Barriers and facilitators to increasing physical activity in medium secure mental health settings: an exploration of staff perceptions.

Highlights

- Increasing physical activity for individuals with SMI in secure settings is recognised as important
- There are complex issues surrounding capability and motivation of medium secure service users to be physically active
- Opportunities to be active require access to facilities and staff motivation and confidence to support these opportunities.

Abstract

Purpose

The benefits of physical activity for people with severe mental illness (SMI) is widely recognised but for those in medium secure settings there are additional environmental barriers to being active that have not been fully explored. The aim of this study was to explore the perceived barriers and facilitators from the perspective of staff within the medium secure setting.

Method

Semi-structured focus groups were conducted with qualified and unqualified staff (n=24) across two UK medium secure NHS settings. Michie's COM-B framework was used to inform the topic guide and the analysis of the data.

Results

The opportunities to be active in medium secure settings depend not only on access to facilities but also staff availability and willingness to support such activities. When an individualised approach is taken, and staff are skilled and motivated to support such activities then it is possible for people with SMI in medium secure settings to be physically active.

Conclusion

People with SMI in secure settings have reduced autonomy to increase their own physical activities but it was suggested that with the appropriate opportunities and the motivation of staff their capability to be active could be enhanced.

Key words

Qualitative, focus groups, severe mental illness, secure service, physical activity, barriers, facilitators, COM-B

Introduction

Individuals with severe mental illness (SMI) have poor physical health and typically a shorter life span than the rest of population by 20-25 years, due to health issues such as obesity, high cholesterol, and respiratory problems (De Hert et al., 2011; Correll et al., 2017). Sedentary behaviour and low physical activity are independent risk factors for cardiovascular disease and premature mortality in people with SMI (Vancampfort et al., 2017).

Physical activity (PA) interventions have been shown to improve the physical and mental health of people with SMI (Vancampfort & Faulkner, 2014; Kandola & Osborn, 2022; McKeon et al., 2022). The notion that PA can improve depressive symptoms is well established (Farmer et al., 1988, Mendez-Aguado, et al., 2023)). It is not a novel idea to incorporate PA into treatment plans for people with SMI. Novelty comes from the execution and implementation of the PA intervention to achieve increases in activity levels, as amotivation (a lack of motivation to engage in any activity, [Deci and Ryan 1985]), which often accompanies SMI, can affect participation (Vancampfort et al., 2015; Anthony et al., 2020). Furthermore, the environment can often be restrictive in hospital settings by limiting opportunities for habitual and recreational physical activity and the implementation of novel PA interventions (Faulkner et al., 2009).

Due to complex environmental factors of medium secure mental health settings, there is often restrictions and limited research conducted with service users in this population (Faulkner, 2004; MacInnes et al., 2011; Völlm et al., 2017). Thus, there is limited evidence available on PA and its effects on physical and psychological health for service users residing in such settings, in addition to research on the implementation of PA interventions. Secure psychiatric settings have been categorised as either low, medium or high. Low is when service users are impeded from leaving due to the risk of harm to themselves or others, medium is when service users must be restricted, for the same reasons, and high is when they should not be able to leave as they present an immediate and grave danger to the public. (NHS, 2021). When reviewing the literature, it is important to understand from which setting any interventions have been implemented to understand the environmental context. However, in both individual studies and reviews of the literature the context is often insufficiently reported to fully comprehend the settings. In a systematic review and meta-analysis, Firth et al. (2016) included studies from community-based outfits (65%) and psychiatric units (security level unknown – 35%). They found that improving physical health, improving mood, losing weight, and reducing stress, were key motivators for patients with

SMI to engage in physical activity. Furthermore, supervision and delivery by qualified professionals, such as an exercise therapist, improved adherence of people with schizophrenia in PA intervention trials (Firth et al., 2016; Stubb et al., 2017; Vancampfort et al., 2016).

