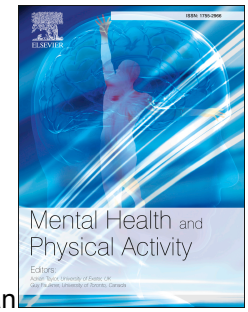
An International Consensus on Strategies for Implementing Physical Activity in Inpatient Mental Health Services: A Nominal Group Technique

KEEL, Tobias, ANTHONY, Justine, TYNE, William, LEDERMAN, Oscar, MACHACZEK, Katarzyna <http://orcid.org/0000-0001-5308-2407>, MATTHEWS, Evan, DEENIK, Jeroen, CARNEY, Rebekah, KING, James S, BREEN, Kieran, FIRTH, Joseph, ROSENBAUM, Simon, BODKIN, Tom, RALPH, Abigail, WAUGH, Matthew, ROUTEN, James, ROGERS, Eva, JARVIS, Hayley and KINNAFICK, Florence

Journal Pre-proof



An International Consensus on Strategies for Implementing Physical Activity in Inpatient Mental Health Services: A Nominal Group Technique

Tobias Keel, Justine Anthony, William P. Tyne, Oscar Lederman, Katarzyna Machaczek, Evan Matthews, Jeroen Deenik, Rebekah Carney, James S. King, Kieran Breen, Joseph Firth, Simon Rosenbaum, Tom Bodkin, Abigail Ralph, Matt Waugh, James Routen, Eva Rogers, Hayley Jarvis, Florence Kinnafick

PII: S1755-2966(26)00034-7

DOI: https://doi.org/10.1016/j.mhpa.2026.100784

Reference: MHPA 100784

To appear in: *Mental Health and Physical Activity*

Received Date: 10 February 2026

Revised Date: 8 May 2026

Accepted Date: 17 May 2026

Please cite this article as: Keel, T., Anthony, J., Tyne, W.P., Lederman, O., Machaczek, K., Matthews, E., Deenik, J., Carney, R., King, J.S, Breen, K., Firth, J., Rosenbaum, S., Bodkin, T., Ralph, A., Waugh, M., Routen, J., Rogers, E., Jarvis, H., Kinnafick, F., An International Consensus on Strategies for Implementing Physical Activity in Inpatient Mental Health Services: A Nominal Group Technique, *Mental Health and Physical Activity*, https://doi.org/10.1016/j.mhpa.2026.100784.

Lead Author
Tobias Keel
[1]National Centre for Sport and Exercise Medicine, School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom.
[2]Department of Nursing, Midwifery and Health, Faculty of Health & Life Sciences, Northumbria University, Newcastle, United Kingdom
Tobias.keel@northumbria.ac.uk
Orcid: 0000-0003-1284-7447

Authors:
[3]Justine Anthony
School of Psychology and Vision Sciences, University of Leicester, Leicester, United Kingdom
Ja560@leicester.ac.uk
Orcid: 0000-0002-1899-1100

William P. Tyne
[4]School of Life Sciences, Faculty of Medicine and Health Sciences, University of Nottingham, Nottingham, UK
will.tyne@nottingham.ac.uk
Orcid ID: 0000-0001-6531-5669

Oscar Lederman
[5]Human Performance Research Centre, School of Sport, Exercise and Rehabilitation, Faculty of Health, University of Technology Sydney (UTS), Moore Park, Sydney, NSW, Australia.
[6]Discipline of Psychiatry and Mental Health, School of Clinical Medicine, University of New South Wales, Sydney, NSW, Australia.
Oscar.lederman@uts.edu.au
https://orcid.org/0000-0002-0321-5723

Katarzyna Machaczek
[7]Centre for Applied Health and Social Care Research (CARe), Sheffield Hallam University, UK
k.machaczek@shu.ac.uk
Orcid: 0000-0001-5308-2407

Evan Matthews
[8]Centre for Health Behaviour Research, South East Technological University, Waterford, Ireland
evan.matthews@setu.ie
Orcid: 0000-0002-1986-2677

Jeroen Deenik
[9]Scientific Research Department, GGz Centraal, Amersfoort, the Netherlands
Mental Health and Neuroscience Research Institute, Maastricht University, Maastricht the Netherlands
j.deenik@ggzcentraal.nl
Orcid: 0000-0002-1463-8676

Rebekah Carney
[10]Greater Manchester Mental Health NHS Foundation Trust (Primary Affiliation),
[18]Faculty of Biology, Medicine and Health - School of Health Sciences, University of Manchester (Secondary Affiliation)
Rebekah.carney@gmmh.nhs.uk
ORCID ID: 0000-0002-2859-6825

James S King

[1]National centre for Sport and Exercise Medicine, School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom
j.a.king@lboro.ac.uk
Orcid: 0000-0002-8174-9173

Kieran Breen
[11]St Andrews Healthcare, United Kingdom
j.a.king@lboro.ac.uk
Orcid: 0000-0003-3974-4237

Joseph Firth
[12]Division of Psychology and Mental Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK; &
[10]Greater Manchester Mental Health NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UK
OrcID: 0000-0002-0618-2752

Simon Rosenbaum
[6] Discipline of Psychiatry and Mental Health, School of Clinical Medicine, UNSW, Sydney, Australia
s.rosenbaum@unsw.edu.au
+61415435125
Orcid: 0000-0002-8984-4941

Tom Bodkin
[11] St Andrew's Healthcare, Northampton.
tbodkin@stah.org

Abigail Ralph
[11] St Andrew's Healthcare, Northampton.
ahralph@stah.org

Matt Waugh
[14] Central and Northwest London NHS Foundation Trust, London, United Kingdom
matthew.waugh@nhs.net

James Routen
[15] Rampton Hospital, Nottinghamshire Healthcare NHS Foundation Trust, Nottinghamshire, United Kingdom
James.Routen@nottshc.nhs.uk

Eva Rogers
[1] National centre for Sport and Exercise Medicine, School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom
[16] Derbyshire Healthcare NHS Foundation Trust
ORCID: 0009-0007-8170-1464

Hayley Jarvis
[17] Mind
h.jarvis@mind.org.uk

Corresponding Author:
Florence Kinnafick
[1]School of Sport Exercise and Health Sciences, National Centre for Sport and Exercise Science, Loughborough University
f.e.kinnafick@lboro.ac.uk

Orcid ID: 0000-0002-3095-7116

An International Consensus on Strategies for Implementing Physical Activity in Inpatient Mental Health Services: A Nominal Group Technique

Abstract

Physical activity (PA) offers numerous physical and psychological health benefits for individuals with severe mental illness. PA is not routinely integrated into inpatient mental health services, despite its benefits. This study recruited participants with experience across different international contexts and inpatient psychiatric settings, from multidisciplinary professional backgrounds, with the aim of achieving consensus on effective, impactful, and feasible strategies to advance PA implementation and inform service design globally. Insights were gathered from thirteen stakeholders using the Nominal Groups Technique (NGT). The online NGT process followed five steps: an opening statement, silent idea generation, round-robin recording of ideas, group discussion, and voting to rank strategies based on their perceived effectiveness, impact and feasibility. Thirty-three consolidated strategies were generated and organised into three categories: leadership and policy, staffing, and PA delivery. The strategies ranked most effective and impactful were leadership and organisational top-down commitment, providing PA infrastructure, facilitating consistent access to opportunities, building workforce capacity, and creating a positive day-to-day PA culture. The most feasible strategies included protecting PA time within service user (SU) timetables, collecting and utilising SU feedback, ongoing services evaluations, the characteristics of the PA provider, co-design of PA programmes with SUs, and PA language. The findings emphasise the need for a multi-level implementation approach. Strategies that rely on organisational resources and leadership were considered more effective and impactful, whereas those operating independently of wider systemic and organisational barriers were considered more feasible. There is a need for increased collaboration across research and practice to test, refine and discover effective implementation strategies.

Key Words: Physical Activity, Implementation, Consensus, Feasibility, Mental Illness, Inpatient

Background

When individuals experience acute symptoms of severe mental illnesses (SMI), such as severe psychotic states, self-harm, suicidal ideation, and an inability to remain safe in the community, an inpatient admission to an acute psychiatric facility may be warranted. This admission may be voluntary or involuntary, with the latter involving the invoking of legislation. Inpatient facilities aim to assess, treat, and rehabilitate individuals in safe residential environments, supporting their return to the community (Galappathie et al., 2017).

