

**A Qualitative Investigation of Perceived Barriers to and Enablers of
Sport Participation for Young People with First Episode Psychosis**

Lauren E. Brooke¹, Daniel F. Gucciardi¹, Nikos Ntoumanis³, and Ashleigh Lin²

¹Physical Activity and Well-being Lab, School of Physiotherapy and Exercise Science,
Curtin University

²Telethon Kids Institute, The University of Western Australia, Perth, WA

³Physical Activity and Well-being Lab, School of Psychology, Curtin University

Author Note

Lauren E. Brooke, School of Physiotherapy and Exercise Science, Curtin University;
Ashleigh Lin, Telethon Kids Institute, The University of Western Australia, Perth, WA;
Daniel F. Gucciardi, School of Physiotherapy and Exercise Science, Curtin University,
Australia; Nikos Ntoumanis, School of Psychology, Curtin University.

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Correspondence concerning the article should be addressed to Lauren E. Brooke,
School of Physiotherapy and Exercise Science, Curtin University, GPO Box U1987, Perth.
E-mail: l.brooke@postgrad.curtin.edu.au

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Abstract

Aims

Building on a previous call for the development of sport-based life skills interventions for young people with FEP (Brooke, Lin, Ntoumanis, & Gucciardi, 2018), the objective of this study was to explore the barriers and enablers to sport participation for young people with FEP.

Method

We used a semi-structured interview format to conduct 1-1 interviews with young people (aged 16-25; n=10) with FEP, and 1-1 interviews and focus groups with their clinicians (n=33). Questions focused on barriers and facilitators (intrapersonal, interpersonal, psychological, environment, health/safety, logistical) to sport participation young people with FEP. Thematic analysis was used to analyse the data.

Results

Four themes (and eleven sub-themes) emerged from the analysis: 1) the need for sport in FEP recovery (perceived benefits; resource gap); 2) barriers (logistical; psychological); 3) enablers (positive environmental expectations and experiences); and 4) program design (sport program/type; life skills training; application to barriers/enablers).

Conclusion

The participants responded favourably to the idea of using sport to promote recovery post FEP, and provided an insight into why sport is currently underutilised within FEP recovery efforts. The barriers, enablers, and specific suggestions for how to limit the barriers and strengthen the enablers are valuable for sport-based intervention design, and may be applicable to non sport-based interventions for people with FEP.

Key words: early intervention, functional recovery, life skills, first episode psychosis, sports

A Qualitative Investigation of Perceived Barriers to and Enablers of Sport Participation for Young People with First Episode Psychosis

It is well documented that early intervention following an individual's first episode of psychosis (FEP) is critical to reduce long term negative impact on functioning, health, and well-being (e.g., Santesteban-Echarri et al., 2017). In conjunction with symptom reduction, the predominant treatment goal post-FEP is increased functional recovery levels. Some integral components of functional recovery include: (a) physical activity (PA) to promote mental health and well-being (Rosenbaum, Tiedemann, Sherrington, Curtis, & Ward, 2014; Schuch et al., 2018), and combat the cardiometabolic problems associated with psychotic illness and medication (Correll et al., 2017; Vancampfort et al., 2015); (b) social connectivity in an effort to target the ill-effects of social isolation associated with FEP (Gee et al., 2016; McCarthy-Jones et al., 2013); and (c) life skills development to support an individual's ability to cope and thrive after experiencing a FEP at a critical time in psychosocial development (McGorry & Goldstone, 2016).

Published interventions that combine PA, social connectivity, and life skills development for FEP are scarce. Sport has been forwarded as a useful intervention platform from which to combine these three components (Brooke, Lin, Ntoumanis, & Gucciardi, 2018). First, sport is a type of PA "involving physical exertion and skill as the primary focus of the activity, with elements of competition where rules and patterns of behaviour governing the activity exist formally through organisations" (Commonwealth of Australia, 2011, p. 7). Although related, sport is different to exercise, which is "a subset of physical activity that is planned, structured, and repetitive, and has as a final or intermediate objective of the

improvement of physical fitness” (p.7). The difference between sport and exercise is critical for the understanding of the context of this paper. It is through the structures embedded within sport (e.g., rules, competition, organisation, community) that sport is able to provide opportunities for more than just physical activity, as the next two points will illustrate. Second, it is well documented that sport has the capacity to promote social connectivity and bring people from varying backgrounds together, transcending social, cultural, and political divides (Conrad & White, 2015). Lastly, sport has been shown to be a useful platform from which to teach essential life skills (e.g., confidence, communication, emotional regulation) to vulnerable populations (Hermens, Super, Verkooijen, & Koelen, 2017). Life skills in this context are defined as cognitive, emotional and behavioural skills that can be learned in one context (for example, through sport) and transferred to and used effectively in other contexts (such as education; Gould & Carson, 2008).

Given the documented need for dynamic early-intervention approaches (Santesteban-Echarri et al., 2017), combined with the call for more PA based interventions for people with FEP (iPHYS, 2013) and a recent call to action for further exploration into the use of sport within psychosis recovery (Brooke et al., 2018), we sought to develop a sport-based life skills intervention for young people recovering from FEP. As a starting point, an intervention mapping approach was employed (Bartholomew Eldredge et al., 2016). Part of the first step of intervention mapping is conducting a needs assessment to understand the problem (in this case, limited functional recovery post-FEP), the community (mental health services), and relevant stakeholders (young people with FEP and their families, and clinicians). To this end, we conducted interviews and focus groups with young people with FEP and their clinicians to gather information on the barriers and enablers to sport participation for young people with FEP.

Methods

Participants

Participants were young people with a recent FEP receiving treatment from one of six local early intervention psychosis services within the wider Perth region. Recruitment was conducted through the clinical care teams at the services, and the services were asked to refer only young people who were stable enough in their symptomatology to participate. Inclusion criteria for young people were (a) between 16 and 25 years of age, and (b) had experienced a FEP within the past three years, and (c) who were referred to the researchers for the interview by their clinical care team. Clinicians from the same early intervention services working with young people with FEP were also recruited for interviews and/or focus groups. Rolling recruitment occurred over a period of 10 months until a sufficient level of data saturation was reached (O'Reilly & Parker, 2013).

