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PHYSICAL ACTIVITY AND HEALTH

Barriers and Facilitators for Participation in Physical Activity in the Transgender Population: A Systematic Review

RESEARCH

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ABSTRACT

Research question(s): What barriers and facilitators influence transgender people's participation in physical activity?

Background: Transgender equality has become a high-profile issue in recent years with transgender athletes making headlines in both the USA and the UK. Social and health inequalities experienced by transgender individuals are widely recognised. Physical activity promotion is a core area of public health due to its documented benefits. It is therefore important to understand reasons for participation rates in this community to support effective policies and practice.

Methods: Data base searches were used to identify relevant studies. Studies were screened and data extracted systematically. Narrative synthesis was utilised to analyse results from heterogenous studies.

Results: Ten relevant studies were identified, including six qualitative and four quantitative studies. Narrative synthesis determined five themes: changing rooms, medical transition, sports environments and activities, relationships and social support, physical and psychological safety. Participants described intense experiences of vulnerability, victimisation, and stigma.

Conclusions: There are multiple intersecting barriers and facilitators for transgender people's participation in physical activity. Practical barriers, such as lack of appropriate changing facilities or the gendered nature of sports teams and activities, may contribute. But more subtle, psychological issues, of feeling safe and fitting in may be equally important.

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INTRODUCTION

IMPORTANCE OF PHYSICAL ACTIVITY

Physical activity has benefits, including positive impacts on mental (Mikkelsen et al. 2017) and physical (Reiner et al. 2013) health. As such, understanding reasons for participation rates in different populations is important. This review focuses on the barriers and facilitators for physical activity amongst transgender people. If the barriers and facilitators to physical activity can be understood, more appropriate support can be provided to increase participation levels.

The World Health Organisation (WHO 2020) states the importance of recognising the benefits of all physical activity, including activity undertaken as part of work, sport, leisure, and transport. In line with this, any form of physical activity from sport to leisure activities is included in this review to gain a more complete picture of all physical activity which may provide health benefits in this population. No studies were excluded due to the type of activity undertaken. However, studies focused on the rules and regulations pertaining to elite sports were not included. While elite sports have benefits for the small number of individuals involved it has relatively little bearing on physical activity providing health benefits to the wider population.

In a physical activity context, barriers are internal or external factors that prevent or hinder participation in physical activity, while facilitators are internal or external factors that produce initiation, direction, intensity, and persistence of participation in physical activity (Rosenkranz et al. 2013). Barriers and facilitators are challenging to measure directly. This review accepted a wide range of outcomes and methodologies to gain a broad understanding of the subject matter. Most studies used self-reported outcomes from interviews and surveys covering outcomes such as experiences, attitudes, and participation rates.

TRANSGENDER PEOPLE

There is no single, agreed definition of the word transgender, generally understood to mean people whose gender identity is different to their sex assigned at birth. In UK law transgender people are defined as 'someone who is proposing to undergo, is undergoing, or has undergone a process (or part of a process) for the purpose of reassigning his or her sex by changing physiological or other attributes of sex.' (UK Parliament 2015), while some medical research uses the diagnostic criteria for the related condition gender dysphoria (Black & Grant 2014: 283). Studies included in this review used different metrics to define transgender participants, including recruitment from gender identity clinics as well as self-declared transgender status. No studies were excluded due to the method used to identify transgender participants.

Transgender people are a small percentage of the population. The UK Government Equalities Office estimated in 2013 that there were 200,000–500,000 transgender people in the UK, around 0.3–0.8% of the UK population (Government Equalities Office 2013). Formal Dutch research estimated that between 0.8 and 1.1% of adults report strong identification with a sex other than the sex assigned at birth (Kuyper and Wisjen 2014). American research showed 1.8% of high school students identify as transgender (Johns et al. 2019). While there is significant variation in figures a small but significant proportion of the population are affected by this issue.

Transgender people experience health inequalities (Zeeman et al. 2019). Studies show transgender people are more likely to experience mental health issues such as PTSD (Shipherd 2012), suicidality (Thoma et al. 2019) and anxiety (Konrad & Kostev 2020). Transgender individuals may also experience higher rates of certain other conditions. Evidence for this is less rigorous, and relies on prevalence studies, which may be impacted by local trends and other factors. Transgender people may experience higher rates of diabetes, hypertension (Judge 2014), asthma (Reisner 2013), cancer, kidney, and lung problems (Shipherd 2012). It is not clear if these are coincidental or caused by some combination of other issues including stigma, stress, poverty, difficulty accessing medical care, pharmacological risks, or something else entirely.

Physical activity is protective against several of these conditions and improves mental health outcomes. As such it is particularly important to understand reasons behind participation or nonparticipation in physical activity in transgender individuals.