Engaging in physical activity (PA), defined as 'people moving, acting, and performing within culturally specific spaces and contexts, and influenced by a unique array of interests, emotions, ideas, instructions, and relationships' (Piggin, 2020) offers several potential benefits for service users (SUs) with SMI and healthcare services (Stubbs et al., 2018). Integrating PA and reducing sedentary time in routine care has the potential to improve both mental and physical health (Stubbs et al., 2026), including cardiometabolic health, reduced inflammatory markers, and improvements in depressive symptoms (Kandola et al., 2017; Vancampfort et al., 2020). Furthermore, evidence has demonstrated that among psychiatric inpatient settings, higher levels of PA engagement (as part of a lifestyle intervention) can help to reduce violent incidents (Rahman et al., 2022) and length of stay in mental health services (Korge & Nunan, 2017) with higher levels of PA engagement appearing to positively impact staff safety (Rahman et al., 2021) increase uptake and engagement with other therapeutic and rehabilitation activities (Carney et al., 2024), and increase pharmacological adherence (Sampogna et al., 2023).

Despite policy and research recommendations (Hassan et al., 2022; Keel et al., 2025a; Rogers et al., 2019; Stubbs et al., 2018), PA is yet to be consistently integrated into routine inpatient mental healthcare (Schothorst et al., 2022; Stubbs et al., 2026). Across many developed mental health contexts, implementation barriers have been identified. These include a lack of funding and financial resources, staff capacity, staff ownership and motivation to support patient PA behaviours (Rogers et al., 2019). Obesogenic ward cultures, legislative restrictions preventing access to PA facilities, a lack of PA infrastructure (e.g. gyms and outdoor spaces), risk perceptions surrounding PA engagement, and

inpatients' low motivation due to mental health related symptomology and medication side effects have also been cited as barriers (Carney et al., 2024; Deenik et al., 2019; Machaczek et al., 2023).

Notwithstanding these challenges, there is emergent evidence that demonstrates PA strategies can be effectively implemented as adjunct to routine care within inpatient psychiatric settings. For instance, embedding exercise and PA staff on wards, leaders endorsing and supporting PA staff, providing access to suitable PA facilities, and emphasising the therapeutic alliance between the SU and PA deliverer (Keel et al., 2025b; Lederman et al., 2017; Watkins et al., 2023). Despite the proposed strategies to increase PA, implementing and sustaining PA programmes in practise remains a substantial challenge (Carney et al., 2024; Estabrooks et al., 2011). These challenges often arise from socio-ecological differences, such as varying economic resources, infrastructure, values, and participant characteristics (Carney et al., 2024; Keel et al., 2025a). There is, therefore, a need for research to understand and document multi-level PA implementation strategies and practical recommendations specific to the inpatient mental health settings.

Aims

The current study aimed to identify and prioritise strategies for PA implementation and delivery in inpatient psychiatric facilities through systematic focus groups utilising nominal groups technique (NGT) methods. By involving the perspectives of a diverse group of stakeholders from a range of inpatient psychiatric settings and a multidisciplinary range of international job roles, this work aimed to bridge the existing gap between research and practice to improve PA implementation and service design globally (Ball et al., 2022; Martland et al., 2023). Specifically, the study focused on gaining consensus and order of prioritisation for the question "What key implementation strategies should be considered and employed to make PA services most effective for SU's and what strategies are the most impactful and feasible?"

Methods

The Nominal Group Technique (NGT) is a structured method designed to facilitate group idea generation (Delbecq et al., 1975). Through structured focus groups, the NGT encourages contributions from all participants and facilitates quick agreement and consensus on the relative importance of issues, problems, and solutions (Poling, 2009). A key feature of the NGT is its emphasis on ensuring participants have an equal opportunity to express their views and influence decisions (Delbecq et al., 1975). The NGT has been used in other areas of healthcare research such as the COVID-19 vaccine (Michel et al., 2021), generating consensus in nursing research (Cooper et al., 2020), and gathering patient views on the use of artificial intelligence in healthcare (Musbahi et al., 2021). It holds several strengths over alternative consensus generating methods (e.g. Delphi) as it offers immediate feedback and greater flexibility for sharing ideas (Gattrell et al., 2022), facilitates real-time connections between participants (Potter et al., 2004), can be conducted in a shorter time (Potter et al., 2004), and allows for more extensive discussion during the later stages of consensus development to refine ideas (Cantrill et al., 2011).

Participants

Thirteen individuals were purposefully recruited through the existing contacts of the research team. Participants were invited via email four weeks before the online group session. They were considered eligible for inclusion if they had expertise in PA program delivery across inpatient mental health settings domains. These included high and medium security settings, Child and Adolescent Mental Health Settings (CAMHS), Psychiatric Intensive Care Units (PICU), forensic, and generic adult settings. The participants included: academic researchers working in the field of mental health, PA, exercise, and inpatient mental health settings (n=6); a mental health charity representative (n=1); a clinical psychologist (n=1); a head of sport and exercise therapy in a high secure hospital (n=1); a physical activity and mental health nurse (n=1); sport and exercise therapists (n=2); and a clinical exercise physiologist and researcher (n=1). The participants represented a variety of countries: Australia (n=2), Netherlands (n=1), Ireland (n=1), and United Kingdom (n=9). While participants were affiliated with institutions in these countries, many had extensive international experience, with

significant immersive work spanning Latin America, North America, and Asia. Their contributions therefore reflected a broad and global perspective. Prior to participation, ethical consent was gained from the stakeholders by [REMOVED FOR PEER REVIEW] ethics committee [REMOVED FOR REVIEW REVIEW]. No incentives were used for participation.

Design

The study followed Carney et al.'s (1996) five step format. Using an online virtual format was a cost-effective and practical way to include various stakeholders located in various settings and countries. Steps one and two were completed independently, guided by an online pre-recorded video. Steps three and four were completed in an online group session. Step five was completed independently following the session. No study protocol was registered.

Online video and independent tasks

To facilitate the understanding of the study and to prepare for the online meeting, a video was pre-recorded and sent to participants two days prior to the start of the study. The video covered:

Step 1. Opening statement. The primary researcher presented an overview of the NGT to set out the aims and the 5-step format of the method. This was followed by a brief five-minute presentation set the scene.

Step 2. A silent generation of ideas. Next, participants were asked to answer the following question: "What key implementation strategies should be considered to make PA services most effective for SUs?" Participants were asked to record their responses as short phrases or brief sentences and to work on this task silently and independently. They were given a maximum of 8 minutes. The time limit ensured that only the key and most salient responses were recorded. The silent generation guaranteed contributors created their statements without the influence of others.

Online Group Session

Participants were invited to join a two-hour, recorded online Microsoft Teams meeting led by the core research team (TK, FK, JA, WT). A suitable time was scheduled (9am on the 24th April 2024) for all international participants. The meeting was recorded and transcribed verbatim.

A second, briefer opening statement reaffirmed the technique's aims and objectives, provided an overview of the session, and detailed expectations around participant conduct (such as muting their microphones and not interrupting people). Next, each stakeholder and research team member introduced themselves to the group for the purpose of familiarisation.

Step 3. Round Robin Recording of Ideas. The objective of step 3 was to map the groups thinking and to achieve equity in participant contributions. Due to the number of participants, step 3 was conducted in two subgroups, each including a diverse range of job roles, demographics, and PA experiences. Within their subgroups, each participant was asked, in turn, to orally present one strategy for implementation without discussion, elaboration, or justification. After each oral presentation, participants sent their answers into the meeting chat box to be added to the numbered list of responses – this ensured that participant responses were not condensed or abbreviated. Each participant decided whether their idea had been duplicated and whether to include it– however, members were encouraged to 'hitchhike' off each other's ideas to add new items. Each participant could 'pass' if they wished. Responses were capped at 50 strategies to ensure a comprehensive yet manageable number of outcomes. A maximum of 25 ideas was therefore set for each subgroup. Participants took turns to present their ideas to the table until 25 ideas were proposed. Responses were gathered and recorded by the research team in a word document.