Procedures

We selected a semi-structured format for the focus-group and individual interviews for its ability to collect in-depth information, while encouraging participants to describe their own specific experiences, perceptions, and expertise (Sparkes & Smith, 2014). In the interviews with young people, participants' beliefs, motivations, and attitudes towards sport and sport-based programming were explored. Questions focused on barriers and facilitators (intrapersonal, interpersonal, psychological, environment, health/safety, logistical) to sport participation. Focus groups and interviews questions for clinicians related to their views on the barriers and enablers to sport participation for their clients, sport intervention design, and recruitment suggestions. In all focus groups and interviews, an iterative approach was taken in which the interview guide evolved as interviews progressed, informing new initial and follow-up questions as the researcher's understanding of the local psychosis population's needs and resources expanded. For example, a point raised in one interview would be addressed in another even if it did not arise during the conversation organically, with an effort

to ask the question in a non-leading manner (e.g., “Other young people have expressed that having their clinician present at the sport program would be helpful, whereas some have said that they would prefer that they not attend. What are your thoughts on this?”). The interview guide is detailed in Table 1. Ethics approval for the study was obtained from the Western Australia Department of Health and Curtin University.

Data analysis

All interviews and focus groups lasted 30-60 minutes, were transcribed verbatim, and analysed by the first author using NVivo Software (version 11; QSR, 2010). Thematic analysis was used because of its ability to generate key patterns in a way that is flexible and accessible (Braun, Clarke, & Weate, 2016). The data was analysed in a six-step iterative process, as outlined by Braun and colleagues. 1) familiarisation with data, 2) initial code generation, 3) theme search, 4) theme review, 5) theme definition and naming, and 6) report production. First, the analyst – who has previous experience with thematic analysis – immersed themselves in the data by reviewing it empathetically and taking rough notes. Next, meaningful data segments were coded systematically and codes were collated and then organised into initial themes, allowing the data rather than the research questions to drive the process. These themes were then reviewed and compared against the transcripts and the original codes. At this stage, it was verified that the themes and sub-themes were endorsed by a majority of the participants, and were refined accordingly. Next, the themes were named and defined. Throughout the coding, theme generation, and theme naming/refining stages, group discussions amongst the research group provided clarification via the challenging of ideas or interpretations. Young people and support worker data were analysed separately, and themes were combined where appropriate.

Results

Ten young people ($M_{\text{age}} = 21.0$, 90% male, 75% live in family home, 90% completed final year of schooling, 100% Caucasian, 75% employed at least part time) and 33 clinicians (five focus groups of 5-8 people; seven 1-1 interviews) took part in this study. Four themes and eleven sub-themes relevant to program design and implementation emerged from the analyses. Data across both the clinician and client groups were similar, thus we report themes together, with relevant group differences noted. The themes (and corresponding sub-themes) were: 1) need for sport in FEP (perceived benefits; resource gap); 2) barriers (logistical; psychological); 3) enablers (positive environmental expectations and experiences); and 4) program design (sport program/type; life skills training; application to barriers/enablers).

1. Need for Sport in FEP

All participants expressed support for a sport program to promote recovery in young people with FEP.

1.1 Perceived benefits

Participants discussed the potential benefits of a sport program for young people with FEP. Young people expressed that they would be drawn to such a program predominantly for fun, opportunities for building connections with others, and fitness/health. Participants indicated that a fun environment would provide a welcomed distraction to their mental illness or other life struggles:

For me, I think it would just be that time to just forget about things and just focus on something that you enjoy. Just have a bit of fun with that (young person).

In addition, young people were interested in the opportunity to socialise, and connect with others with a shared experience. Clinicians expressed similar views, yet their dialogue focused more on the benefits of PA, social opportunity, and a sense of belonging:

Socialization and stigma, all these issues for these young people. And just getting a group, getting them a sense of community, getting them doing things other young people would be doing (clinician).

Clinicians discussed the cardiometabolic problems that accompany psychosis, and the importance of PA to combat these problems.

1.2 Resource gap

Despite the acknowledged benefits of a sport program for psychosis recovery, the participants noted few opportunities to engage in sport through their health services. The majority of services involved in the study offered opportunities for physical activity via group based exercise (e.g., yoga, walking, cycling, gym-based exercise). However, none of the services offered sport-based physical activity options as part of their therapeutic program. Some of the young people recalled enjoying sporting opportunities while in hospital, and expressed interested in a sport program as part of (or supported by) their mental health service provider:

Yeah, it'd definitely be interesting. When you mentioned it, I thought, "Oh, what a great idea." Sports always helped me, and I know that even when I was in hospital, they had a basketball hoop outside, and that helped me with my life, just getting outside and doing something, taking your mind off things. And I think that would be great for so many other people that've experienced mental health issues, because it does. It's like another world. It takes your mind off things. Just, yeah, it's great for that (young person).

Many of the clinicians noted that services were “resource poor” and unable to offer sport programs, or support a client’s engagement in community sport programs. The majority of the young people revealed that they had prior experience in organised sport, but that many

of them had disengaged in sport for various reasons, including their mental illness. As one clinician described:

One of the things that I've noticed with a few young people is they were very actively involved in sports at school, but they haven't been engaged in sports as an independent adult. It's really tricky for them, especially with a mental illness.

Participants explained that participating in existing community sport channels (or returning to their previous sport clubs) is difficult for young people with FEP:

I would definitely want to try (getting involved in sport again) because it's good for me, but it's mainly just getting the funds to do it, which is my problem because I'm not able to work (young person).

I think sports can sometimes break down barriers, but it's just the initial step to getting into it. I have a client who would love to be doing sport, but he can't handle being around his old (sporting friends) because he had some poor incidents with them, in terms of his psychosis. They now haven't supported him, and he feels he can't go back to (sport). Not only has he lost that friendship group, but he lost that hobby (clinician).

2. Barriers

Participants reported several perceived barriers to engagement in a sport program for young people with FEP. They highlighted logistical and psychological barriers, and emphasised how these are interrelated.