As well as health inequalities, transgender people experience marginalisation and discrimination in housing, employment, and education (Bachmann & Gooch, 2019). It reasonable to consider what facilitators or barriers influence participation in physical activity in this population.

EXISTING RESEARCH

There is limited research into transgender people in a physical activity context. UK LGBTQ+ (lesbian, gay, bisexual, transgender, queer, and related identities) groups have produced reports on physical activity that highlight issues for transgender people. One report showed that 75% of 115 transgender respondents believed transphobia is a problem in sport, with only 4% disagreeing, and participants reporting verbal abuse, physical and sexual violence (Smith, Cuthbertson & Gale 2012). Further research by Pride Sports showed that transgender people have specific needs separate to lesbian, gay and bisexual people, reporting difficulties with changing facilities, social exclusion, and distrust of both mainstream sports groups and mixed LGBTQ+ sports groups (Englefield et al. 2016).

Previous systematic reviews have considered LGBTQ+ people's participation in sport and exercise (Gorczynski & Brittain 2016; Herrick & Duncan 2017). However, these reviews focused on lesbian, gay and bisexual people. They only identified three studies relating to transgender experiences (Fredriksen-Goldsen et al. 2013; VanKim et al. 2014; van Ingen 2011). These researched older trans adults (Fredriksen-Goldsen et al. 2013), aggression in a boxing club for women and transgender people (van Ingen, 2011), and weight related disparities among transgender college students (VanKim et al. 2014). A third systematic review (Jones et al. 2017) focussed on rules and regulations for elite athletes rather than participation in physical activity at a community level and is thus less relevant to this review.

Within the UK, and much of the EU, legal protection for transgender people was not attained until around 2010 and this small minority group had little media or scientific attention. Consequently, relatively little relevant research existed. Since then, there has been a significant increase in research into transgender people's needs and experiences. With this wealth of new research there is scope for a review of the new material to gain a better understanding of transgender people's participation in physical activity.

METHODS

AUTHOR REFLEXIVITY

Author reflexivity is important in qualitative research (Dodgson 2019). The author of this review is a physically active transgender person. This may influence the interpretation of the data. However, it allowed the reviewer to put findings into context and supported more detailed and nuanced understanding of the data.

PROTOCOL

A research protocol was written before the review was conducted. This described the research question, search strategy, and inclusion criteria. No changes were made to the methodology during the course of the research.

SEARCH STRATEGY

This systematic review used searches of four databases. Searches were completed between September and December 2020. PubMed and MedLine were searched due to their broad coverage of healthcare research. PsychINFO and SocINDEX were searched since research into physical activity is frequently conducted from psychological and sociological perspectives.

Key terms from the research question were expanded to form search strings as shown in Table 1. The search was structured to find studies that used any one of the terms for physical activity as well as any one of the terms for transgender people using Boolean algebra, as advised by Lefebvre et al (2019). No additional filters were applied.

Reference lists of studies were checked for further relevant studies. Websites of prominent charities in the field (Pride Sports, Stonewall, LGBT Foundation, and the Equality Network) were also checked for information regarding relevant studies and authors.

Transgender	transgender, transsexual, trans men, transmen, trans women, transwomen, nonbinary, non-binary, genderqueer, transmasculine, transfeminine
Physical activity	physical activity, sport, physical education, barriers to exercise, facilitators of exercise, exercise promotion
('transgender' OR 'transsexual' OR 'trans men' OR 'transmen' OR 'trans women' OR 'transwomen' OR 'nonbinary' OR 'non-binary' OR 'genderqueer' OR 'transmasculine' OR 'transfeminine') AND ('physical activity' OR 'sport' OR 'physical education' OR 'barriers to exercise' OR 'facilitators of exercise' OR 'exercise promotion')	

Table 1 Search String Terms.

INCLUSION CRITERIA

To ensure unbiased selection of relevant studies, exclusion and inclusion criteria were established. Only studies that met the criteria listed below were included:

- Published in English
- Published between January 2016 and December 2020
- Examined transgender people's participation in physical activity
- Peer reviewed journal articles covering primary research

SCREENING

Search results were exported into Excel for ease of management. Additional studies from references lists and relevant charities were added manually. Duplicates were removed by sorting records in Excel. Studies were screened by a single researcher as shown in the PRISMA diagram in Figure 1. During the initial screening if there was uncertainty about the exclusion of a study the full text was accessed and read to minimise the chances of excluding relevant studies.