Step 4. Group Discussion. This step clarified the strategies presented in step 3. The lists from both sub-groups were consolidated during a short break ahead of the group discussion. The research team also removed any obvious duplicates in the list of strategies.

Following the break, the subgroups were brought back together, and participants were invited to comment on each strategy, drawing upon their individual expertise. The hand-raising function was

used to indicate participants wished to comment, helping to manage the group discussion. These comments noted agreements, and disagreements, and add further nuance to the strategies already listed. This step also allowed for the discussion of ideas if there were any doubts in the group. Example extracts from these group discussions can be found in the supplementary material. Some strategy discussions were brief, with the group reaching agreement quickly, while others required more in-depth consideration. Finally, participants were thanked for their involvement and briefed with information about step 5.

Post-Online Session

Following the online session, the research team used the transcripts to refine the strategies from step 4 further to ensure that each strategy was clearly detailed and reflected the content of the participants' discussion. The finalised list of implementation strategies generated in the online meeting was inputted into Qualtrics software (www.qualtrics.com) to create a ranking survey. The implementation strategies were organised into three categories due to the clear distinctions in implementation areas: leadership and policy, staffing, and PA delivery. Online ranking and voting were piloted by TK and JA.

Step 5. Ranking and Voting With consent, participants were emailed the link to the Qualtrics survey and asked to complete the ranking process within two weeks. They were asked to rank each statement within each implementation strategy category based on their perceptions of impact and feasibility using a sliding scale from 1-100. Impact was defined as "the ability to strongly affect or influence a situation or person" while feasibility was described as "the ease or practicality of being accomplished". At the end of each section, participants were presented with a list of the sections statements and asked to vote for their top five most effective strategies. Effectiveness was defined as each strategy's "performance under 'real world' conditions". Participants were also invited to provide any additional comments. Out of the thirteen participants, twelve completed step 5.

Producing the Report Authors (TK, JA, FK, WT) led the development and drafting of the manuscript. To further capture the expertise and insight of the stakeholders, all participants were

183 invited to review and contribute to the final version of the manuscript's introduction and discussion,
184 particularly to discuss and critique how the strategies align with the existing literature. Applied
185 practitioners were asked to contribute their views on where the strategies fit within the systems in
186 which they work.

187

188

Results

Summary of Findings

Thirty-three key implementation strategies were presented for ranking and voting, across categories leadership and policy (n=9), staffing (n=11), and delivery (n=13). For each category, we present the top three effective strategies that received the most votes. We also present the three strategies that were ranked highest across the impact and feasibility dimensions.

Leadership and Policy Strategies

Nine leadership and policy strategies (S1-S9) are presented in Table 1. The top three most effective leadership strategies were top-down commitment (S1), the regular evaluation of PA programmes (S6), and continually gathering and utilising SU 'lived experience' feedback (S8). Interestingly, out of these strategies, only top-down commitment (S1) scored within the top three most impactful. The most feasible leadership and policy strategies were line management support of dedicated PA staff (S4), the regular evaluation of PA programmes (S6), and continually gathering and utilising SU 'lived experience' (S8). Strategies 6 and 8 were also ranked as the most effective strategies

[INSERT TABLE 1]

Staffing Strategies

Eleven staffing strategies were developed by the participants (see table 2). Two of the three most effective strategies (protecting PA time and having dedicated PA staff with time and resources) scored the highest on impact. Protecting PA time (S20) was scored highly impactful and feasible and received ten out of twelve votes from the group. Despite not ranking within the most effective strategies, enhancing the PA workforce (S16) scored second highest on impact. The personal characteristics of PA staff (S17) and adopting a multi-disciplinary approach (S12) strategies were scored among the most feasible strategies, despite not being considered the most effective or impactful. Interestingly, while the characteristics of the physical activity staff strategy (S17) received a high score for its impact (mean: 89.43), it was not voted as one of the most effective strategies.

Delivery Strategies

The group presented thirteen delivery strategies (S21-33) (see table 3.). Having the appropriate infrastructure and capacity to facilitate consistent access to PA (S21) and co-designing PA programmes with SUs (S31) received 10 votes each on effectiveness. Ensuring that PA is accessible to all SUs with varying needs and situations (S23) received eight votes on effectiveness. Across the whole data set and within delivery strategies, having the appropriate infrastructure and capacity for PA (S21) and ensuring PA is accessible to individuals with varying needs and situations (S23) received the highest impact scores. Putting strategies in place to aid transition into the community (S33) was voted the third most impactful strategy. Interestingly, of the most impactful and effective strategies, only co-design (S31) scored within the top three most feasible strategies. The language used to promote PA (S32) and various methods to educate staff (S25) were considered more feasible strategies for PA delivery.

[INSERT TABLE 2]

[INSERT TABLE 3.]

Discussion

This is the first study that has aimed to generate a consensus on what experts in the field perceive to be the most effective, impactful and feasible PA strategies in inpatient mental health settings. Thirteen expert participants, with experiences in inpatient settings from diverse international contexts, generated and prioritised thirty-three consolidated strategies for promoting PA. This NGT has confirmed the complex nature of PA implementation and highlighted the importance of adopting a socio-ecological framework (Sallis et al., 2008) that considers the interactions between individual, social, physical, relational, political and economic contexts in which PA programmes are delivered.

Strategies that rely on organisational resources and leadership were considered as more effective and impactful by participants, whereas those that operate independently of wider systemic and organisational barriers in healthcare systems were found to be more feasible. Below, the authors (and thus stakeholders) propose a summary of the key strategies identified and interpret them within the context of the wider literature. Numbered brackets are used when referencing to specific strategies.

Effective and Impactful Strategies

Top-down commitment and endorsement from senior leadership are essential to integrating physical activity and movement into healthcare services (S1) which the participants ranked as the most effective and impactful leadership strategy. Mental health leadership is a critical component to patient access to care (Szabo et al., 2017). Existing literature emphasises the key role of leaders and management in driving organisational standards that provide the economic and human resources to support PA programmes (Keel et al., 2025b; Machaczek et al., 2023).

Previous research has reported secure inpatient services commonly prioritising medication and more traditional psychotherapies over lifestyle medicine (Kinnafick et al., 2018). Often, awareness and inclusion of adjunctive therapies such as PA are not prioritised. Consequently, limited PA support, recognition, and co-ordination from management can hinder implementation (Bartels et al., 2015). These barriers may reflect wider systemic issues of a mental health system which has not adequately

supported the physical and mental health of users in an integrated fashion (Zierotin et al., 2025). This appears to impact the degree to which PA is valued and implemented within mental health services (Ball et al., 2022; Mehta et al., 2011). A low feasibility score, highlighting the perceived challenges in securing top-down commitment and adequate resources, reflects this finding in the current research.

Stakeholders suggested that a possible mitigation to gain support and overcome this barrier is to involve senior leadership in the research process with frequent updates on findings and their implications. The aim should be to facilitate commitment and 'buy in' from leadership and commissioners so management is more likely to become invested in PA outcomes and to support future PA programmes. Future research should seek to understand this mitigation proposal.

Appropriate Infrastructure and the capacity to provide consistent access (S21) scored the highest on impact across the data set. Previous research has reported that despite PA infrastructure (such as gyms, outdoor spaces, and swimming pools), gaining access often depends on ward staff (Rogers et al., 2021). This was reflected by the discrepancy between impact and feasibility scores, highlighting practical implementation barriers. These results reflect recent literature which has reported that within the English National Health Service, PA receives a lack of funding and lacks infrastructure and resources (Machaczek et al., 2023). This can limit the recruitment and the capacity for staff to promote PA.

Research has found that PA interventions with the lowest dropout rates are delivered by qualified professionals such as exercise psychologists, certified yoga instructors, and health care practitioners with PA and exercise qualifications (Vancampfort et al., 2016). This emphasises the importance of allied professionals in mental health with physical activity specialism (Keel et al., 2025a, 2025b). However, a more feasible strategy to overcome institutional barriers is to upskill and train ward-based staff in PA delivery to promote daily PA and build staff capacity (S13).

This approach was illustrated by Rogers et al (2025), who developed a theory-based and easily accessible e-learning training module for healthcare staff in a medium secure inpatient setting. The module did not require significant time to complete and specifically educated staff on the

53 importance of PA, the implications of inactivity, and the principles of behaviour change. Seventy-one
54 percent of respondents said the tool changed how they approached PA promotion with SUs. Thus,
55 whilst not an exercise qualification, accessible training programmes like these could be an example of
56 feasible strategies to provide consistent access to PA.