2.1 Logistical barriers

All participants expressed logistical concerns that could limit engagement in a sport-based life-skills program, the most predominant of which were limited resources and location. Limited resources included financial resources to buy sport clothing and equipment,

and transportation challenges. Clinicians discussed that most clients do not drive, and cannot always rely on friends or family for rides. Public transportation is both expensive and psychologically daunting for some young people with FEP. The young people reported that they generally don't drive, and tend to rely on bike, skateboard, foot or, if necessary, public transport. In regards to location, participants explained that the need to travel a far distance negatively affects motivation, and can also trigger psychological symptoms like anxiety or paranoia in regards to transport options, especially on public transportation:

A lot of (clients) don't go very far from their houses really and they get quite anxious and potentially more paranoid the longer they have to travel on public transport (clinician).

2.2 Psychological barriers

Psychological barriers were the most commonly discussed topic they emphasised that psychotic symptoms create barriers that are challenging to navigate for both the young person and their service provider. The primary psychological barriers discussed were anxiety, low motivation, and low self-efficacy.

2.2.1 Anxiety.

Anxiety included both generalised and social anxiety, and experiences such as fear of judgement, fear of meeting new people, and anxiety pertaining to navigating transportation or trying something new. Many of the conversations about anxiety led to the stigma of mental illness, which participants described as creating and/or having a compounding effect on anxiety:

Because it can be a little bit embarrassing. Like, I don't really mind, I don't care who knows, but like, it is a bit like, to really go from being a certain type of person and you have an episode and it's like, maybe there's something wrong with me, and then you know, like, you're not exactly the same as you once were. You kind of second-guess

yourself a little bit more... you've just gotta be careful of, like, being judged (young person).

In talking about anxiety, some of the participants suggested that the residual paranoia also contributes to anxiety, and could foster distrust and provide a barrier to engagement:

There's general anxiety, and then some of my clients have got an underlying paranoia about the sporting clubs or clubs in general or the government or local council and things like that (clinician).

Clinicians suggested that, in regards to sport participation, many of their clients have experienced social marginalisation and had negative experiences with organised sport, further contributing to anxiety. This notion was absent from the young people's discussions of their past experiences with sport, all of whom expressed a positive history with sport; however, it may be that those clients with bad sport experiences did not choose to engage in the interviews.

2.2.2 Low motivation.

All participants suggested that low motivation would be a barrier to engagement in a sport program. Low motivation was described by participants as a direct result of psychosis, antipsychotic medication, and substance use. Many clinicians gave the example of low attendance numbers in functional recovery programs because of low motivation, even when other barriers like transportation are absent. Young people described low motivation as a constant barrier in their general life and regarding PA in particular:

Well, probably just being tired from work or if it's a bit late and I've had a shower, then I'm just like 'I'm already ready for bed'. Those are the main things that stop me from going to the gym. But also, because I smoke a bit of weed, so if I've had some

would than that would be another reason why I wouldn't go because I'm just stoned, that's it (young person).

Participants also expressed a desire to learn ways to overcome low motivation:

Like getting more motivated would be definitely one of the things (I need) because I find it's hard to get motivated these days, especially because of my psychosis. So, yeah just having more motivation to go out and having someone to give you motivation to go would definitely be a big help (young person).

2.2.3 Low self-efficacy.

Participants, particularly clinicians, frequently pointed to low self-efficacy as a barrier, suggesting that low confidence in one's ability to participate in the sport activities, to engage successfully in social interaction, and/or to navigate transportation options would serve as barriers to engagement:

Not knowing what to expect, not knowing who's going to be there and not thinking that they can do it, so this confidence kind of (clinician).

Some of the young people expressed concerns regarding perceived sporting incompetence – especially relative to their past experiences – as potentially heightening their anxiety and resistance to engage in a sport program:

Just being worried that you're not at that same level as before. I always had a huge anxiety because I didn't want to let the team down (young person).

2.3 Interplay of barriers

It is clear that each of the identified discussed barriers on their own could limit engagement, but participants described them as being interrelated. For example, a low degree of anxiety on its own may not necessarily prohibit engagement, but if coupled with low motivation and/or low-self efficacy, the barriers to participation may become insurmountable. Psychological and logistical barriers share the same interplay. For example, participants

indicated low motivation may not necessarily preclude participation in a sport program, but if the program is far away and/or is challenging to get to, the chance of attending may decrease.

3. Enablers

Participants reported potential enablers to participation in a sport-based, life-skills program, the majority of which related to positive environmental expectations and experiences.

3.1 Positive environmental expectations and experiences

Participants explained that the expectations of the sport program environment are critical to facilitating initial engagement and that the actual experiences of the environment will determine sustained participation. It is important that young people expect and experience an environment that is safe, flexible, supportive, normalised, and logistically easy; and that they experience (but not necessarily initially expect) an environment that is conducive to growth experiences.

3.1.1 Safety. Participants described a safe environment as one that is inclusive, inviting and informed. Young people described feeling included when they do not anticipate or experience judgement, such as when there are others there with a shared experience:

Like, I remember being really confident while I was (at a hospital-based exercise group) because I felt like there was other people that were going through the same thing as me and it didn't feel as weird... So you can be yourself a little bit more. So I think with other people who have gone through psychosis if that was, if somehow that was made known, that there would be other people who have experienced the same thing (young person).

Perceptions of inclusion were also characterised by an environment that is open and friendly (e.g., familiar faces). In terms of feeling informed, participants described key aspects as knowledge of processes or activities, who will be there, and available resources should they

experience challenges. Participants indicated that expectations and experiences of environmental safety are heightened when the facilitators are inclusive (i.e., knowledgeable and empathetic about psychosis), inviting (i.e., are a familiar and friendly face), and informed (i.e., the mental health history, needs, and triggers of the young person are known). Clinicians emphasised the importance of recruiting through the clinical care teams to promote safety, thereby ensuring that only individuals at an appropriate point in their recovery are invited into a sport intervention.

3.1.2 Flexibility. It was clear that the needs of young people with FEP are varied, and there is no “one size fits all” approach; a sport program designed for young people with FEP must be flexible to allow for different needs. This variance includes sport preferences, sport experience/abilities, recovery trajectories, backgrounds and symptomology. The program would need to allow for variations in individuals symptoms for day-to-day or week-to-week (such as allowing graded participation). Participants expressed the importance of meeting the individual needs of the young people where possible, which could be accomplished in part by, for example, asking the individual what they want to get out of the program, what their concerns are, and how they would like to be supported.