A review of studies to explore and identify physical activity determinants in secure settings (including low, medium and high), suggested a need for further information on the barriers and facilitators to exercise and the monitoring of exercise intensity by devise-based measures in PA following an intervention (Rogers et al., 2018). Only two studies in the Rogers et al., (2018) review looked specifically at barriers. One of these (Bacon et al, 2011) used WiFitt as an intervention and just two participants. The other, Firth et al., 2017 was in a community setting where low motivation was identified as a barrier. Other common barriers discussed in the review were that exercise was not prioritised, staff had a lack of knowledge and training, and the environment was unsuitable (Rogers et al., 2018). Hasson et al. (2022) in their systematic review of physical activity outcomes in secure mental health settings suggest physical activity can be effective but service users may be reluctant to participate and there is a lack of opportunity. Only three studies in forensic settings were included in the review and given the low number of participants they recommend further research is undertaken in this area. A recent systematic review of barriers to exercise as an intervention in SMI (McKenna et al., 2024) using a narrative synthesis approach, found only 2 studies in secure settings (Every-Palmer et al., 2019 in New Zealand and Long-Mason et al., 2014 in the UK). Barriers included personal factors such as low motivation, impact of medication, a lack of social support and environmental barriers leading to a lack of autonomy due to highly restrictive practices (Every-Palmer et al., 2019). The first qualitative study with individuals living in secure psychiatric services (Rogers et al., 2021a) concluded that environmental as well as personal barriers exist and that a ‘holistic culture of inactivity exists’ and that exploring the subordinate role given to physical health (over mental health) is essential if we are to understand how it can be integrated into services. Long and Mason (2014) also identified a lack of staff responsible for exercise and low priority over other sessions (Long and Mason, 2014). This corresponds with studies of staff perceptions suggest safeguarding procedures and conflicting views on whether or not exercise promotion is their responsibility, are potential barriers to exercise promotion in secure settings (Kinnafick et al., 2018). In addition, high secure services are compelled to offer facilities to support service users physical as well as mental health (NHS, 2021) whereas low security have more freedom to use community services. However, the service users of medium secure services have limited freedoms, but not the same level of access and opportunities on-site to be active as offered in high security services. The evidence for successful interventions in medium

secure settings is limited and further insights are required as to how they can be successfully designed, implemented and integrated.

The IMPACT study investigated the feasibility of designing, implementing and evaluating a co-produced PA intervention and had four complimentary phases involving two UK National Health Service (NHS) medium secure services. Phases 1-2 gathered information on barriers and facilitators to develop an evidence-based PA intervention in Phase 3. Phase 4 tested the feasibility and acceptability of the PA intervention. This paper focuses on Phase 1 which aimed to explore staff perceptions of the barriers and facilitators to increasing physical activity in a medium secure mental health service. Identifying these barriers and facilitators was considered a critical first formative step in the developing the intervention. Information from service users was also collected and is reported elsewhere, the focus of this study was to understand staff perceptions of the barriers and facilitators as previous research (Kinnafick et al., 2018; Rogers et al., 2021) suggests they are fundamental in providing physical health services and therefore understanding their views is essential to planning future interventions.

Methods

Design

A qualitative study was conducted using focus groups with qualified* and non-qualified staff from 2 NHS medium secure mental health services, employed for a minimum of 3 months at the service. *Registered members of a professional body that oversees qualification and training

The study took place in two UK NHS medium secure mental health services (Study Site A and Study Site B), which provide inpatient treatment and care to adult service users with serious mental health problems and who present a serious risk of harm to others and/or to themselves. Service users in these settings are detained under the Mental Health Act 1983` (amended in 2007) and are prevented from leaving the hospital without authorisation from their Responsible Clinician. Study Site A was based in a mixed rural and urban area in the north of England, UK and had 90 beds and 7 wards. Study Site B was based in a city and in the Midlands of England, UK and had 102 beds and 6 wards. The service users at these sites have a formal diagnosis which may include: schizophrenia, schizoaffective disorder, emotionally unstable personality disorder, dissocial personality disorder, paranoid schizophrenia. The exercise options available varied between sites and wards but included

chair-based activities, low impact circuits, dance aerobics (ward activities), walking football, badminton (off ward) and swimming, community gym (off-site activities).