57 Another strategy for low-resource settings with limited PA staff and funding, is strategic
58 planning around PA (S26) that can ensure SUs needs are matched with available resources. For
59 example, light intensity PA such as walking may be facilitated informally by a Health Care Assistant
60 or generalist professional, whereas more tailored, specialist and high intensity PA could be delivered
61 by an appropriately qualified professional. As staff members commonly feel inadequately trained to
62 facilitate and promote PA in these settings (Ball et al., 2022; Glowacki et al., 2019), strategic planning
63 could be an effective strategy to overcome a lack of staff confidence and limited resources.
64 Furthermore, prior studies have drawn attention to the need to understand and evaluate PA
65 programmes cost-effectiveness within inpatient settings (Czosnek et al., 2019; Keel et al., 2025).
66 Resource matching and strategic planning could also be cost-effective approach for incorporating PA
67 within under-resourced inpatient settings. Another potential strategy to increase capacity lies in
68 developing the PA workforce.

69 ***Enhancing the PA workforce capacity (S16)*** was considered an impactful strategy.
70 Incorporating this strategy could involve hosting student placements, introducing staff champions, and
71 utilising peer support workers (individuals with lived experience of recovery from a mental health
72 condition). Previous work has demonstrated the feasibility, acceptability, and safety of student-led
73 lifestyle (diet and exercise) interventions in a residential SMI rehabilitation setting (Korman et al.,
74 2020), and similar known services have demonstrated benefits. For instance, the Keeping the Body in
75 Mind (KBIM) programme in Australia boosted the workforce by incorporating student placements,
76 such as exercise physiologist and dietician students (Curtis et al., 2024). Boosting work force capacity
77 would also help to mitigate the risk of a ‘single point of failure’ in PA delivery when a single
78 individual is driving the programme and then leaves, bringing the programme to an end (Soundy et
79 al., 2012). Given the resource shortages and a lack of staffing (Machaczek et al., 2023), boosting the

workforce through student placements via university partnerships and other organisations could be a cost-effective and impactful strategy for commissioners to consider.

Creating a positive day-to-day PA culture (S18) was rated within the top three most effective staffing strategies. This result is similar to those reported by Keel et al. (2025a), who emphasised the importance of a daily movement culture facilitated by motivated and energising staff to promote both structured PA and informal movement opportunities. Despite being reported as a foundational element to successful intervention delivery, this NGT draws attention to its implementation difficulties and limited feasibility, noting that such a culture can be "*tricky to implement and sustain*". This aligns with the wider literature highlighting that high staffing demands, staffing numbers, and frequent staff turnover challenge the practical implementation of PA and exercise programs in secure settings (Rogers et al., 2019).

The strategy also discusses the importance of staff training in facilitating and sustaining this culture. Rosenbaum et al. (2020) found that a brief lifestyle intervention focusing on nutritional counselling and PA for mental health staff members helped to create positive changes in workplace attitudes and culture associated with physical healthcare delivery. Watkins et al (2023) qualitatively evaluated the intervention and proposed three ways in which this improved PA delivery. Firstly, staff are more likely to have a positive influence over the physical health behaviours of patients. Secondly, it helps staff members feel valued and appreciated by the organisation, leading to better staff retention and a consistent workforce. Thirdly, it reduces absenteeism and boosts productivity by reducing health related issues. To make a positive day-to-day PA culture more feasible, research highlights the influential role of leaders in staff behaviours. To achieve this, leaders should focus on educating staff and supporting their health.

National guidance, such as NICE guidelines, should inform the selection of specific targets and metrics for physical activity outcomes within inpatient services (S2) which was reported as an impactful strategy for implementation. According to WHO guidelines, individuals with SMI and the general population should engage in 150-300 minutes of moderate or 75 minutes of vigorous aerobic PA per week (World Health Organization, 2018). While these guidelines are valuable, they are

primarily developed from general exercise prescription guidelines designed for managing physical health conditions (World Health Organization, 2018) and improving and maintaining physical fitness and cardiometabolic health (Garber et al., 2011). As such, they overlook the psycho-social benefits of PA. Therefore, for this inactive population, these guidelines must be applied cautiously, as many SMI individuals will struggle to meet targets (Vancampfort et al., 2015). Despite our recommendation for caution, this study highlights in practise that these guidelines are considered an important and impactful strategy for organisations to use as targets for implementation.

Even slight increases in moderate PA below the recommended amount can benefit both physical and mental health (Garber et al., 2011; Teychenne et al., 2020; World Health Organization, 2020). Thus, health care professionals should focus on increasing PA by small amounts before concentrating on general health recommendations (Vancampfort et al., 2015). Deliverers should take individualised approaches that account for current PA levels, physical functioning, PA histories, health status, and preferences (Garber et al., 2011), that aim to build up engagement and promote pleasurable and enjoyable PA experiences (Keel et al., 2025a). Furthermore, deliverers could focus on implementing small incremental lifestyle changes and light PA for SUs (such as walking around during television advert breaks), building towards moderate PA intensities and modalities (Vancampfort et al., 2015). These approaches are also cost-effective and can be supported by ward staff. In conclusion, realistic and clear PA approaches and recommended guidelines can ensure a balanced approach to effective implementation whilst also protecting SU's right to health.

Feasible Strategies

Co-designing programmes with services users and including SU input (S31) was considered both an effective and feasible strategy. Previous research has identified the importance of co-designing and personalised approaches for PA delivery with SMI inpatient SU's (Keel et al., 2025a). Stakeholders highlighted that co-design requires deliverers to understand how to meaningfully and effectively collaborate with SUs. Research from other contexts has reported the need for deliverers to adapt to the complexity that can occur among some people with SMI, with particular attention to perceived power imbalances, distress, stigma, multi-morbidity (complex conditions, symptoms, and

treatment challenges), and cognitive challenges (such as abstract reasoning and lower concentration levels) (Matthews et al., 2022; Schouten et al., 2022; Sumner et al., 2024). To effectively co-design with mental health SUs, it is important to consider the level burden placed on participants and the necessary support required for meaningful engagement (Matthews et al., 2022). Delivers should be flexible, focus on effective communication, strive for equal collaboration, and be mindful of participants expectations (Schouten et al., 2022).

Protected time within SU's timetables (S20) was considered as the most effective, impactful, and feasible staffing strategy. While allocating dedicated time is feasible and important, caution must be taken to prevent PA sessions from becoming integrated into a rigid timetable. For instance, Rogers et al. (2021) reported how disrupted nighttime sleep can negatively impact patients' willingness to exercise and increase sedentary behaviour. If a gym session is scheduled for the morning and a patient has slept poorly due to ward disruptions, they may miss their protected time.

As an alternative, recent research has discussed the importance of flexibility with this time, which helps deliverers adapt to the proximal and dynamic nature of mental illness (Keel et al., 2025a). This flexibility promotes SU agency around when they choose to engage in PA. This can be achieved by embedding dedicated PA staff within the settings and ensuring they are supported by the service (S19). Furthermore, if exercise is integrated into routine care, it could potentially negate pleasurable exercises and cease to be effective (Kinnafick et al., 2018), as it may become perceived as another 'therapy'. Nonetheless, protecting this designated time remains essential and a feasible recommendation in contexts where PA deliverers have limited availability. This reiterates the importance of considering the specific inpatient PA context, such as resource and staff availability, when implementing these strategies and the importance of daily informal PA opportunities.

The collection of SU feedback and the regular evaluation of services (S8) were prioritised as effective and feasible strategies for PA services. The emphasis was on collecting feedback, assessing services, and using this information to enhance future service delivery. Participants highlighted the need to make this data, such as results of service evaluations, readily available for research purposes, enabling lessons to be learned from other successful programmes for new program development and

implementation. Identification of this strategy reflects the wider discussion around the principle of "don't just screen, intervene" (Perry et al., 2023) which emphasises that while there have been significant advancements in physical health screening for individuals with SMI, it's integral to act on this data by providing follow up interventions tailored to patient needs (Perry et al., 2023). Overall, utilising SU feedback and evaluating services to inform service development is a feasible and effective strategy.