Well, probably having someone like you, or a person that knows about the program very well to maybe talk to them first, so have a meeting before the thing, ask them similar questions, like "What are you ..." not afraid of, but "Are you willing to come to the group?" Or, "What do you want in terms of ... What do you want to get out of the group?" And I think that if you have that talk, then the time when you do, they'll go. When it is time to come to the group, then they actually have someone that they feel like they can rely on, that they know, so that it's not just them by themselves there (young person).

3.1.3 Support.

The expectation and receipt of support is important for initial engagement and sustained participation in the sport program. This support can come from program itself, the mental health service provider, fellow participants, or others (e.g., family or peers). The support could be logistical (e.g., transport support), emotional (e.g., listening and reassuring in a challenging moment), or motivational (e.g., encouraging reminders or positive feedback). The participants expressed that the opportunity for a young person to bring a supportive peer may enhance actual and perceived support:

Bring a brother, or bring, bring a cousin or whatever. It doesn't matter, bring somebody. That would make you feel a lot more comfortable being outdoors. I guess you would have a lot more fun and...It wouldn't really be like about the illness, it would like be more of a community thing (young person).

3.1.4 Normalisation.

Participants stressed the importance of meeting the specific needs of young people with psychosis, yet they also emphasised they are young people before “young people with psychosis”, and that the environment should reflect this. Mental illness should be considered, but not at the expense of a sense of normalcy. Participants indicated that an environment feels normalised when it is relatable, fun, and real. They described a relatable environment as one where people can connect over commonalities. These commonalities may be, for example, a shared experience of psychosis between participants, or a shared common interest between participant and facilitator. An environment is more relatable when there are limited power differentials (e.g., participants have opportunities to lead). Participants, especially the young people, described an environment as fun if it emphasises the activity over recovery. Participants described an environment that is real as one that looks and feels like a sport program more than anything else:

I think sometimes with stuff like this you have to be careful that you don't place too much emphasis on the mental health because a lot of our client group don't want to be associated with stuff like that. You need to be kind of careful when marketing that whole mental health side of things. If you focus on that too much, then it kind of may push people away (clinician).

3.1.5 Logistical ease.

All participants stated that if the participants expect and experience the process of sport engagement (e.g., enrolling, getting to the venue, filling out forms, getting home) to be straight-forward and affordable, they will be more likely to attend and return.

3.1.6 Growth experiences.

The participants expressed that the above enablers, combined with growth experiences, will foster sustained engagement. Growth experiences occur when individuals experience growth in their physical abilities (e.g., enhanced sporting skills), their health (e.g., enhanced fitness), their psychosocial functioning (e.g., successful social interactions), life skills (e.g., enhanced motivation or confidence), or when they overcome a challenge (e.g., navigate public transport despite anxiety). Participants suggested that if the sport program environment enables such experiences, then the barriers to engagement will be easier to overcome and the individual will be more likely to return. It is important to note that such experiences should not necessarily be the selling point of the program to obtain initial engagement. Although some young people expressed the opportunity for growth experiences as a motivating factor to attend, most explained that if the program was advertised as promoting such growth experiences, they may be less likely to attend:

Yeah, because if they feel like they're going to meet a bunch of new people, like that's great for them, but if you remind them they're meeting people it's not going to work because that can provoke anxiety (clinician).

4. Program Design

Participants offered specific design recommendations for a sport program for young people with FEP. The design recommendations related to: a) sport/program type preferences, b) the inclusion of a life skills training element within the program, and c) specific ways to limit barriers and strengthen enablers (see Table 2 for application suggestions).

4.1 Sport or program type preferences

Participants provided feedback on four different types of sport programs: 1) a multiple week, single sport program, 2) a multiple week multi-sport program, 3) a condensed 2-4 day retreat style program, and 4) a 1-1 mentoring program that would connect participants with existing sport programs within the community with support provided. The responses to each were positive, with mixed preferences on a top choice. In general, a multi-sport format was preferred over a single sport as it might appeal to more people, and more easily allow participants to reintegrate after a missed session. Many participants expressed interest in a combination of the three program types (e.g., multi-week program that leads into a retreat and culminates with connecting participants to existing community programs). Some clinicians provided caution regarding any overnight program because of managing substance use. Popular sport preferences were touch Australian rules football, touch rugby, ultimate Frisbee, and soccer, but the consensus was that any sport would be advisable providing the program caters for all levels of sporting experience.

4.2 Life skills training element

Participants provided feedback on the inclusion of a life skills training element within a potential sport program. Participants responded positively to this notion, but also expressed caution. All underscored the importance of life skills for functional recovery, and were responsive to the idea that sport can be used to teach such skills. Young people were predominantly interested in developing motivation, social skills, confidence, and emotional

regulation, whereas clinicians focused more on the need for motivation, social skills, and confidence building. Both groups suggested that a life-skills training element be embedded gently, so as not to hinder engagement. Young people in particular expressed that their desire to engage in a sport program would be largely to forget about their mental illness or be distracted from symptoms; a heavy focus on life skills training could impede this.

4.3 Application

Participants were asked to provide specific recommendations in regards to strengthening enablers or limiting barriers to participation in a sport program for young people with FEP. A summary of their responses is provided in Table 2.

Discussion

This study is the first to explore barriers to and enablers of sport participation for young people with FEP, and adds to the limited qualitative literature exploring PA engagement in people with FEP (see Firth et. al., 2016c). This knowledge is particularly important considering challenges of engagement in recovery services for people with FEP (Tindall, Allot, Simmons, Roberts, & Hamilton, 2018). Our results indicate that the dynamic nature of sport (encompassing PA, social connectivity, and life skills development) may provide an opportunity to maximise the time that young people with FEP engage with recovery focused activities. Participants' responses suggest that gaining initial engagement in sport-based programs will be challenging, but that the growth opportunities inherent in sport may facilitate subsequent increased engagement. Echoing a finding by Firth and colleagues (2016a), we found that catering to the specific needs of people with FEP is imperative for adherence and engagement. Similarly, the importance of designing to the preferences and needs of young people has been supported in exercise programs for young people with depression (e.g., Carter et al., 2015). The knowledge that individual preferences are important to young people is valuable within sport program design and beyond.