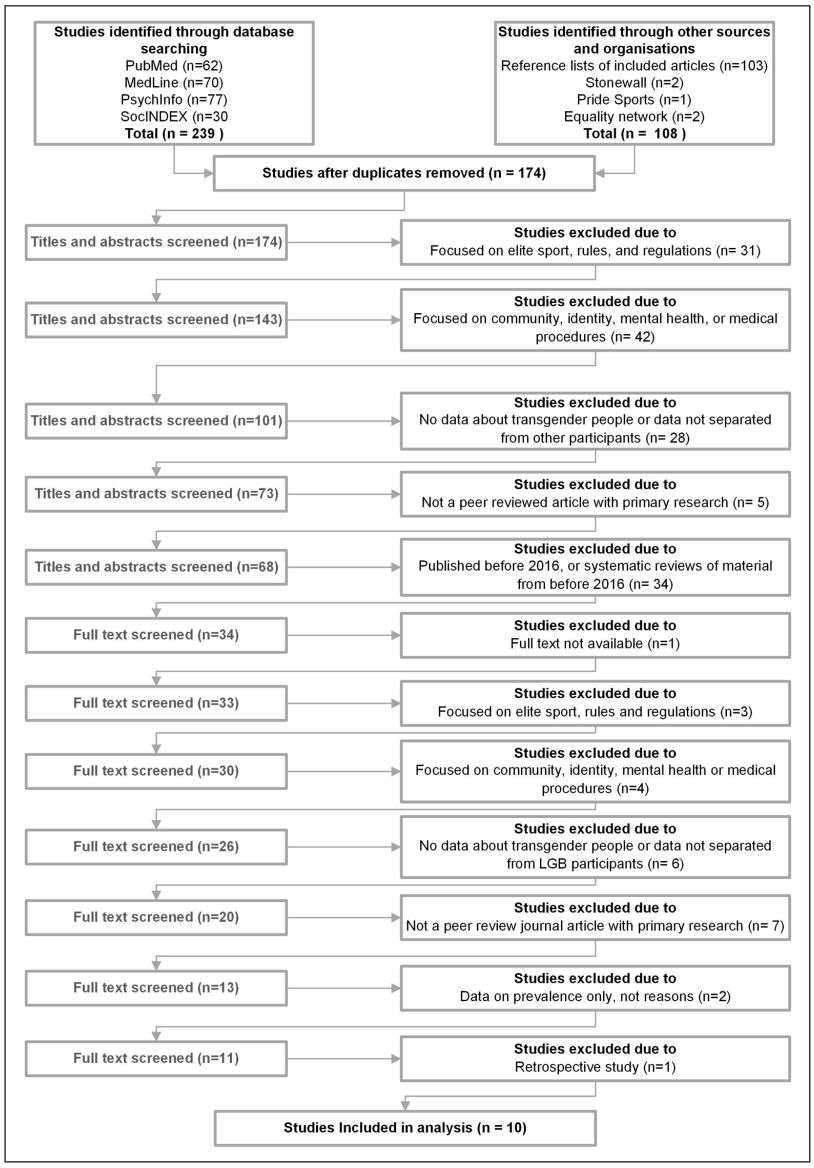

Figure 1 PRISMA diagram.

CRITICAL APPRAISAL

Studies were critically appraised by a single researcher. The NICE (National Institute for Health and Care Excellence) appraisal tools were used as they allow comparisons between qualitative and quantitative studies (NICE 2012), which was important due to the heterogenous nature of the studies in this review. Use of the NICE appraisal tools helped ensure this review meets standards relevant to healthcare professionals.

DATA EXTRACTION

Data extraction was completed by a single researcher. Bias was minimised by processing all included studies systematically using the same template. An appropriate template was created with headings based on recommendations from the Joanne Briggs Institute (Peters et al 2020). The following data was extracted for each study: title, author(s), methodology, participant demographics, study location, and an overview of relevant findings.

When extracting findings, a selective approach was taken, as recommended by the Cochrane Collaboration Qualitative Methods Group (Noyes et al 2020). Results and findings were only extracted if they described a barrier or facilitator to transgender people's participation in physical activity. This kept the data extraction relevant and relatively concise. Where possible, detailed quotes and quantitative data was extracted to ensure that this review is transparent and maintains its rich supporting data.

DATA ANALYSIS

This review captured studies with varied methodologies. This made meta-analysis or meta-synthesis inappropriate. Narrative synthesis, endorsed by Ryan (2013), was utilised. This is a flexible methodology that can be used with mixed datasets.

Narrative synthesis may include:

- developing a theory
- describing and summarising studies
- grouping and tabulating studies
- translating the data through thematic or content analysis
- exploring relationships in the data within and between studies.

(Ryan 2013: 3)

Thematic analysis forms a significant component of this methodology. It is viewed as a multistage process:

- Stages 1 and 2 – coding and developing descriptive themes
- Stage 3 – generating analytic themes or answering research questions.

(Thomas & Harden 2008)

Studies were read multiple times and relevant data extracted. Study findings were described and summarised then coded into descriptive themes. Each descriptive theme suggested a barrier or facilitator of physical activity. These are shown in Table 2.