The characteristics of the PA provider and day to day staff (S17) scored highly on feasibility and impact. This finding aligns with previous research that emphasises the importance of the personal characteristics of providers such as them demonstrating warmth (Borge et al., 2013), optimism and enthusiasm (Johnson et al., 2018), consistency (Holley et al., 2020), and role-modelling PA behaviours (Keel et al., 2025a). Despite a consensus among study participants around the importance of this strategy, there are potential challenges around feasibility due to workforce characteristics. For instance, Keel et al. (2025a) discuss the difficulty in finding providers with PA competence and the unique personal and relational characteristics (such as supportive, passionate, trustworthy) for successful delivery. Therefore, management and recruiters must ensure recruits have the desired PA characteristics for the job role. Participants proposed the strategy (S14) of introducing a PA and exercise component into the interview process and all advertised inpatient job specifications. This approach could ensure that staff are aware of the importance of PA for physical health and are prepared to promote it actively.

Sensitive Language (S32) used to promote PA, remove PA stigma, and foster positive relationships was reported as a highly feasible strategy for effective PA delivery. Previous research has highlighted the importance of using autonomy-supportive language (e.g. 'could' instead of 'should') (Vancampfort et al., 2013) and providing informational, emotional, tangible and esteem-based support when promoting PA (Soundy et al., 2014). Using positive and reassuring language has also been found to be particularly important when SUs had previous negative PA experiences and have low self-belief to initiate PA behaviours (Martland et al., 2021; Quirk et al., 2020). Using this language has been found to make patients feel more confident to

engage in PA and feel safer and less anxious around PA engagement (Keel et al., 2025a). Together, PA language is a feasible and cost-effective strategy for engaging SUs in PA.

Strengths and Limitations

A strength of this NGT lies in the ability to reach a rapid consensus and prioritise strategies across multiple stakeholders from various inpatient SMI disciplines. Using this approach allowed consensus across a variety of disciplines and time zones. A limitation was that the study did not include the voice of people with lived experience of inpatient service use. Their perspectives would have provided further important insight into the strategies. As this is an international consensus piece, it must also be recognised that participants represented 'Western' countries. Whilst these strategies may be more effective within these cultures and contexts, future exploration would benefit from focusing on other cultures. Collecting more detailed demographic data (e.g., regions and years of experience) could have improved transparency, enabling clearer understanding of stakeholder expertise and better contextualisation of findings, particularly given the influence of healthcare systems and cultural contexts on implementation practices.

Two methodological considerations warrant acknowledgment. First, data analysis aimed to identify and prioritise strategies, meaning the transcripts were not qualitatively coded. Within the broader NGT literature, verbatim transcripts can be coded using content analysis (Smith et al., 2024). In this case, the transcripts were used to sense-check that our interpretations reflected the group's discussions. Qualitative coding of the transcript could have offered additional analysis into how participants had interpreted and debated the strategies. However, to enhance transparency and provide richer insight into the consensus process, we have included qualitative extracts in the supplementary material to capture how participants interpreted, refined, engaged and debated some of the strategies. Second, the round-robin exercise was capped at 25 strategies per subgroup. Within the wider NGT literature, researchers have advocated that ideas are shared until no contributions can be made (McMillan et al., 2016). By capping these numbers, important insights from the stakeholders may have been missed. However, the imposed limit ensured the research team had a manageable number of strategies to work with, and the reduced time

commitment helped address practical research constraints including busy schedules, competing priorities, and time-zone differences amongst participants.

Implications

The findings from this NGT highlight that a multi-level approach is needed to implement PA in inpatient settings. Strategies that rely on organisational resources and leadership were considered more effective and impactful, whereas those that operated independently of wider systemic and organisational barriers in healthcare systems were found more feasible. Leaders and commissioners should consider endorsing and supporting PA services, ensuring the correct infrastructure and resources, building workforce capacity, and promoting active cultures on inpatient wards, alongside undertaking the appropriate training themselves to support this. These strategies could have important long-term outcomes that significantly improve the implementation of PA in inpatient settings.

More feasible, short-term and cost-effective strategies for practitioners should focus on PA delivery. These include collecting and listening to SUs lived experiences; acting on SU feedback; protecting allocated PA time in timetables; ensuring that PA staff are supported, have the capacity to deliver PA sessions, are compassionate, use appropriate language, and deliver PA programmes and sessions that are co-designed with SU. Interestingly, strategies eight (continually gathering and utilising SU 'lived experience' feedback) and 31 (co-designing) are the only two in the top quartile (Q1; ≥75% score) on both impact and feasibility. These are followed closely by S32 (sensitive language), with 74.8 percent feasibility. This indicates that strategies specifically accounting for the SU perspective should be considered good places to start. Together, the application of both bottom-up and top-down approaches working in parallel is integral to implement effective, impactful, and feasible PA programmes in inpatient psychiatric settings.

Given that implementation challenges can differ substantially across socioeconomic and healthcare contexts, it is important to recognise how the proposed strategies align with the systems in which they are being implemented. As this is an international consensus, variation is

expected across countries in terms of infrastructure, workforce capacity, funding allocation, and values within their healthcare systems. Therefore, the strategies identified as feasible may be particularly suited to resource-limited settings, whereas others may require more structural and financial support to be effectively implemented.

Conclusion

This study provides new insights into the perceived and anticipated effectiveness, feasibility and impact of strategies for implementation within PA and inpatient settings. Based on stakeholder perceptions rather than empirical evaluation, it has highlighted the importance of collaboration in combining research, practice, and theory to refine further and find solutions for implementation. This consensus can guide future research and practice in implementing PA strategies in inpatient settings. However, organisation and system-wide barriers must be addressed in order to implement the most effective and impactful strategies.

Table 1.

Leadership and political strategies impact, feasibility, and effectiveness scores.

Strategy	Effective Votes	Impact Score	Feasible Score
S1. Top-down commitment and endorsement from senior leadership are essential to integrating physical activity and movement into healthcare services and reinforcing its credibility.	11*	90.33*	65.83
S2. National guidance, such as NICE guidelines, should inform the selection of specific targets and metrics for physical activity outcomes within inpatient services. Clear policies should be developed to promote physical activity in these services, aligning with clear purposes and considering relevant national drivers.	5	87.58*	64.33
S3. There should be a dedicated budget for staff training and infrastructure. Service managers should be involved in the process of implementation and each ward should build their capacity around this budget. This ensures that there is a budget to facilitate unique and new activities on the wards.	5	73.83	55.83
S4. Line management should fully understand, and support dedicated physical activity staff. To achieve this, it is important to provide clarity on the roles and responsibilities of the physical activity staff.	4	87.25*	67.08*
S5. Physical activity services within inpatient settings should be multicomponent, incorporating multiple strategies at various levels (e.g., leaders, practitioners). These strategies must be actively adaptable to accommodate the unique contextual factors of each setting, including considerations such as facilities, funding, staffing, and existing programs.	8	84.58	62.25
S6. Regular evaluation of physical activity programs and their delivery is essential to enhance future service quality. The insights gained from these evaluations should be communicated to address identified barriers. Additionally, these findings should inform research efforts aimed at improving the quality of future initiatives and advancing research in this field.	11*	85.67	72.17*
S7. Settings should have appropriate systems in place to collect relevant physical activity data. These systems should be linked with routinely collected medical notes.	6	84.25	56.83
S8. It is crucial to continually gather and utilise SU 'lived experience' feedback and opinions to inform clinical teams. This feedback should not only be sought regularly but also used to improve practices and provide opportunities for SUs to raise concerns or queries.	11*	85.17	75.67*
S9. Physical activity strategies should be evidence-based approaches that are measurable and implemented through exercise prescription.	4	77.50	66.25

*Note. Top three strategies in each category marked with **

Table 2.

Staffing strategies impact, feasibility, and effectiveness scores.