Barriers to PA for people with FEP such as low motivation and symptomatology have been previously reported (see Firth et al., 2016d, Vancampfort et al., 2018). However, the anxiety and low confidence found in the current study have not been documented elsewhere. It may be that the components of sport trigger greater levels of social anxiety and lower levels of self-efficacy (e.g., because of the group aspect or specialised skills required). Such an interpretation could explain previous findings that people with FEP prefer gym-based exercise to sport (Firth et al., 2016c). It may not be that the gym is actually preferred over sport, but that the gym may appear more safe and accessible - an important notion to explore further and consider in intervention design.

The importance for an environment to cater to the needs of the individual and provide support and the opportunity to relate to others was evident in this study. Motivational theories, such as Self-Determination Theory (SDT), provide a conceptual backdrop upon which to interpret these findings. Informed by SDT, social contexts can nurture people's inner motivation by satisfying their psychological needs of autonomy (e.g., engaging the individual in designing their care plan), relatedness (e.g., providing an environment where participants and facilitators can relate to one another), and competence (e.g., catering a program to meet the needs of the individual so that they can set and achieve goals; Ryan and Deci, 2017). Promoting autonomy and social support have been found to be critical in engaging people with FEP in exercise (Firth et al., 2016a). Self-efficacy has been found to be important to sustain PA intentions in people with psychosis (Lee et al., 2018). In addition, Vancampfort and colleagues (2018) showed that autonomous forms of motivation (e.g., enjoy the activity itself, value the benefits of an activity) may play a pivotal role in adopting and maintaining PA activity for people with FEP. Taken together with past work, our findings underscore the importance of a motivationally enriched sport-based, life-skills program (e.g.,

see Ntoumanis, Quested, Reeve, & Cheon, 2018 as to how to create motivationally supportive sports environments).

Limitations and Future Directions

The findings have implications for FEP intervention globally, but it is necessary to consider that our interviews and focus groups were conducted in and around Perth, Australia. Demographic information for the clinicians was not collected; such information could have provided additional context for the interpretation of the results. In addition, the sample of young people was relatively small. Although a sufficient level of data saturation was reached in these interviews, it is important to note that all the young people were Caucasian, predominantly male, and had a sporting background. In discussions regarding the limited diversity in participants, the services reported that their client base is predominantly male, and that more male clients were eligible and/or interested in participating. This may speak to the demographic within this population that are interested in sport, and the reports by young people in this study may be limited in regards to their application to other genders or ethnicities. Future work should further explore and consider how gender and culture may influence barriers and enablers to sport participation, and sporting preferences for young people with FEP.

The current study highlights some of the many benefits that sport participation affords, and implores future work in FEP recovery to consider the use of sport. However, it is important to note that just because the benefits of sport participation are well documented, not all sport is inherently beneficial. It is important that researchers and service providers do not take on the ‘sport evangelist’ mindset, that is, “blindly believe that sport participation inevitably contributes to development because sport’s assumed essential goodness and purity is passed on to those who partake in it” (Coakley, 2011, p. 306). For example, researchers have found that sport participants do not automatically inherit sport-based life skills

development simply through participation, but that systematic efforts are required for life-skills development and transfer (Pierce, Gould, & Camire, 2017). In addition, despite the many positive benefits of sport participation, there are also potential dark sides to sport that must be considered. For example, it has been documented that sport settings can be home to bullying (e.g., Mishna, Kerr, & McInroy, 2019), discrimination (e.g., Krane, 2016), and increased substance use (e.g., Grace, Knight, Rodgers, & Clark, 2017). Given the vulnerability of people with FEP to such problems, it is critical that researchers and service providers consider the positive effects against these potential dark sides when using or encouraging sport with this population.

Conclusion

The findings emphasise the unique and varied needs of young people experiencing FEP. Our findings provide knowledge that can be used to guide the design of sport-based interventions for this population, and may be useful in early intervention design in general. The participants reported noteworthy challenges in engaging young people with FEP in sport. However, the reports given by participants suggest that the potential recovery benefits within sport should implore us to persevere in seeking ways to limit the barriers and maximise enablers enough to enable engagement.

Conflicts of Interest Statement

The authors certify that they have no conflicts of interest, financial or non-financial, in the subject matter or materials discussed in this manuscript.

References

- Alexandratos, K., Barnett, F., & Thomas, Y. (2012). The impact of exercise on the mental health and quality of life of people with severe mental illness: a critical review. *British Journal of Occupational Therapy*, 75, 48-60.
doi:10.4276/030802212X13286281650956
- Brooke, L. E., Lin, A., Ntoumanis, N., & Gucciardi, D. F. (2018). Is sport an untapped resource for recovery from first episode psychosis? A narrative review and call to action. *Early Intervention in Psychiatry*. doi: 10.1111/eip.12720
- Bartholomew Eldredge, L. K., Markham, C. M., Ruiter, R. A., Kok, G., Fernandez, M. E., & Parcel, G. S. (2016). *Planning Health Promotion Programs: An Intervention Mapping Approach*. San Francisco, CA: John Wiley & Sons.
- Braun, V., Clarke, V., & Weate, P. (2016). Using thematic analysis in sport and exercise research. In B. Smith & A. Sparkes (Eds.), *Routledge handbook of qualitative research methods in sport and exercise* (pp. 191–205). London: Routledge
- Carless, D., & Douglas, K. (2016). The Bristol active life project: Physical activity and sport for mental health. In *Sports-Based Health Interventions* (pp. 101-115). Springer, New York, NY.
- Carter, T., Guo, B., Turner, D., Morres, I., Khalil, E., Brighton, E., ... & Callaghan, P. (2015). Preferred intensity exercise for adolescents receiving treatment for depression: a pragmatic randomised controlled trial. *BMC pPsychiatry*, 15. doi: 10.1186/s12888-015-0638-z
- Commonwealth of Australia. (2011). *National Sport and Active Recreation Policy Framework*. Licensed from the Commonwealth of Australia under a Creative Commons Attribution 3.0 Australia Licence. Retrieved from

[http://www.health.gov.au/internet/main/publishing.nsf/content/3b6f37c705f4f8cfca257c310021cd4b/\\$file/nsarpf.pdf](http://www.health.gov.au/internet/main/publishing.nsf/content/3b6f37c705f4f8cfca257c310021cd4b/$file/nsarpf.pdf)

