the emotional and social value of team sports in survivorship can shift public perception of exercise from a medical requirement to a lifestyle resource.

3. Insurance and policy advocacy may help secure funding for sport-based psychosocial interventions as legitimate components of rehabilitation.

6.3. Future outlook

As psycho-oncology increasingly embraces integrative and lifestyle-based care, basketball exemplifies a model of participatory healing, one that transforms survivors from passive recipients of therapy into active agents of their own recovery. Through rhythmic movement, shared purpose, and mutual trust, basketball unites body and community in the pursuit of health. Future scholarship should refine this model through empirical validation, ensuring that sport is not merely recreational but recognised as a scientifically grounded, person-centred strategy in cancer rehabilitation. In summary, basketball offers an innovative, evidence-informed pathway for rebuilding the physical, psychological, and social dimensions of life

after cancer. By merging exercise science with psycho-oncological insight, this approach redefines survivorship as a process of collective empowerment, embodied resilience, and restored human connection.

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