Studies were grouped and tabulated by participant ages, participant genders, study location, and study methodology. One descriptive theme, medical transition, showed a strong link to participant ages. No other patterns were identified at this stage.

Descriptive themes were then synthesised into analytic themes to answer the research question. Similarities between descriptive themes were evaluated, and related or repeated findings considered, to draw out five key themes across all ten studies.

RESULTS

Ten studies were included in the final analysis as shown in the PRISMA diagram (Figure 1). These studies were heterogenous in methodology and location. Four studies were quantitative and six qualitative. Study locations included USA, Canada, Spain, the UK, and the Netherlands. All studies were high or moderately high quality. Table 2 records the methods, participants, and key findings for each study.

AUTHOR(S) AND YEAR	QUALITY SCORE	METHOD	GENDERS	AGES	BARRIERS	FACILITATORS
Elling-Machartzki, 2017	+	Qualitative; interviews	6 trans women, 6 trans men	Ages 27–51 years, Average age 40.5 years	• Early stages of transition • Alienation • Changing rooms • Single gender sports	• "Boys" sports gender affirming for trans men • Individual sports • Recreational/informal sports • LGBT sports • Medical transition
Greenspan et al., 2019	++	Quantitative; surveys	2 trans female, 3 trans male, 2 genderqueer, 6 other	13–18 years	• Specific sports • Bullying and harassment • Lack of support • Locker rooms • Feeling alienated/unwelcome • Body image/dysphoria	• Individual sport • Sport outside school • Positive peer relationships • Staff support • Practical solutions for changing rooms • Choice of sportswear • Mixed gender sports • Staff training and awareness
Herrick and Duncan, 2018	++	Qualitative; focus groups	5 non-binary, 2 gender fluid, 2 trans men, 1 trans women, and 1 agender person	18+ years, Average age 28 years	• Misgendering • Sportswear • Environments	• Broader definitions of physical activity • Gender neutral changing rooms • Role models • Safe spaces • LGBT or queer friendly spaces
Herrick and Duncan, 2020	++	Qualitative; surveys	88 transgender men, 51 transgender women, 183 nonbinary	18+ years	• Locker rooms • Self-consciousness • Feeling unwelcome • Physical safety/violence	• Passing/Medical transition/Body confidence • Trans spaces • Gender neutral changing rooms
Jones et al., 2017	++	Qualitative; interviews	9 trans men, 4 trans women	18–36 years Average age 22.71	• Changing facilities • Misgendering/fears about passing • Body dissatisfaction • Sportswear • Team sports/gender segregation	• Physical activity at home • Body satisfaction • Medical transition • Motivated to improve transition outcomes • Trans only spaces

(Contd.)

AUTHOR(S) AND YEAR	QUALITY SCORE	METHOD	GENDERS	AGES	BARRIERS	FACILITATORS
Jones et al., 2018	++	Quantitative; matched control study using surveys	Matched control sample: 42 transgender men, 42 cisgender men, 95 transgender women, 95 cisgender women Whole trans sample: Sex assigned at birth – 151 female, 209 male Gender identity – 166 female, 131 male, 14 partly male and female, 17 neither male nor female, 18 unsure, 8 other, 6 missing data	Mean age all participants 30.15 years	n/a	• Medical transition – hormone therapy • Self esteem • Body satisfaction
Kulick et al., 2019	+	Quantitative; surveys	86 trans participants; genders not specified	High school age	Language/slurs	Feeling safe in toilets/changing rooms
López-Cañada et al., 2020	+	Quantitative; surveys	93 trans women, 108 trans men, 11 various other labels	10–62 years Average age 30.63 years	Gender disclosure/early stages transition	• Non organised physical activity • Individual physical activity
Pistella et al., 2020	++	Quantitative; self report surveys	357 trans participants; genders not specified	12–17 years	n/a	Feeling safe
Stewart et al., 2020	++	Qualitative; interviews	20 trans women	16–65 years	Fears about passing Bullying/harassment/slurs Single gender spaces	• Medical transition – speech therapy • Relationships with coaches and peers • Feeling accepted/welcome

Table 2 Study details.

Participant demographics were recorded in different formats, but most studies reported on age and gender. Eight studies reported the genders of all trans participants, only Kulick et al (2019) and Pistella et al (2020) did not report this data. All studies reported on participants' ages. Most researched participants aged 16+, but some included younger teenagers and adolescents (Pistella et al. 2020; Kulick et al. 2019; Greenspan et al. 2019). The youngest participant was 10 and the oldest 65.

Participants' genders varied. Overall, the studies included transgender men (n = 345) transgender women (n = 343), people who identified in other ways, including non-binary, genderqueer, genderfluid or agender people (n = 235), and transgender people without clarification regarding gender (n = 458). Most research covered predominantly white urban populations.