Strategy	Effective Votes	Impact Score	Feasibility Score
S10. Implementing a clear physical activity referral system to designated staff members is essential. This should involve discussions about physical activity starting from admission as part of routine assessments. These discussions help determine the SUs desired outcomes, their previous PA history in other settings, and helps to prioritise appropriate support and interventions to meet their PA needs.	7	84.62	64.15
S11. A multidisciplinary team should embed, and review health promotion plans during ward rounds. It is important for the team to ensure adherence to prescribed exercise plans and monitor both physical activity levels and health outcomes.	4	87.54	62.15
S12. There should be a multidisciplinary approach whereby there is collaboration with other health professions to integrate their expertise and input. E.g. physiotherapists	7	86.15	70.85*
S13. All ward-based staff should receive training to promote physical activity and mental health.	5	83.54	66.08
S14. Physical activity promotion should be integrated into all job roles, including being part of interview processes and job role descriptions.	3	74.62	52.69
S15. Staff appraisals should include discussions on promoting physical activity, providing staff the opportunity to highlight any need for additional support.	1	72.38	54.92
S16. Enhancing the capacity of the physical activity workforce is vital. This can be achieved through initiatives like student placements, peer support workers, and staff champions. It's essential to have strategies for recruitment, training, career advancement, and retention of physical activity staff. A sufficient workforce can ensure service delivery, especially when there are no dedicated physical activity staff, thereby avoiding a single point of failure.	7	90.31*	63.23
S17. The personal characteristics of physical activity staff are critical to the success of service delivery. It is essential that they embody qualities such as being positive role models, compassionate, and motivated.	5	89.54	71.23*
S18. Creating a positive day-to-day physical activity culture among staff is essential so physical activity and health becomes a priority on the ward. Providing training for all staff is crucial to facilitate and sustain this culture.	8*	85.54	63.00
S19. Dedicated staff should have the time and resources to promote physical activity. These staff are employed and supported by the service. They are part of the structure of the organisation and embedded within the setting.	8*	89.62*	64.46
S20. Similar to other therapies, physical activity time should be protected and scheduled into a SU's timetable. It is important to ensure that both SUs and ward staff are aware of this designated time for physical activity.	10*	90.85*	68.23*

Table 3.

Delivery strategies impact, feasibility, and effectiveness scores.

Strategy	Effective Votes	Impact Score	Feasibility score
S21. Services should have appropriate infrastructure and the capacity to facilitate consistent access to physical activity, including ward settings.	10*	94.67*	60.33
S22. It is important to ensure easy access to physical activity areas while prioritising least restrictive practices and inclusivity. Yet, it is also important to ensure that everyone, including service users and providers, feel safe in these spaces.	5	88.67	68.25
S23. Physical activity should be considered as a human right and made accessible to individuals with varying situations and needs. It should not be restricted only to certain situations, such as when individuals demonstrate low risk, or used as control, punishment or as a rewards-based incentive.	8*	93.83*	71.50
S24. Services should provide activewear and equipment where needed.	3	82.17	48.50
S25. People learn in different ways. Hence, we should use a variety of methods to educate staff on physical activity promotion (e.g. visual, audio)	2	75.00	72.18*
S26. Strategic planning is essential to deliver physical activity in low-resource settings by matching individuals with available resources. For example, if a SU wants to go for a walk, this can be facilitated by a staff member who may not be an expert but can provide assistance. This approach ensures that SUs with more complex needs can receive support from physical activity experts when needed.	5	86.67	70.42
S27. Physical activity services should prioritise promoting joyful and pleasurable movement to foster intrinsic motivation for engaging in physical activity. Additionally, increasing awareness about the potential discomfort associated with physical activity helps to normalise such feelings.	5	85.92	66.83
S28. Systems and structures should be established to ensure that staff members adhere to the necessary standards and have a well-defined direction. The services should not solely depend on the personal drive of the staff. Instead, the implementation of incentives and key performance indicators may be necessary to motivate and guide them.	5	88.08	63.50
S29. Services must consider and value the relational aspects and social dynamics in the delivery of physical activity. Establishing an equal and stigma free relationship between SUs and their providers is crucial.	0	84.25	67.92
S30. Delivers should have an individualised understanding of the SU and how physical activity can be integrated into their care plan. The approach must be trauma informed, person-centred, inclusive, culturally sensitive, and strength-based.	5	87.58	71.75

S31. Programmes should be co-designed and include SU input. Providers must understand how to meaningfully and effectively co-design with SUs.	10*	89.58	78.08*
S32. Programmes should consider the sensitivities around language used to promote physical activity and to foster positive relationships. This language should aim to remove any stigma associated with exercise and encourage incidental activity.	1	80.83	74.75*
S33. Strategies should be in place to aid service users in transitioning back into the community. These strategies should facilitate the continuation of physical activity in community settings like local gyms, especially in less structured environments.	6	90.58*	71.17

Declarations

Ethics Approval and Consent to Participate

Loughborough University ethics committee approved the study (2024-17610-17600). Prior to the start of the study, all participants gave informed consent to participate and to be recorded.

Consent for Publication

Not applicable

Competing Interests

All authors declare no relevant financial or non-financial interests.

Funding Statement

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors. EM is supported by the Southeast Technological University TU RISE programme, which is funded by the ERDF Southern, Eastern & Midland Regional Programme 2021–27. SR is supported by a SR is funded by an NHMRC EL2 fellowship (APP2017506). JF is supported by a UK Research and Innovation Future Leaders Fellowship (MR/Y033876/1) and the NIHR Manchester Biomedical Research Centre (NIHR203308). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. JAK is supported by the National Institute for Health Research (NIHR) Leicester Biomedical Research Centre.

Author Contributions

TK and FK led the study design and contributed substantially to the development and drafting of each section of the manuscript. JA and WT played key roles in data collection, specifically steps three to five, data analysis and redrafting of the initial manuscript. All authors (TK, FK, JA, WT, OL, KM, EM, JD, RC, JSK, KB, JF, SR, TB, AR, MW, JR, EV, HJ) reviewed and edited multiple iterations of the manuscript and approved the final version for submission.

Acknowledgements

We want to thank all participants in the study.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

List of Abbreviations

KBIM: Keeping the Body in Mind

NGT: Nominal Groups Technique

PA: Physical Activity

PICU: Psychiatric Intensive Care Unit

SU: Service User

References

Ball, H., Yung, A., & Bucci, S. (2022). Staff perspectives on the barriers and facilitators to exercise implementation in inpatient mental health services: A qualitative study. *Mental Health and Physical Activity*, *22*, 100452.

Bartels, S., Brunette, M., Aschbrenner, K., & Daumit, G. (2015). Implementation of a system-wide health promotion intervention to reduce early mortality in high-risk adults with serious mental illness and obesity. *Implementation Science*, *10*(S1), 1-3.

Borge, L., Rossberg, J. I., & Sverdrup, S. (2013). Cognitive milieu therapy and physical activity: Experiences of mastery and learning among patients with dual diagnosis. *Journal of Psychiatric and Mental Health Nursing*, *20*(10), 932-942.

Cantrill, J. A., Sibbald, B., & Buetow, S. (1996). The Delphi and nominal group techniques in health services research. *International Journal of Pharmacy Practice*, *4*(2), 67-74. https://academic.oup.com/ijpp/article/4/2/67/6141190

Carney, R., Imran, S., Law, H., Carmichael-Murphy, P., Charlton, L., & Parker, S. (2024). "If you're struggling, you don't really care" -- What affects the physical health of young people on child and adolescent mental health inpatient units? A qualitative study with service users and staff. *BMC Psychiatry*, *24*(1), 1-15.

Carney, R., Law, H., El-Metaal, H., Savage, S., Small, I., Hann, M., et al. (2024). A multidisciplinary weight management intervention for adults with severe mental illness in forensic psychiatric inpatient services (Motiv8): A single blind cluster-randomised wait-list controlled feasibility trial. *Frontiers in Psychiatry*, *15*, 1-13.

Cooper, S., Cant, R., Luders, E., Waters, D., Henderson, A., Hood, K., et al. (2020). The nominal group technique: Generating consensus in nursing research. *Journal of Nursing Education*, *59*(2), 65-67.

Curtis, J., Teasdale, S. B., Morell, R., Wadhwa, P., Watkins, A., Lederman, O., Donnell, C. O, Fibbins, H., & Ward, P. B. (2024). Implementation of a lifestyle and life-skills intervention to prevent weight-gain and cardiometabolic abnormalities in young people with first-episode psychosis as part of routine care: The Keeping the Body in Mind program. *Early Intervention in Psychiatry*, *18*(9), 731-738.