Sampling and recruitment

Staff were purposively recruited (Palinkas et al., 2015) between November 2021 to April 2022 by the research team. Emails were sent to staff inviting them to participate in a focus group. Inclusion criteria for recruiting the hospital staff to participate were 1) aged 18 or above and 2) had been employed at the medium secure service for more than 3 months.

Data collection

After written informed consent had been obtained, semi-structured focus groups were facilitated by GL at both sites in person, with the support of TW and SG, and NHS Research Delivery Officers. The topic guide was developed using the Capability, Opportunity and Motivation for Behaviour Change model (COM-B) (Michie et al., 2014) as a structural base but participants were encouraged to explore different sub-topics if they felt there were important issues to discuss. The COM-B is a framework that supports identifying factors within the categories of Capability, Opportunity, and Motivation, which has been shown to be effective when trying to develop and implement behaviour change interventions (Baxter et al., 2022). The COM-B model synthesis key theoretical constructs from a range of different behaviour change frameworks, it is sufficiently broad as to be applicable to a range of behaviours (Michie et al., 2014) and has been used frequently to explain physical activity behaviour (Brown et al., 2023; Ellis et al., 2028; Flannery et al., 2018) and to understand the behaviour of people with SMI (Brigg et al., 2022; Mangurian et al., 2017; Mishu et al., 2022). Questions included asking staff what they perceived as the main reasons for preventing service user's physical activity and what differences existed in terms of freedom of movement and risk related restrictions (see focus group guide).

Data analysis

Data were analysed using framework analysis (Skivington et al., 2021) with a priori themes aligned to the COM- model where appropriate. Framework analysis was chosen as it allows for a priori research questions whilst also allowing for issues to fall outside of the model where appropriate. Framework analysis requires 5 steps, the first of which is data familiarisation, followed by identifying a thematic framework, in this case the COM-B framework provided the starting point. The third step involves indexing all data against the framework, before charting the summarized data and finally mapping and interpretation of patterns (themes) (Richie and Spenser 1994). The focus groups were audio-recorded and transcribed verbatim with numbers ascribed to each participant. In this instance the

transcripts were read multiple times by GL to allow familiarity of the data before being inputted into Nvivo Version 12.6 (2019). The framework was created by GL, and then reviewed by TW and KL. All authors reviewed and refined the identified themes to ensure they reflected the original data. This method of analysis has been previously used to analyse barriers and facilitators to behaviour change using the COM-B model (Brown et al., 2024; Atkins et al., 2020; Cheung et al., 2023)

Reflexivity

The research team included a range of academic, professionals and those with lived experience of medium secure services. They made up the research management group, there was also a separate research steering group to oversee the process. Again, this included a range of professionals and those with experiences of working and residing in medium secure services. We were aware of the power dynamics that exist within secure settings (Rogers et al, 2021b) and were therefore keen for our presence as outsiders to allow for all voices within the setting to be heard. This stage of the research involved staff with varying degrees of knowledge, understanding and empathy towards physical activity and varying degrees of power within the setting. The researchers engaged in the data collection spent considerable time within both settings getting to know the staff and service users and the focus group guide was deliberately kept broad to allow for discussions to move into any areas thought relevant to staff. This phase of the research was to support the co-production of a physical activity intervention with service users therefore the focus group guide was reviewed by those with lived experience as service users as part of the research steering group and research management group to ensure it would capture all data relevant for the next stage of the research. Once data was collected and analysed the findings were discussed with the wider research management and steering group to ensure any preconceptions of the secure units were not impacting the findings. The collaborative research approach required active and ongoing exploration of the motives, expectations and assumptions of all involved (interpersonal reflexivity) (Olmos-Vega et al.,2023). An example being that discussions on barriers to increasing PA can often be rooted to the lack of freedom and autonomy held by service users. The authors of this paper discussed how researchers can unknowingly be significantly negatively affected by these discussions, especially when there is a need to continuously familiarise and review the content to generate analysis of the data. The authors discussed how the continued reminder to the lack of freedom and autonomy held by service users could be internalised by the researchers and thus affecting the analysis of the data. This point highlights the importance of reflecting on discussions with others and ensuring the views and attitudes of the focus group participants

are cognisant of any previous expectations of the researchers involved in the data collection and analysis.