Narrative synthesis identified five key themes: changing rooms, medical transition, sports environments and activities, relationships and social support, physical and psychological safety.

THEMES

Changing rooms

Changing rooms were mentioned in six of the ten studies and are highly significant. They appeared in five qualitative studies (Herrick & Duncan 2018; Herrick & Duncan 2020; Greenspan et al. 2019; Jones et al. 2017; Elling-Machartzki 2017), and a single quantitative study (Kulick et al. 2019).

In some studies, changing rooms and changing room experiences facilitated participation. In these cases, participants described gender neutral changing rooms (Herrick & Duncan 2018: 331; Herrick & Duncan 2020: 236) or private cubicles (Jones et al. 2017: 13).

This sense of safety promoted by appropriate changing spaces was not evident in other studies, where negative experiences of changing rooms were a barrier to physical activity.

Kulick et al (2019) controlled for feelings of safety when using toilets and changing rooms and found that this accounted for the difference between transgender and cisgender youth regarding how likely they were to play sport: being or feeling safe in toilets and changing rooms allowed transgender youth to play sport at similar levels to their cisgender classmates. This study used a particularly broad definition of transgender people, incorporating 'gender non conforming' as well as 'transgender' young people, as the authors believed these students would face similar prejudices. It is possible that this study missed importance distinctions by grouping participants in this way.

Other studies came to similar conclusions, specifying changing rooms as a particularly strong barrier to physical activity for transgender individuals. Teenage participants in Greenspan et al (2019) described both physical and verbal harassment in changing rooms (Greenspan et al. 2019: 18) and multiple adult transgender participants in Herrick and Duncan (2020) stated that difficulties with changing rooms prevented them from participating in physical activity:

> 'I just don't want to have to deal with deciding which locker room to go into – so I don't go the gym anymore.' (Herrick & Duncan, 2020: 234)

Similarly, adult transgender participants felt ashamed or uneasy (Elling-Machartzki 2017: 261), or described anxiety and uncertainty:

> 'Locker rooms are nerve wracking to navigate. Do I not talk to anyone? Do I hide in a stall, so I don't show my body or see others' bodies? Am I invading a space for women to be non-sexualised?' (Herrick &Duncan 2020: 230)

Medical transition

All studies which recognised medical transition as an important factor focused on adult participants. These studies included good representation of trans men, trans women, and nonbinary trans people.

Medical transition was mentioned as a facilitator or barrier for participation in physical activity in six studies (Stewart et al. 2020; Jones et al. 2018; Herrick & Duncan 2020; López-Cañada et al. 2020; Elling-Machartzki 2017; Jones et al. 2017). Five studies recognised medical transition as a strong facilitator of physical activity including one high quality quantitative study (Jones et

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al. 2018), and four qualitative studies (Stewart et al. 2020; Herrick & Duncan 2020; Jones et al. 2017; Elling-Machartzki, 2017). But Elling-Machartzki (2017) also recognised that participation in physical activity could be challenging during the early stages of transition, while López-Cañada et al (2020), a moderately high quality quantitative study, noted that participation in physical activity reduced during the early stages of transition.

López-Cañada et al (2020) analysed survey results from transgender individuals (n = 212). While 79.7% of participations were physically active before transition, 14.5% stopped participating after transition (López-Cañada et al. 2020: 652). Elling-Machartzki (2017: 263) found a similar issue in the early stages of transition as people 'withdrew' from sports due to legal or medical processes and their liminal position in gender structures.

Despite these potential difficulties during early stages of transition, overall medical transition was a powerful facilitator for physical activity. Elling-Machartzki (2017: 264) noted complexities in the early stages of transition but also described how participants felt 'liberated' after transition.

> 'Yes, I am proud of it [his body], now I dare to show it to people.' (Elling-Machartzki 2017: 264) 'I have clear scars on my chest…I also see people looking. But I think like, "Fine, just look then."' (Elling-Machartzki 2017: 265)

Participants in Herrick and Duncan (2020) and Stewart et al (2020) described similar feelings:

> 'I've always passed pretty easily as a woman, and now that I'm done with my surgeries, I feel extra comfortable [in changing rooms]' (Herrick & Duncan 2020: 236)
> 'I had a lot of [speech therapy] training and practice to feel how comfortable I am now.' (Stewart et al. 2020: 82)

Participants waiting for medical treatment hoped that after medical transition they would not be held back by worries about showers, changing rooms or swimming pools (Jones et al. 2017: 18). These findings were supported by the one high quality quantitative study that researched the impact of medical transition on physical activity, which found that transgender patients who were undertaking cross-sex hormone treatment engaged in more physical activity compared to patients who were not (Jones et al. 2018: 102).