Czosnek, L., Lederman, O., Cormie, P., Zopf, E., Stubbs, B., & Rosenbaum, S. (2019). Health benefits, safety and cost of physical activity interventions for mental health conditions: A meta-review to inform translation efforts. *Mental Health and Physical Activity*, *16*, 140-151. https://doi.org/10.1016/j.mhpa.2018.11.001

Deenik, J., Tenback, D. E., Tak, E. C. P. M., Blanson Henkemans, O. A., Rosenbaum, S., Hendriksen, I. J. M., et al. (2019). Implementation barriers and facilitators of an integrated multidisciplinary lifestyle enhancing treatment for inpatients with severe mental illness: The MULTI study IV. *BMC Health Services Research*, *19*(1), 1-13.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). *Group techniques for program planning: A guide to nominal group and Delphi processes*. Scott, Foresman.

Estabrooks, P., Smith-Ray, R. L., Dzewaltowski, D. D., Dowdy, D., Lattimore, D., Rheaume, C., et al. (2011). Sustainability of evidence-based community-based physical activity programs for older adults: Lessons from Active for Life. *Translational Behavioral Medicine*, *1*(2), 208-215.

Galappathie, N., Khan, S. T., & Hussain, A. (2017). Civil and forensic patients in secure psychiatric settings: A comparison. *BJPsych Bulletin*, *41*(3), 156-159.

Garber, C. E., Blissmer, B., Deschenes, M. R., Franklin, B. A., Lamonte, M. J., Lee, I. M., et al. (2011). Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: Guidance for prescribing exercise. *Medicine and Science in Sports and Exercise*, *43*(7), 1334-1359.

Gattrell, W. T., Hungin, A. P., Price, A., Winchester, C. C., Tovey, D., Hughes, E. L., et al. (2022). ACCORD guideline for reporting consensus-based methods in biomedical research and clinical practice: A study protocol. *Research Integrity and Peer Review*, *7*(1), 1-10.

Glowacki, K., Weatherson, K., & Faulkner, G. (2019). Barriers and facilitators to health care providers' promotion of physical activity for individuals with mental illness: A scoping review. *Mental Health and Physical Activity*, *16*, 152-168. https://doi.org/10.1016/j.mhpa.2018.10.006

Hassan, J., Shannon, S., Tully, M. A., McCartan, C., Davidson, G., Bunn, R., et al. (2022). Systematic review of physical activity interventions assessing physical and mental health outcomes on patients with severe mental illness (SMI) within secure forensic settings. *Journal of Psychiatric and Mental Health Nursing*. Advance online publication.

Holley, J., Weaver, T., & Vollm, B. (2020). The experience of long stay in high and medium secure psychiatric hospitals in England: Qualitative study of the patient perspective. *International Journal of Mental Health Systems*, *14*(1), 1-12. https://doi.org/10.1186/s13033-020-00358-7

Johnson, M., Day, M., Moholkar, R., Gilluley, P., & Goyder, E. (2018). Tackling obesity in mental health secure units: A mixed method synthesis of available evidence. *BJPsych Open*, *4*(4), 294-301.

Kandola, A., Ashdown-Franks, G., Hendrikse, J., Sabiston, C. M., & Stubbs, B. (2019). Physical activity and depression: Towards understanding the antidepressant mechanisms of physical activity. *Neuroscience & Biobehavioral Reviews*, *107*, 525-539. https://doi.org/10.1016/j.neubiorev.2019.09.040

Keel, T., Machaczek, K., King, J., Breen, K., & Kinnafick, F. E. (2025a). Physical activity services for inpatients in secure mental health settings: What works, in what circumstances and why? A realist synthesis. *Mental Health and Physical Activity, 100716.*

Keel, T., Rahman, M. G., & Waugh, M. (2025b). A realist inquiry exploring a ward based physical activity service in a psychiatric intensive care unit. *BJPsych Open*, *11*(S1), S8-S9. https://doi.org/10.1192/bjo.2025.10094

Kinnafick, F. E. E., Papathomas, A., & Regoczi, D. (2018). Promoting exercise behaviour in a secure mental health setting: Healthcare assistant perspectives. *International Journal of Mental Health Nursing*, *27*(6), 1776-1783.

Korge, J., & Nunan, D. (2018). Higher participation in physical activity is associated with less use of inpatient mental health services: A cross-sectional study. *Psychiatry Research*, *259*, 550-553. https://doi.org/10.1016/j.psychres.2017.11.030

Korman, N., Fox, H., Skinner, T., Dodd, C., Suetani, S., Chapman, J., et al. (2020). Feasibility and acceptability of a student-led lifestyle (diet and exercise) intervention within a residential rehabilitation setting for people with severe mental illness, GO HEART (group occupation, health, exercise and rehabilitation treatment). *Frontiers in Psychiatry*, *11*.

Lederman, O., Suetani, S., Stanton, R., Chapman, J., Korman, N., Rosenbaum, S., et al. (2017). Embedding exercise interventions as routine mental health care: Implementation strategies in residential, inpatient and community settings. *Australasian Psychiatry*, *25*(5), 451-455.

Machaczek, K. K., Firth, J., Tew, G. A., Stubbs, B., Jones, G., & Peckham, E. J. (2023). Towards the standardization of physical activity programs for severe mental ill health: A survey of current practice across 54 mental health trusts in England. *Psychiatry Research*, *330*, 115602. https://doi.org/10.1016/j.psychres.2023.115602

Machaczek, K. K., Quirk, H., Firth, J., Carney, R., Copeland, R. J., Pollard, N., et al. (2022). A whole systems approach to integrating physical activity to aid mental health recovery - Translating theory into practice. *Mental Health and Physical Activity*, *23*, 100480. https://doi.org/10.1016/j.mhpa.2022.100480

Martland, R., Gaughran, F., Stubbs, B., & Onwumere, J. (2021). Perspectives on implementing HIIT interventions for service users in inpatient mental health settings: A qualitative study investigating patient, carer and staff attitudes. *Journal of Affective Disorders*, *283*, 198-206. https://doi.org/10.1016/j.jad.2021.01.065

Martland, R., Korman, N., Firth, J., & Stubbs, B. (2023). The efficacy of exercise interventions for all types of inpatients across mental health settings: A systematic review and meta-analysis of 47 studies. *Journal of Sports Sciences*, *41*(3), 232-271.

Matthews, E., Cowman, M., Brannigan, M., Rosenbaum, S., Sloan, D., Ward, P. B., et al. (2022). Implementing experience-based co-design to develop a physical activity programme in recovery-focused outpatient mental health services. *International Journal of Therapy and Rehabilitation*, *29*(4).

McMillan, S. S., King, M., & Tully, M. P. (2016). How to use the nominal group and Delphi techniques. *International Journal of Clinical Pharmacy*, *38*(3), 655-662. https://doi.org/10.1007/s11096-016-0257-x

Mehta, N. (2011). Mind-body dualism: A critique from a health perspective. *Mens Sana Monographs*, *9*(1), 202-209.

Michel, D. E., Iqbal, A., Faehrmann, L., Tadic, I., Paulino, E., Chen, T. F., et al. (2021). Using an online nominal group technique to determine key implementation factors for COVID-19 vaccination programmes in community pharmacies. *International Journal of Clinical Pharmacy*, *43*(6), 1705-1717. https://doi.org/10.1007/s11096-021-01335-x

Musbahi, O., Syed, L., Le Feuvre, P., Cobb, J., & Jones, G. (2021). Public patient views of artificial intelligence in healthcare: A nominal group technique study. *Digital Health*, *7*.

Perry, B., Husband, H., Chew-Graham, C., Tiffin, E., French, P., Pratt, P., et al. (2023). *Positive cardiometabolic health resource: An intervention framework for people experiencing*

psychosis and schizophrenia. 2023 update. https://www.rcpsych.ac.uk/docs/default-source/improving-care/ccqi/national-clinical-audits/ncap-library/eip-2024/ncap-lester-tool-intervention-framework.pdf

Piggin, J. (2020). What is physical activity? A holistic definition for teachers, researchers and policy makers. *Frontiers in Sports and Active Living*, *2*, 1-7.