Ethical approval

Ethical approval was gained from Northeast - Newcastle & North Tyneside 2 Research Ethics Committee REC reference: 21/NE/0080 IRAS project ID: 297420. Focus groups commenced after informed consent was obtained and participant names have been pseudonymized. This study was funded by the National Institute for Health and Care Research (NIHR) [Applied Research Collaboration North-East and North Cumbria (NIHR 207420)].

Results

Participants

Twenty-four hospital staff took part in four focus groups, two per site. In study site A, eight hospital staff were recruited and in study site B, sixteen hospital staff were recruited across the four focus groups. A mix of hospital staff participated, See table 1

Job Role	Number of participants
Day co-ordinator	3
Occupational Therapist	2
Occupational Therapist Assistant	1
Sport and leisure facilitator	4
Research fellow	1
Doctor/trainee doctor	4
Nurse	5
Consultant	1
Psychologist	1
Ward Manager	2

Themes

The results are presented as per the framework which is aligned to the COM-B model (see figure 1).

Figure 1: COM-B model

The use of a priori theme meant we were specifically looking for barriers and facilities related to Capability, Opportunity and Motivation and the subthemes within these 3 categories. If there were no data to support anyone of these themes, then they were left blank (this did not occur). If there were any new themes that did not fit within the framework then these would have been added (but again all the themes fitted within the COM-B framework). The fact the participants raised issues from all components of the COM-B supports its utility and comprehensiveness as a framework. It is also likely to be as a result of the questions and probes being framed around the COM-B model (see focus group guide). The Themes are presented for each element and an example of a quote from staff is used to illustrate how the data is represented within the theme and whether this is regarded as a barrier of facilitator (see tables 2-8)

Capability (physical, cognitive, knowledge)

Physical capability – it was suggested by staff that although some service users were already physically fit (and not interested in the activities on offer) it was more often the case that poor physical fitness restricted their ability to participate. To overcome this an individualised approach is needed to support the various levels of physical ability of the service users and staff with knowledge of physical activity are required (see table 2)

Theme	Barrier or Facilitator	

Physical Health impacting activities	Barrier	*We have had some people that have had to have restricted exercise programmes because they have certain conditions but we always try to work around that.* (P24)
Graded and individual plans	Facilitator	*We do one to one sessions as well that is tailored for people who may have COPD (chronic obstructive pulmonary disease) or they have got issues with overweight.* (P19)
Disengaging due to better physical health	Barrier	Some service users already have high fitness levels and so will disengage with what we offer (AL2 P20)

Table 2 Capability – physical barriers and facilitators

Cognitive capability– similarly the cognitive capability of service users was deemed as both a potential barrier and facilitator as both their mental health and the impact of medication could prevent them from being active. This overlaps with motivation which it could be argued is what affects the participation. It was believed by staff that goal setting is an important tool to aid participation. See table 3.

Theme	Barrier or Facilitator	Supporting quote
Symptoms of mental health	Barrier	*If people are really unwell, they tend to want to stay in their room/bed.* (P7)
Side effect of medication	Barrier	*Some medication can make them feel drowsy and tired, even dizzy, so we need to be careful in the gym.* (P19)
Ability to develop goal setting	Facilitator	*A simple goal can work a bit better so like to attend a field walk a week or to go to the gym twice a week or something could be better than something too specific.* (P24)

Table 3 Capability – cognitive barriers and facilitators

Knowledge capability– knowledge of both the benefits and recommendations for physical activity were seen as important for both service users and staff with a lack of them being a barrier and increasing them a facilitator. See table 4.