- Conrad, D., & White, A. (2015). *Sports-Based Health Interventions: Case Studies from Around the World*: Springer.
- Correll, C. U., Solmi, M., Veronese, N., Bortolato, B., Rosson, S., Santonastaso, P., ... & Pigato, G. (2017). Prevalence, incidence and mortality from cardiovascular disease in patients with pooled and specific severe mental illness: a large-scale meta-analysis of 3,211,768 patients and 113,383,368 controls. *World Psychiatry, 16*, 163-180. doi: 10.1002/wps.20420
- Ellis, N., Crone, D., Davey, R., & Grogan, S. (2007). Exercise interventions as an adjunct therapy for psychosis: a critical review. *British journal of clinical psychology, 46*, 95-111. doi:10.1348/014466506X122995
- Firth, J., Carney, R., Elliott, R., French, P., Parker, S., McIntyre, R., . . . Yung, A. R. (2016a). Exercise as an intervention for first-episode psychosis: a feasibility study. *Early intervention in psychiatry*. doi:10.1111/eip.12329
- Firth, J., Carney, R., French, P., Elliott, R., & Yung, A. (2016b). Investigating the Short and Long-term Benefits of Exercise in Early Psychosis. *Schizophrenia Bulletin, 43*(suppl_1), S199. <https://doi-org.dbgw.lis.curtin.edu.au/10.1093/schbul/sbx024.102>
- Firth, J., Carney, R., Jerome, L., Elliott, R., French, P., & Yung, A. R. (2016c). The effects and determinants of exercise participation in first-episode psychosis: a qualitative study. *BMC Psychiatry, 16*, 36. doi:10.1186/s12888-016-0751-7
- Firth, J., Cotter, J., Elliott, R., French, P., & Yung, A. R. (2015). A systematic review and meta-analysis of exercise interventions in schizophrenia patients. *Psychol Med, 45*, 1343-1361. doi:10.1017/S0033291714003110

- Firth, J., Rosenbaum, S., Stubbs, B., Gorczynski, P., Yung, A. R., & Vancampfort, D. (2016d). Motivating factors and barriers towards exercise in severe mental illness: a systematic review and meta-analysis. *Psychological Medicine*, 46, 2869-2881. doi:10.1017/S0033291716001732
- Gee, B., Hodgekins, J., Fowler, D., Marshall, M., Everard, L., Lester, H., ... & Freemantle, N. (2016). The course of negative symptom in first episode psychosis and the relationship with social recovery. *Schizophrenia Research*, 174, 165-171. doi.org/10.1016/j.schres.2016.04.017
- Grace, L. A., Knight, C. J., Rodgers, W. M. & Clark, A. M. (2017). Exploring the role of sport in the development of substance addiction. *Psychology of Sport and Exercise*, 28, 46-57.
- Gould, D., & Carson, S. (2008). Life skills development through sport: Current status and future directions. *International review of sport and exercise psychology*, 1, 58-78. doi:10.1080/17509840701834573
- Harrop, C., Ellett, L., Brand, R., & Lobban, F. (2015). Friends interventions in psychosis: a narrative review and call to action. *Early intervention in psychiatry*, 9, 269-278. doi:10.1111/eip.12172
- Hermens, N., Super, S., Verkooijen, K. T., & Koelen, M. A. (2017). A Systematic Review of Life Skill Development Through Sports Programs Serving Socially Vulnerable Youth. *Research Quarterly for Exercise and Sport*, 88, 404-424. doi:10.1080/02701367.2017.1355527
- Holt, N. L. (2016). *Positive youth development through sport*. New York, NY: Routledge.
- Hughes, F., Stavely, H., Simpson, R., Goldstone, S., Pennell, K., & McGorry, P. (2014). At the heart of an early psychosis centre: the core components of the 2014 Early

- Psychosis Prevention and Intervention Centre model for Australian communities.
Australasian Psychiatry, 22, 228-234. doi:10.1177/1039856214530479
- International Physical Health in Youth (iphYs) working group (2013). Healthy Active Lives (HeAL) consensus statement. Retrieved from www.iphys.org.au
- Krane, V. (2016). Sport for LGBT athletes. In R.J. Schinke, K.R. McGannon, & B. Smith (Eds.) *Routledge International Handbook of Sport Psychology* (238-255). New York, NY.
- Lee, J. T., Law, E. Y., Lo, L. L., Lin, J., Lee, E. H., Hui, C. L., ... & Chen, E. Y. (2018). Psychosocial factors associated with physical activity behavior among patients with psychosis. *Schizophrenia Research*, 195, 130-135. doi:10.1016/j.schres.2017.09.042
- McCarthy-Jones, S., Marriott, M., Knowles, R., Rowse, G., & Thompson, A. R. (2013). What is psychosis? A meta-synthesis of inductive qualitative studies exploring the experience of psychosis. *Psychosis*, 5, 1-16. doi:10.1080/17522439.2011.647051
- McGorry, P., & Goldstone, S. (2016). Preventive strategies to optimize recovery in psychosis. In E.J. Bromet (Ed.), *Long-term outcomes in psychopathology research: Rethinking the scientific agenda* (pp. 205-226). New York, NY: Oxford University Press; US.
- Mishna, F., Kerr, G., McInroy, L. B., & MacPherson, E. (2019). Student athletes' experiences of bullying in intercollegiate sport. *Journal for the Study of Sports and Athletes in Education*, 1-21.
- Morera, T., Pratt, D., & Bucci, S. (2017). Staff views about psychosocial aspects of recovery in psychosis: A systematic review. *Psychol Psychother*, 90, 1-24.
doi:10.1111/papt.12092
- Ntoumanis, N., Quested, E., Reeve, J., Cheon, S.H. (2018). Need supportive communication: Implications for motivation in sport, exercise, and physical activity. In B. Jackson,