In addition to specific impacts of medical treatment, participants described related issues with self-consciousness (Herrick &Duncan 2020), self-esteem (Jones et al. 2018), fears about passing (Stewart et al. 2020), and gendered clothes (Herrick & Duncan 2018; Greenspan et al. 2019; Jones et al. 2017).

Participants drew a direct link between bodily discomfort or dissatisfaction and difficulty with physical activity:

> 'When you feel so dysphoric with your body you can't manage to go and do sports or go and do the gym and things like that.' (Jones et al. 2017: 10)

Other participants described pragmatic and emotional difficulties with bodies not matching gendered expectations and the difficulty of passing while engaged in sports:

> '… that became a huge problem because you can't workout in a binder and I felt acutely uncomfortable.' (Herrick & Duncan 2018: 238)
> 'I was so worried about my voice and how people perceived me, if I was passing, or not, it basically took over.' (Stewart et al. 2020: 81)
> 'I might have to take off my trousers for something then it is quite obvious I don't have a penis.' (Jones et al. 2017: 13)

Some participants in Greenspan et al (2019) noted that policies impacted these issues. For example, 'policies requiring them to wear specific [gendered] uniforms or change in front of classmates' (Greenspan et al. 2019: 20) exacerbated difficulties, but the 'opportunity to wear a gender affirming uniform' (Greenspan et al. 2019: 21) facilitated sports participation.

Sports environments and activities

Participants noted that different environments and activities could act as both barriers and facilitators of physical activity.

Some participants found sports environments challenging due the gendered nature of sports practice. Stewart et al (2020) noted that sport is one of the 'most gendered' environments (Stewart et al. 2020: 83) which makes it challenging for transgender people to participate. As participants in Stewart et al (2020) and Herrick and Duncan (2018) described:

> 'But sport is very clearly either male or female.' (Stewart et al. 2020: 83)
> 'Even just like going to the gym is intimidating' (Herrick & Duncan 2018: 330)

Participants described feelings of 'alienation and exclusion' (Elling-Machartzki 2017: 261) or being 'unwelcome' in sports environments (Greenspan et al. 2019: 20), particularly single gender environments:

> 'It just did not fit anymore. I had not started with hormones yet, but I felt very strongly that I no longer belonged on a women's team.' (Elling-Machartzki 2017: 263)
> 'I don't really fit into a bracket where I could play for a team anymore so I tend not to bother.' (Jones et al. 2017: 16)

Mixed gender spaces could be easier to access (Greenspan et al. 2019). And some participants had positive experiences in transgender or LGBTQ+ spaces:

> 'Trans spaces are precious and needed.' (Herrick & Duncan 2020: 236)
> 'I think it would be something nice to go to a swimming pool with other people that are just like us. No one judges you.' (Jones et al. 2017: 21)
> 'Peter had only joined an LGBT wrestling group just prior to his transition, but felt very much supported and at home in the group.' (Elling-Machartzki 2017: 263)

Participants in several studies preferred non-traditional or individual physical activity. Both physically active participants in Elling-Machartzki (2017) were active in 'non-traditional, more recreational sports' (Elling-Machartzki 2017: 263), while in Greenspan et al (2019) two trans women, and several gender diverse or genderqueer individuals, reported a preference for individual activities (Greenspan et al. 2019: 15). One quantitative study (López-Cañada et al. 2020: 652) noted that trans people generally preferred individual sports both before and after transition.

One participant in Jones et al (2017) noted that physical activity performed at home was more accessible:

> 'If I am doing training in my room I can I usually just do it in my lounge wear so I don't have to worry about it. It's a lot more comfortable' (Jones et al. 2017: 16).

In contrast, one study (Elling-Machartzki 2017: 62) found that trans boys prefer traditionally masculine sports.

Relationships and social support

Relationships and interactions with others, including peers, teammates, and coaches acted as both barriers and facilitators of physical activity. Four studies noted relationships or interactions with others as particularly important for participation in physical activity. Two high quality qualitative studies discussed positive relationships with coaches and peers as a protective factor that facilitated participation (Stewart et al. 2020; Greenspan et al. 2019). However, Greenspan et al (2019) also noted that lack of support, especially from staff and coaches, could act as a significant barrier. Two further high-quality studies noted that negative reactions and being misgendered limited participation (Herrick & Duncan 2018; Jones et al. 2017).