Theme	Barrier or Facilitator	Supporting quote
Staff lack of awareness and understanding	Barrier	*A lot of staff may not be well informed in activities or nutrients so they might be providing the wrong information to patients, providing the wrong food or wrong activities.* (P20)
Knowledge of recommendations and benefits of activities	Facilitator	*The government's recommendation is 150 minutes of physical activity per week has started to come into secure environments under the managing healthy weight documents, so they are trying to incorporate that.* (P20)

Table 4 Capability – knowledge barriers and facilitators.

Opportunity (physical, social)–

Physical opportunity– the physical presence of facilities was recognised as important, both on and off-ward as was having sufficient staff to support the activities.. See table 5.

Theme	Barrier or Facilitator	Supporting quote
Lack of staff	Barrier	*At the minute they can't get enough access to gym or sports hall because of staffing and referral system*. (P7)
Increased On-site Activities	Facilitator	*Service users should have up to four activities a day to engage in or a form of physical activity, which is varied, for them to choose from.* (P20)

Table 5 Opportunity – physical barriers and facilitators

Social opportunity – in addition to facilities the role of the social environment was recognised in supporting physically active behaviour, the level of engagement and attitude of staff can be equally important as their presence, in providing opportunities to be active. See table 6

Theme	Barrier or Facilitator	Supporting quote
Staffing Matters – attitudes and engagement	Barrier	*We know that coming into secure hospital, people who are discharged will have a high morbidity and early age death from physical illness, cardiovascular disease and what have you. I think having a greater holistic approach, perhaps from the medics would help the patients*. (P20)

Support from staff	Facilitator	*Patients absolutely love it when we get involved in the gym working out alongside them or with them and then even playing sports as well. It makes it a lot better for us, the sessions are a lot better, the quality of sessions are a lot better as well.* (P18)

294

295 Table 6 Opportunity – social barriers and facilitators

296 ***Motivation (reflective, automative)-***

297 *Reflective motivation* - The restrictive practices and hierarchy of 'psychological interventions'
298 means that physical health of service users can be lower priority. This could be improved by
299 giving incentives to staff for promoting physical health which may be useful in increasing
300 staff motivation to support service users to be more active. It was felt that increasing
301 autonomy over when and how they are active is regarded as important to service users. See
302 table 7

Theme	Barrier or Facilitator	Supporting quote
Hospital Values and Priorities	Barrier	*I think the priority of the hospital, as a culture, would be psychological intervention take priority.* (P20)
Mental health	Barrier	*A lot of patients have negative symptoms of schizophrenia and not feeling motivated. It is really hard for some people to get out of bed, let alone to get to the gym.* (P24)
External leave as a motivator for service users	Facilitator	*When they lose 's17 leave* (their opportunity to leave the service for a restricted time) *it kills their motivation and everything. Especially when their only form of exercise was going those walks on their leave.* (P16)
CQUIN(Commissioning for Quality and Innovation reward scheme) policies used as a motivator for staff	Facilitator	*We know there is a CQUIN that is associated to healthy lifestyles, but we know that it has been diluted so much over the months that it isn't meaningful anymore, in terms of how it is perceived by my clinical team anyway*. (P6)

303

304 Table 7 Motivation – reflective barriers and facilitators

305 *Automative motivation*– it was acknowledged that alongside a lack of autonomy preventing
306 activity when motivated, it can be difficult for service users to fit activity into their daily
307 routine, however the medication can help in planning activity in this instance. See table 8.

Theme	Barrier or Facilitator	Supporting quote

Lack of autonomy of service users	Barrier	*You have to negotiate the day in the morning but if a patient doesn't get up and say they wanted to go to the gym, then there is a knock on effect of not being able to go/access being suspended.* (P20)
Impact of medication on mental stability	Facilitator	*Most of the service users who are on stable medication and stable mental state know they have to do some physical activities.* (P8)

Table 8 Motivation – automative barriers and facilitators

Discussion

Overall, through the focus groups, those working within medium secure services were able to identify several barriers and facilitators to service user's physical activity. Some of these were to do with the setting itself and the practicalities surrounding supporting service users to be active. Others were more to do with the staff, and service user's, attitudes towards being physically active and some were specific to the mental health (and resultant medication) of the service users. These findings and the implications for interventions to increase physical activity will be discussed below.