- J.A. Dimmock, & J. Compton (Eds.), *Persuasion and communication in sport, exercise, and physical activity* (pp. 155-169). Abingdon, UK: Routledge.
- Pierce, S., Gould, D., & Camire, M. (2017). Definition and model of life skills transfer. *International review of sport and exercise psychology, 10*, 186-211.
doi:10.1080/1750984x.2016.1199727
- QSR International Pty LTD. (2010). NVivo Qualitative Data Analysis Software, Version 11.
- Rosenbaum, S., Hobson-Powell, A., Davison, K., Elliot, C., & Ward, P. B. (2017). Role Of PA In Closing The Life Expectancy Gap of People With Mental Illness (Abstract). *Medicine & Science in Sports & Exercise, 49*, 842-843.
doi:10.1249/01.mss.0000519266.05834.b1
- Rosenbaum, S., Tiedemann, A., Sherrington, C., Curtis, J., & Ward, P. B. (2014). PA interventions for people with mental illness: a systematic review and meta-analysis. *The Journal of Clinical Psychiatry, 75*, 964-974. doi: 10.4088/JCP.13r08765
- Ryan, R. M., & Deci, E. L. (2017). *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*. New York, NY: Guilford Publications.
- Santesteban-Echarri, O., Paino, M., Rice, S., González-Blanch, C., McGorry, P., Gleeson, J., & Alvarez-Jimenez, M. (2017). Predictors of functional recovery in first-episode psychosis: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review, 58*, 59-75. doi:10.1016/j.cpr.2017.09.007
- Schuch, F. B., Vancampfort, D., Firth, J., Rosenbaum, S., Ward, P. B., Silva, E. S., ... & Fleck, M. P. (2018). PA and incident depression: a meta-analysis of prospective cohort studies. *American Journal of Psychiatry*. doi: 10.1176/appi.ajp.2018.17111194
- Soundy, A., Freeman, P., Stubbs, B., Probst, M., Coffee, P., & Vancampfort, D. (2014). The transcending benefits of physical activity for individuals with schizophrenia: a

systematic review and meta-ethnography. *Psychiatry Research*, 220, 11-19. doi: 10.1016/j.psychres.2014.07.083

Soundy, A., Freeman, P., Stubbs, B., Probst, M., Roskell, C., & Vancampfort, D. (2015). The Psychosocial Consequences of Sports Participation for Individuals with Severe Mental Illness: A Metasynthesis Review. *Advances in Psychiatry*, 2015. doi: doi.org/10.1155/2015/261642yt

Tindall, R. M., Allott, K., Simmons, M., Roberts, W., & Hamilton, B. E. (2018). Engagement at entry to an early intervention service for first episode psychosis: an exploratory study of young people and caregivers. *Psychosis*, 10,175-186. doi:10.1080/17522439.2018.1502341

Vancampfort, D., Correll, C. U., Galling, B., Probst, M., De Hert, M., Ward, P. B., ... & Stubbs, B. (2016). Diabetes mellitus in people with schizophrenia, bipolar disorder and major depressive disorder: a systematic review and large scale meta-analysis. *World Psychiatry*, 15, 166-174. doi: 10.1002/wps.20309

Vancampfort, D., De Hert, M., Broderick, J., Lederman, O., Firth, J., Rosenbaum, S., & Probst, M. (2018). Is autonomous motivation the key to maintaining an active lifestyle in first-episode psychosis?. *Early Intervention in Psychiatry*, 12, 821-827. doi:10.1111/eip.12373

Vancampfort, D., Stubbs, B., Mitchell, A. J., De Hert, M., Wampers, M., Ward, P. B., ... & Correll, C. U. (2015). Risk of metabolic syndrome and its components in people with schizophrenia and related psychotic disorders, bipolar disorder and major depressive disorder: a systematic review and meta-analysis. *World Psychiatry*, 14, 339-347. doi: 10.1002/wps.20252

Table 1

Interview Guides for Clinicians and Young People with First Episode Psychosis

Participant Type	Sample Interview Questions
Clinician	<ul style="list-style-type: none"> • What is your reaction to the idea of a sport programme designed to aid in the treatment and prevention of psychosis? • Have you heard of any similar programmes?(if yes, ask them to elaborate about their experience) • Would you be interested in recommending your clients to participate in such a programme? (Why or why not?) • What would make participation challenging for your clients? <ul style="list-style-type: none"> - What barriers to sport participation would be unique to an FEP population? - What barriers to retention in such a programme would be unique to an FEP population? - Follow up with questions about cognitive, emotional, physical, and environmental barriers. - Follow up with questions about timing, transportation, and other logistical issues to be considered. • What psychological and/or emotional symptoms would deem an individual unfit for such a programme? • What ethical issues must we take into account? • What psychological safety issues must we take into account with a sport-based programme for young people with FEP? • What would you foresee being the potential risks of participation? <ul style="list-style-type: none"> - How can we limit these risks? - What actions can we take to mitigate harm? • What would help enable participation for your clients? • What steps can we take to encourage programme retention? • What sports would your clients be interested in playing? <ul style="list-style-type: none"> - Would your clients be more interested in individual or team sports? Why? • Would your clients be comfortable with playing sport with those of a different gender? • What would be the best way to advertise such a programme? • What psychological measurements would be relevant to consider using to evaluate the effectiveness of a sport-based life skills program with an FEP population? • Are there any other considerations we should be aware of when designing such a programme?
Young People with First	<ul style="list-style-type: none"> • What role does sport play in your life? <ul style="list-style-type: none"> - What is your previous experience with sport? - Do you currently play any sports?

Episode Psychosis	<ul style="list-style-type: none"> - Are you a fan of any sport teams/athletes? - Do you enjoy any sports recreationally? - Are you physically active in other ways? - How has your involvement in sport/physical activity changed following their experience with a psychotic episode? • What is your reaction to the idea of a sport programme designed to aid in the treatment and prevention of psychosis? • Have you heard of or participated in any similar programmes? <ul style="list-style-type: none"> - (if yes, ask them to elaborate about their experience) • Would you be interested in participating in a sport-based programme to help young people develop skills that can be transferred to other areas of their life? (Why or why not?) • What would make you more/less interested in participating? <ul style="list-style-type: none"> - Follow up with questions about timing, transportation, and other logistics. • What would make it challenging for you to participate? (follow up with questions regarding logistical, psychological, social, etc, barriers) • What make it easier for you to participate? (follow up with questions regarding logistical, psychological, social, etc, barriers) • What would make you feel safe to participate (psychologically and otherwise)? • What sports would you be interested in playing? • Would you be more interested in individual or team sports? Why? • Would you be interested in playing with those of a different gender? • Sport can be a great platform to learn life skills like motivation, goal-setting, emotional regulation, etc- what are your thoughts on a sport program that is designed to teach these skills as part of the recovery process? • What would be the best way to advertise such a program? • Is there anything else that you would like to add?
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Note. Consent was obtained before beginning the interviews. With the young people, time was spent at the beginning of the interview to build rapport through friendly chat. The questions in this table only serve as a guide; probing follow up questions were asked where relevant, and questions informed from previous interviews were added where appropriate.