Greenspan et al (2019) noted that participants with better peer relationships were more likely to report positive experiences of physical activity. Similarly, participants in Stewart et al (2020) reported that positive relationships with coaches and peers improved their sports experiences and facilitated participation:

> 'Training is ok because my teammates and coaches are great.' (Stewart et al. 2020: 83)

Training and behaviour of staff and coaches was discussed in Greenspan et al (2019), with participants reporting 'ignorance and apathy' (Greenspan et al. 2019: 18) from staff members:

> 'Teachers turned a blind eye to both subtle and aggressive forms of homophobia, transphobia, and harassment.' (Greenspan et al. 2019: 17–18)
> 'Heavily emphasized among all participant groups was the need for LGBTQ+ specific education and training among staff.' (Greenspan et al. 2019: p21)

Participants also described instances of misgendering or reactions from others they found upsetting:

> 'I get misgendered every single day, all day…so I'm wanting to go to the gym, but I'm like exhausted in advance.' (Herrick & Duncan, 2018: 329)
> 'I feel like people are looking at me going "why are they going into the male changing rooms?"' (Jones et al. 2017: 10)

Physical and psychological safety

Safety was a significant concern raised in five studies. Participants discussed issues with psychological and physical safety that made it difficult to participate in physical activity. One high quality quantitative study (Pistella et al. 2020) showed a clear correlation between feeling safe and participating in physical activity, while a second moderately high-quality quantitative study showed a correlation between hearing prejudiced language and feeling less safe. Another high-quality qualitative study discussed issues with slurs and direct verbal abuse (Stewart et al. 2020). Participants in two high quality qualitative studies discussed physical safety and experiences of violence (Herrick & Duncan 2020; Greenspan et al. 2019).

Participants in Stewart et al (2020: 81) mentioned that they are "verbally assaulted" and called "freaks" (Stewart et al. 2020: 81). Kulick et al (2019: 947) showed a strong correlation between hearing prejudiced language and feeling safe in and around sports environments, and Pistella at al (2020: 38) found a correlation between feeling safe and participation in physical activity.

Participants in Greenspan et al (2019) described being "harassed both verbally and physically" in and around sports environments (Greenspan et al. 2019: 18), while participants in Herrick and Duncan (2020) described both actual and potential violence:

> "I am gawked at, misgendered, and face physical violence." (Herrick & Duncan 2020: 234)
> "I worry about being sexually assaulted, being in such a vulnerable position" (Herrick & Duncan 2020: 235)

DISCUSSION

LIMITATIONS OF THE REVIEW

Studies included in this review were all moderately or very high quality. However, they relied on self-reported outcome measures, either surveys or interviews, which may not give a complete picture.

These studies were authored by a small pool of authors, which magnifies the opportunity for individual biases to impact the review. Several studies had specific, narrow focusses, such as school sports (Pistella et al. 2020) or locker rooms (Herrick & Duncan 2020) which may have drawn certain issues to the forefront. Study participants varied in age, gender, and nationality but overwhelmingly represent white, urban populations. This may mask variations in transgender experiences due to ethnicity, geography, or many other potential confounding factors.

Although this review had an international scope, only research in English was included, limiting the global applicability of the findings. Furthermore, this review took a particularly all-encompassing approach to the topic, partially due to a dearth of available material. This may limit the review's ability to recognise fine grained patterns in participants' experiences. However, the broad approach allows this review to recognise overarching issues that are applicable to transgender people across many cultures and places.

RESEARCH CONTEXT

Previous research into transgender physical activity is very limited. Studies on LGBTQ+ sports participation historically noted changing rooms and toilets as sites of bullying or harassment (Symons et al. 2010), with participants describing similar experiences to the transgender participants in this review.

While there is limited previous research into LGBTQ+ physical activity, there is a significant body of research into physical activity in other minority groups including older Black and minority ethnic adults (Elegbede et al. 2019), adults with depression (Glowacki et al. 2017) and people with intellectual disabilities (Bossink et al. 2017). There is an even larger volume of work focussed on other minority groups, for example, older adults age 60+ (Franco et al. 2015).

Some themes may be applicable across these diverse groups. For example, social and peer influences (Franco et al. 2015; Bossink et al. 2017; Elegbede et al. 2019; Glowacki et al. 2017) and environmental factors (Franco et al. 2015; Bossink et al 2017; Elegbede et al 2019) are strong barriers and facilitators for physical activity across different groups. These factors were also apparent in the themes of this review. However, there were differences in specific social and environmental needs documented in these communities.

One distinction between results of this review and existing research into physical activity in various communities is the importance transgender participants placed on medical transition. Current waiting lists for gender identity services in the UK range from two to five years for a first appointment (Tavistock and Portman NHS Foundation Trust 2020). It is already recognised that this has an impact on mental health (Care Quality Commission 2021; Bachmann and Gooch 2019). This review suggests it impacts wider health and social outcomes including physical activity. Consideration might need to be given to support for transgender people both pre and post transition to facilitate physical activity and social participation more generally.