The findings were analysed within the COM-B framework and suggest that all 3 elements of the model were relevant in this setting. We identified that barriers and facilitators existed in all 3 categories for both the staff and service users in the medium secure services. At times the barriers and or facilitators potentially overlapped. For example, the service user's mental health may impact their physical and cognitive capability to be active (not being able to get out of bed), however this also impacts motivation. Whilst the framework encourages us to view barriers and facilitators in discrete categories, the means of overcoming barriers may involve addressing a range of issues together.

This study also illustrates the complication of having a serious mental illness and losing autonomy over your daily life whilst being in a medium secure setting. For example, if the person's mental illness is making it difficult for them to get out of bed, they cannot compensate by being active later in the day. This is illustrated in the quote above '*You have to negotiate the day in the morning but if a patient doesn't get up and say they wanted to go to the gym, then there is a knock-on effect of not being able to go/access being suspended.*'(P20). This element of inflexibility and need to fit in with the service's priority means there are additional barriers to activity for people with SMI who are confined in secure settings. Whilst the barriers to being active for people with SMI have been studied before the additional potential barriers for those in medium secure settings has been given little attention. Every-Palmer et al., (2019) and Rogers et al., (2021a) in their studies also

suggested that the restrictive practices of secure settings can be prohibitive. Through discussing these restrictive practises with staff involved in this study, it became apparent that these were due to two potential reasons. One is that there are health and safety concerns meaning there are specified ratios of staff to service users to ensure the safety of all that may mean activities are restricted. This links into the staffing levels which were viewed as restricting activities. Increasing staff levels may therefore provide a solution, however even if the resources allowed for greater staffing (which is likely to be limited) the second reason given was the attitude, knowledge and perceptions of the staff involved. Within a medium secure setting priority was given for psychological services and the physical health of service users was regarded as a low priority. The perceptions of staff towards promoting physical health for people with SMI has been studied previously in the community. Scoles et al., (2023) suggested that staff understood there were benefits but their role in promoting physical activity was unclear, in addition the role of physical health for mental symptoms was not recognised so it was devalued. Within the setting of this study there were a range of staff interviewed. Some with a specific role in promoting physical activity (exercise specialists, occupational therapists), but those with the power to make decisions gave priority to clinical and psychological services and when time or resources were limited it was these, and not the physical activity sessions, that were preferred.

The individual nature of the service users' physical and mental health were perceived to be important in the engagement with physical activity. The poor physical condition, such as respiratory problems, of some of the service users was seen as making it more difficult to be active as is seen in the general population with poor physical health leading to low levels of activity (Firth et al, 2016, Kandola and Osbourn, 2022). To facilitate this staff suggested that an individualised approach was needed and that by altering activities to meet the level of need of physical activity then this could be accommodated. This is again supported in the general population where individualised approaches to exercise prescription have been found to be more effective than general advice (Lehtonen et al., 2022). In addition, the service user's mental health may reduce their motivation to be active with difficulties 'getting out of bed, let alone the gym'. Again, reduced motivation is well documented in those with SMI (Hassan et al, 2022). The study by Bacon et al., (2011) found service users preferred to be active when the researchers were present. Whilst staff witnessed what was going on they were reluctant to get involved (lack of clothing, ability etc. were quoted as being the reason why). This suggests a lack of confidence in staff to be active with participants and not just time. Whilst staff told service user's to be active, they were not keen on getting involved

themselves. Again, in the present study staff discussed how service users loved it when they joined in activities supporting the role of positive role modelling. Interestingly, although medication associated with SMI may exacerbate feelings of lethargy it was also perceived as a motivator in this study by stabilising the condition and allowing service users to participate in organised activity. This is a unique finding and may be due to the study including health care professionals who have observed the impact of medication in medium secure setting.