Poling, R. (2009). *The nominal group technique*. University of Arkansas. https://www.uaex.uada.edu/support-units/program-staff-development/docs/NGTProcess%2012.pdf

Potter, M., Gordon, S., & Hamer, P. (2004). The nominal group technique: A useful consensus methodology in physiotherapy research. *New Zealand Journal of Physiotherapy*, *32*(3).

Quirk, H., Crank, H., Harrop, D., Hock, E., & Copeland, R. (2020). Understanding the experience of initiating community-based physical activity and social support by people with serious mental illness: A systematic review using a meta-ethnographic approach. *Systematic Reviews*, *6*(1

Rahman, M., Taylor, C., Abdullahi, R., Okwuokei, A., Waugh, M., Kaji, M., et al. (2021). Nile Ward PICU violence reduction quality improvement project. *BJPsych Open*, *7*(S1), S213-S214.

Rahman, M., Taylor, C., Abdullahi, R., Okwuokei, A., Kaji, M., Waugh, M., et al. (2022). Nile Ward PICU violence reduction quality improvement project -- One year on. *BJPsych Open*, *8*(S1), S108-S109.

Rogers, E., Anthony, J., Papathomas, A., Breen, K., & Kinnafick, F. E. (2025). Educating staff on physical activity promotion in secure psychiatric care: The development of a self-determination theory informed intervention. *Archives of Psychiatric Nursing*, *57*, 151909. https://doi.org/10.1016/j.apnu.2025.151909

Rogers, E., Kinnafick, F. E., & Papathomas, A. (2019). Physical activity in secure settings: A scoping review of methods, theory and practice. *Mental Health and Physical Activity*, *16*, 80-95. https://doi.org/10.1016/j.mhpa.2018.11.004

Rogers, E., Papathomas, A., & Kinnafick, F. E. E. (2021). Inpatient perspectives on physical activity in a secure mental health setting. *Psychology of Sport and Exercise*, *52*, 101827. https://doi.org/10.1016/j.psychsport.2020.101827

Rosenbaum, S., Ward, P. B., Baldeo, R., Fibbins, H., Jarman, R., Lederman, O., et al. (2020). Changing health workforce attitudes to promote improved physical health in mental health service users: Keeping our Staff in Mind (KoSiM). *Health Promotion Journal of Australia*, *31*(3), 447-455.

Sallis, J. F., Owen, N., & Fisher, E. (2008). Ecological models of health behavior. In K. Glanz, B. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed.). Jossey-Bass.

Sampogna, G., Luciano, M., Di Vincenzo, M., Toni, C., D'Ambrosio, E., Rampino, A., et al. (2023). Physical activity influences adherence to pharmacological treatments in patients with severe mental disorders: Results from the multicentric, randomized controlled LIFESTYLE trial. *Frontiers in Pharmacology*, *14*, 1-11.

Schouten, S. E., Kip, H., Dekkers, T., Deenik, J., Beerlage-de Jong, N., Ludden, G. D. S., et al. (2022). Best-practices for co-design processes involving people with severe mental illness for eMental health interventions: A qualitative multi-method approach. *Design for Health*, *6*(3), 316-344. https://doi.org/10.1080/24735132.2022.2145814

Smith, D., Cartwright, M., Dyson, J., & Aitken, L. M. (2024). Use of nominal group technique methods in the virtual setting: A reflective account and recommendations for practice. *Australian Critical Care*, *37*(1), 158-165.

Soundy, A., Freeman, P., Stubbs, B., Probst, M., & Vancampfort, D. (2014). The value of social support to encourage people with schizophrenia to engage in physical activity: An international insight from specialist mental health physiotherapists. *Journal of Mental Health*, *23*(5), 256-260.

Soundy, A., Kingstone, T., & Coffee, P. (2012). Understanding the psychosocial processes of physical activity for individuals with severe mental illness: A meta-ethnography. *Mental Illness*, 3-20.

Stubbs, B., & Rosenbaum, S. (2018). *Exercise-based interventions for mental illness: Physical activity as part of clinical treatment*. Academic Press.

Stubbs, B., Ma, R., Teychenne, M., Kinnafick, F., Mossaheb, N., Korman, N., Trott, M., Rosenbaum, S., Schuch, F., Firth, J., & Vancampfort, D. (2026). Integrating physical activity into routine psychiatric care: A review. *JAMA Psychiatry*. Advance online publication. https://doi.org/10.1001/jamapsychiatry.2026.0026

Stubbs, B., Vancampfort, D., Hallgren, M., Firth, J., Veronese, N., Solmi, M., et al. (2018). EPA guidance on physical activity as a treatment for severe mental illness: A meta-review of the evidence and Position Statement from the European Psychiatric Association (EPA), supported by the International Organization of Physical Therapists in Mental Health. *European Psychiatry*, *54*, 124-144.

Sumner, J., Ng, C. W. T., Teo, K. E. L., Peh, A. L. T., & Lim, Y. W. (2024). Co-designing care for multimorbidity: A systematic review. *BMC Medicine*, *22*(1). https://doi.org/10.1186/s12916-024-03263-9

Szabo, C. P., Fine, J., Mayers, P., Naidoo, S., Zabow, T., Bornman, J., et al. (2017). Mental health leadership and patient access to care: A public-private initiative in South Africa. *International Journal of Mental Health Systems*, *11*(1), 1-8.

Teychenne, M., White, R. L., Richards, J., Schuch, F. B., Rosenbaum, S., & Bennie, J. A. (2020). Do we need physical activity guidelines for mental health: What does the evidence tell us? *Mental Health and Physical Activity*, *18*, 100315. https://doi.org/10.1016/j.mhpa.2019.100315

Vancampfort, D., De Hert, M., Vansteenkiste, M., De Herdt, A., Scheewe, T. W., Soundy, A., et al. (2013). The importance of self-determined motivation towards physical activity in patients with schizophrenia. *Psychiatry Research*, *210*(3), 812-818. https://doi.org/10.1016/j.psychres.2013.10.004

Vancampfort, D., Stubbs, B., Ward, P. B., Teasdale, S., & Rosenbaum, S. (2015). Integrating physical activity as medicine in the care of people with severe mental illness. *Australian and New Zealand Journal of Psychiatry*, *49*(8), 681-682.

Vancampfort, D., Rosenbaum, S., Schuch, F. B., Ward, P. B., Probst, M., & Stubbs, B. (2016). Prevalence and predictors of treatment dropout from physical activity interventions in schizophrenia: A meta-analysis. *General Hospital Psychiatry*, *39*, 15-23. https://doi.org/10.1016/j.genhosppsych.2015.11.008

Vancampfort, D., Scheewe, T. W., van Daam, T., & Deenik, J. (2020). The efficacy of physical activity on psychiatric symptoms and physical health in people with psychiatric disorders: A systematic review of recent meta-analyses. *Tijdschrift voor Psychiatrie*, *62*(11), 936-945.

Van Schothorst, M., Den Bleijker, N., & De Vries, N. (2022). Perceived barriers and facilitating factors prior to the implementation of a lifestyle focused approach in the treatment of inpatients with mental illness. *European Psychiatry*, *65*(Suppl. 1), 819.

Watkins, A., Stein-Parbury, J., Curtis, J., Poole, J., Teasdale, S., Fibbins, H., et al. (2023). Tackling change in mental health service delivery: A qualitative evaluation of a lifestyle program targeting mental health staff - Keeping our Staff in Mind (KoSiM). *Health Promotion Journal of Australia*, *34*(1), 237-245.

World Health Organization. (2018). *WHO guidelines: Management of physical health conditions in adults with severe mental disorders*. World Health Organization. https://www.who.int/mental_health/evidence/guidelines_severe_mental_disorders_web_note_2018/en/

World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour*. World Health Organization.

Zierotin, A., Norton, M. J., O'Donoghue, B., O'Connor, K., & Clarke, M. (2025). Physical health in psychosis: A perspective on the recovery paradigm. *Irish Journal of Psychological Medicine*, 1-7.

Highlights

- Implementing PA programmes in inpatient MHS is challenging
- This study translates expertise into practical PA implementation strategies
- Strategies backed by leadership and resources are more effective and impactful
- Independent approaches that bypass systemic barriers are seen as more feasible
- 33 strategies offer nuanced understanding of PA implementation in complex MHS

Declaration of competing interests

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: N/A.