Participants across the studies and themes in this review described stark experiences of vulnerability and stigma. Participants described feelings of shame, fear, alienation, and embarrassment in a wide range of situations, and many had experienced verbal, physical, or sexual violence. There were also widespread concerns about being judged, rejected, or exposed. Specific individual barriers such as uniform policies can be improved straightforwardly, but these superficial changes may not be sufficient without action to address pervasive underlying issues.

Stigma, fear, and shame impact participation in physical activity, and there is a documented gendered component to this issue. Research for Sports England in preparation for the high profile This Girl Can campaign to increase sports participation in women and girls found that fear of judgement was a major barrier to women's participation in sports (Willison & Holgate 2015). Women feared judgement about everything from being fat to being too good at sport and these fears were powerful and longstanding (Willison & Holgate 2015). Stigma and shame are known factors in physical activity participation in other vulnerable or marginalised groups including, for example, overweight people (Jackson & Steptoe 2017) and breast cancer survivors (Castonguay et al. 2017). Stigma, shame, and fear are societal issues, but they can be targeted for intervention in relation to physical activity. Sports England had significant success raising participation rates through a multifaceted approach targeting self-confidence, positivity, and empowerment with a range of methods including realistic role models, and a CBT influenced advertising approach that encouraged women to face their fears head on.

Vulnerability and victimisation in sports is well documented, especially for adolescents and school children (Cheever & Eisenberg 2020) and members of ethnic minority groups (Velija & SIlvani 2020; Long et al. 2009). Various forms of training and awareness raising have been trialled to reduce stigma, stereotypes, and discrimination towards disadvantaged groups (Celik et al. 2012; Lindsay and Edwards 2012). However, there is a growing body of evidence which suggests diversity training may not be effective, especially long term (Bezrukova 2016). Organisations involved in promoting physical activity in minority and marginalised groups note the importance of on-going work to maintain progress (Willison and Holgate 2015) or recognise lack of long-term funding commitments as a serious weakness of interventions to increase physical activity (Long et al. 2009: 50–51). There is limited research into awareness raising or diversity training to reduce stigma or victimisation against transgender individuals. One recent

study on this topic suggested that contact with LGBTQ+ people and media representations of transgender individuals may be useful (Hoffarth & Hodson 2018) however this may need to be approached carefully due to issues with the accuracy and sensitivity of press reports on transgender individuals and issues (Shaw, 2019).

RESEARCH RECOMMENDATIONS

There is relatively little research into transgender people's participation in physical activity. This review noted a particular gap in research that included transgender individuals from rural areas, or Black and minority ethnic communities. Further research into these groups might be valuable as they may have specific needs or experiences.

Much of the research in this review combined its analysis of transgender individuals of various genders. In lesbian, gay, and bisexual communities research has noted significant differences in physical activity participation between sexual minority men and sexual minority women (Herrick & Duncan 2017), while gender differences in physical activity are well established in the general population (Molanorouzi et al. 2015). As such research into distinctions between transgender men, women, and non-binary people may be valuable to understand whether similar differences exist in transgender individuals.

This review identified no research into links between limited access to physical activity and negative health and social outcomes for transgender people. There was no research into the potential for increased physical activity to improve outcomes for transgender people, or into interventions to increase participation in physical activity in transgender people. Further research could guide policy in this area.

RECOMMENDATIONS FOR POLICY AND PRACTICE

Widespread experiences of stigma, vulnerability, and victimisation impact transgender people's participation in physical activity. However, interventions to improve women's and Black and minority ethnic people's participation in physical activity have had moderate success despite similar systemic challenges.

As such some recommendations can be made for policy and practice:

- Consider if gender neutral or single stall changing rooms can be provided.
- If providing gendered uniforms, give all participants free choice between different options.
- Consider signposting staff to information, advice or training on the needs and experiences of transgender service users. This could include awareness raising sessions.
- If providing exercise interventions for a transgender person in any setting discuss options for individual and home-based exercise, or LGBTQ+ services if available locally, as well as mainstream activity and exercise groups.
- Consider using peer mentoring or similar support services to facilitate participation amongst transgender people.
- Consider interventions to raise self-confidence and positivity around physical activity within transgender communities.
- Ensure that policies regarding bullying and harassment are effectively implemented.
- Recognise the impact of access to medical transition on participation in physical activity and work to reduce unnecessary delays to treatment.

CONCLUSIONS

The purpose of this review was to identify barriers and facilitators which impact transgender people's participation in physical activity to inform policy, practice, and future research. This is significant due to the well documented health benefits of physical activity, and social and health inequalities faced by transgender people. This review identified five key themes which act as barriers or facilitators to transgender people's participation in sport: changing rooms, medical transition, sports environments and activities, relationships and social support, physical and psychological safety. Quotes from participants across all these themes highlighted experiences of stigma, vulnerability, and victimisation.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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