The final area unique to this setting was off-site activities and access to these. Due to the nature of the service user's time at the service, being allowed off site to take part in activities not on site depended on them gaining 'leave'. This time away from the unit is afforded to some service users as an opportunity to take part in different types of activities. This was seen as a motivator to be physically active and demotivator when leave removed. This again shows the dependence of the service users on staff and the potentially restrictive practices impacting on their autonomy to be active. In conjunction with this being able to take part in activities provided on site was also to some extent determined by staff. The service users needed to 'negotiate' time spent being active and this privilege may be taken away. The unique setting of a medium secure service means there are strict regulations on when and how service users are allowed to participate creating significant potential barriers. Low levels of physical activity for people with SMI has been recognised as impacting on physical health and life expectancy and has been described elsewhere as a potential infringement of health rights (Thornicroft, 2011).

The impact of SMI is known to impact physical health, what appears apparent from this and previous studies, the secure setting leads to further potential barriers to people with SMI being able to actively improve their own physical health. High secure services will ensure that patients are able to access and receive appropriate services to identify and meet physical health care needs. (NHS, 2021), however meeting physical health needs in medium secure settings appears more arbitrary. It was recognised that there are examples of good practice and potentially ways that service users could be more active given the optimum opportunities, capabilities and motivation. Some staff within the wards recognised that being physically active could be given greater priority and the benefits this could bring.

Implications for practice

Capability – an individualised approach will be needed to support the various levels of physical ability of the service users and staff with knowledge of physical activity. Medication

408 can be useful in stabilising service users so they are able to join in activities, but the sedative
409 effects may also reduce capability. Further training to improve the capability of staff to
410 interact and take part in sessions could improve their confidence and motivation to engage in
411 physical activity with service users.

412 Opportunity – staffing levels are important, but the level of engagement and attitude of staff
413 can be equally important in providing opportunities to be active. As overlaps with above the
414 attitude and engagement of staff may increase with training. Opportunities to be active on
415 the wards, *on*-site and *off*-site are all important contributions to providing an active
416 environment. Restrictive practices which reduce opportunities may have to be reconsidered
417 in light of the holistic health needs of people with SMI.

418 Motivation The motivation of service users to be active may vary according to their mental
419 health status however increasing autonomy over when and how they are active was
420 perceived by staff as being important to service users. The restrictive practices and
421 hierarchy of 'psychological interventions' means that the physical health of service users can
422 be regarded as a lower priority. Giving incentives to staff for promoting physical health may
423 be useful in increasing staff motivation to support service users to be more active.

424

425 **Strengths and limitations**

426 This study was able to recruit a variety of staff and stakeholders from two medium secure
427 settings from which there is currently little data available. These staff have first-hand
428 experience of the impact of physical activity on service users. At this point service users
429 were not asked directly but their perceptions have been captured and reported elsewhere.
430 Whilst focus groups can be a good way of generating ideas from a range of individuals on a
431 given topic, they may be influenced by power dynamics within the group leading to some
432 individuals being wary of providing too much information (Gill and Baille, 2018).

433 Using the COM-B framework is regarded as a strength as it is derived from a comprehensive
434 analysis of theoretically based domains. This will allow the development of theory-based
435 interventions in the future and the use of a standardised taxonomy also allows for replication
436 and comparison across studies (Croot et al., 2019). Using the COM-B helped provide
437 information that can subsequently be used to design effective interventions in similar
438 settings.

439

440 **Conclusions**

The medium secure service is a potentially useful setting which could lead to healthy behaviour change for service users. Physical activity interventions should take an individualised approach and consider the training needs of all staff and incentives to increase opportunities to be active when there are competing demands on both staff and service user's time.

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Citation on deposit:

Lewis, K., Lui-Roden, G., Faulkner, G., Gibbon, S., Hewitt, C., Hughes, E., Khan, W., Lucock, M., Singh, B., Walters, P., Watson, J., & Walker, T. (in press). Barriers and facilitators to increasing physical activity in medium secure mental health settings: an exploration of staff perceptions. Mental Health and Physical Activity,

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