Table 2

Design Recommendations from Participants to Limit Barriers and Strengthen Enablers

Barrier/ Enabler <i>(Sub-theme)</i>	Design recommendations: DO	Design recommendations: DON'T
Barriers: <i>Logistical</i>	<ul style="list-style-type: none"> • Provide transport support (e.g., rides or vouchers) • Provide support for transport planning (e.g., help young person map out route; have someone do route with them first time) (C only) • Consider proximity (e.g., run program in close proximity to young people's homes and public transport lines) • Provide sport kit if needed (C only) 	
Barriers: Psychological; <i>Anxiety</i>	<ul style="list-style-type: none"> • Provide opportunities to "meet and greet" (e.g., BBQ before program begins) • Encourage "bring a friend"- (e.g., young people bring a friend, family member, clinician, partner, etc. to accompany them and participate in program) • Provide support for transport planning (e.g., help young person map out route) • Consider proximity (e.g., run program in close proximity to young people's homes and public transport lines) • Program facilitators to have a presence at the service to become "familiar faces" (C only) 	
Barriers: Psychological; <i>Low motivation</i>	<ul style="list-style-type: none"> • Provide reminders • Provide food • Provide opportunity to reflect on and practice growth experiences (C only) 	
Barriers: Psychological; <i>Low self-efficacy</i>	<ul style="list-style-type: none"> • Allow graded participation (e.g., allow a participant to initially observe, and slowly encourage participation) • Model participation (e.g., facilitators with low sport skills still participate) • Adjust rules of play to suit abilities • Provide basic sport skill training through simple and fun activities • Encourage goal-setting • Provide support for transport planning (e.g., help young person map out route; have someone do route with them first time) (C only) • Provide activities that facilitate social interaction 	
Enablers: Positive Environmental Experiences and Expectations; <i>Safe</i>	<ul style="list-style-type: none"> • Learn mental health history of participants • Create a collaborative (e.g., engage young person in process) support/crisis management plan for each individual • Create regular feedback loop between program and care team • Clarify resources available to participants (e.g., who to go to for more support, transport/kit support) • Encourage "bring a friend"- (e.g., young people bring a friend, family member, clinician, partner, etc. to accompany them and participate in program) • Educate facilitators on psychosis and what to expect, and how to support • Recruit through service to ensure physical and mental fitness to participate (C only) 	<ul style="list-style-type: none"> • Allow facilitators to just observe
Enablers: Positive Environmental	<ul style="list-style-type: none"> • Discuss mental health history, needs, concerns, and goals with each participant 	<ul style="list-style-type: none"> • Mandate regular attendance

Experiences and Expectations; <i>Flexible</i>	<ul style="list-style-type: none"> • Cater program activities to needs/abilities of participants • Provide a range of sport options • Provide alternative activities • Allow graded participation (e.g., allow a participant to initially observe, and slowly encourage participation) 	<ul style="list-style-type: none"> • Require participation
Enablers: Positive Environmental Experiences and Expectations; <i>Supportive</i>	<ul style="list-style-type: none"> • Provide transport support (e.g., rides or vouchers) • Provide support for transport planning (e.g., help young person map out route; have someone do route with them first time) (C only) • Provide sport kit if needed (C only) • Create a collaborative (e.g., engage young person in process) support/crisis management plan for each individual • Create regular feedback loop between program and care team • Clarify resources available to participants (e.g., who to go to for more support, transport/kit support) • Encourage “bring a friend”- (e.g., young people bring a friend, family member, clinician, partner, etc. to accompany them and participate in program) • Educate facilitators on psychosis and what to expect and how to support 	
Enablers: Positive Environmental Experiences and Expectations; <i>Normalised</i>	<ul style="list-style-type: none"> • Focus on fun components (e.g., sport activity, social time, eating) • Encourage facilitators to engage with participants and find common ground • Use facilitators that participants can connect with (e.g., similar age, lived experience, etc). • Encourage facilitators and leads to participate • Encourage participants to lead where relevant • Be aware of language (e.g., terms like goal setting or mindfulness have been over used with this population and therefor will carry little value) (C only) • Prioritise “getting foot in the door,” and creating an enjoyable experience. 	<ul style="list-style-type: none"> • Focus on mental illness • Market only recovery components
Enablers: Positive Environmental Experiences and Expectations; <i>Logistically easy</i>	<ul style="list-style-type: none"> • Provide transport support (e.g., rides or vouchers) • Provide support for transport planning (e.g., help young person map out route; have someone do route with them first time) (C only) • Consider proximity (e.g., run program in close proximity to young people’s homes and public transport lines) • Provide sport kit if needed (C only) • Minimise data collection (e.g., overlap with service data collection if possible) (C only) • Prioritise “getting foot in the door,” and creating an enjoyable experience. Make first experience(s) as enjoyable and logistically easy as possible. 	
Enablers: Positive Environmental Experiences and Expectations; <i>Growth Experiences</i>	<ul style="list-style-type: none"> • Be aware of language (e.g., terms like goal-setting or mindfulness have been overused with this population and therefore will carry little value) (C only) • Provide time to reflect, discuss, and share (C only) • Prioritise “getting foot in the door,” and creating an enjoyable experience. Then, once confidence builds and anxiety decreases, include targeted growth experiences. 	<ul style="list-style-type: none"> • Focus only recovery/ growth components

Note. Some “don’t” cells are empty as there were not specific recommendations for what not to do for each type of barrier/enabler. Some recommendations are repeated due repetition across themes. Recommendations were made by both clinicians and young people unless noted (“C only” or “YP only”).