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A systematic review of the wellbeing benefits of being active through leisure and fitness centres

Leila Heckel ^a, Rochelle Eime ^{b,c}, Adam Karg ^d, Heath McDonald ^e,
Carleigh Yeomans ^d and Ian O'Boyle ^a

^aUniSa Business, University of South Australia, Adelaide, Australia; ^bSchool of Science Psychology and Sport, Federation University, Ballarat, Australia; ^cInstitute for Health and Sport, Victoria University, Melbourne, Australia; ^dSchool of Business, Law and Entrepreneurship, Swinburne University of Technology, Melbourne, Australia; ^eSchool of Economics, Finance and Marketing, RMIT University, Melbourne, Australia

ABSTRACT

The aim of this systematic review was to provide an overview of the scientific evidence for psychosocial wellbeing benefits for individuals who are active through settings like leisure centres, gymnasiums or swimming pools. The level of physical activity required to achieve wellbeing outcomes through centre usage was a focal point. Nine electronic databases (AUSPORT, SPORTDiscus, EMBASE, MEDLINE, CINAHL complete, PsycINFO, Web of Science, PubMed, Scopus) were systematically searched to identify relevant literature, including all articles published in English from January 2011 to December 2021. A total of 1667 manuscripts were identified of which 31 articles were included in this review. Mental health was the most investigated psychological outcome, followed by stress reduction and relaxation; bonding with family/friends was the most frequently studied social outcome. Regular physical activity at leisure/fitness centres may be associated with increased social and psychological wellbeing. Participation in group programmes seems to be superior to individual activities in achieving health benefits due to its social nature. Findings from this review confirm that outcomes of being active through leisure/fitness centres go beyond physical benefits. However, scientific evidence is limited and more longitudinal studies with larger samples, and a focus on the dose–response relationship issue are recommended.

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KEYWORDS

Aquatic recreation and leisure centres; gymnasium; swimming pools; social wellbeing; psychological wellbeing; mental health

Introduction

The effectiveness of regular physical activity (PA) in preventing chronic disease and maintaining good health is well documented (E. Anderson & Durstine, 2019; Marques et al., 2018). In addition, meta-analyses have provided evidence of the efficacy of physical activity in improving the physical health and mental wellbeing of individuals suffering from various health conditions. For example, Correa Marson et al. (2016) have established an association between aerobic exercise and a reduction in fasting insulin in obese and overweight children, while Rees et al. (2017) found aquatic exercise to impact positively on markers of glycaemic control in adults with type 2 diabetes. A meta-analysis conducted by Strasser et al. (2013) revealed the effectiveness of resistance training in improving the physical health of cancer patients, and Tang et al. (2022) found aquatic exercise to

CONTACT Leila Heckel  leila.heckel@unisa.edu.au  UniSa Business, University of South Australia, Adelaide, Australia
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be effective in reducing mood and anxiety symptoms in individuals suffering from various illnesses (e.g. diabetes, stroke, Parkinson's, osteoarthritis). More recently, the benefits attained from frequent PA have been demonstrated to go beyond physical health and include mental health and wellbeing benefits (U.S. Department of Health and Human Services, 2018). Findings from meta-analyses indicate the effectiveness of PA in managing mental health conditions, for example, Schuch et al. (2016) found aerobic exercise to be effective in the treatment of depression and Stubbs et al. (2017) reported improved symptomatology in individuals diagnosed with anxiety/stress disorders who participated in aerobic and resistance training. A meta-analysis conducted by Marquez et al. (2020) found various types of physical activity to impact positively on the quality of life and wellbeing of individuals suffering from mental disorders.

Next to studies examining the effectiveness of physical activity in clinical populations, there is a growing body of research highlighting the social and psychological benefits of physical activity in healthy individuals (R. M. Eime et al., 2013a; 2013b; Lindsay-Smith et al., 2018; Marques et al., 2016). A systematic review conducted by R. M. Eime et al. (2013b) showed that group activities for children and adolescents positively impacted social and psychological health, above and beyond being active alone, specifically for self-esteem, social relations and depressive symptoms. Similar findings were found amongst adults, with those participating in team-based activities reporting better wellbeing and lower levels of stress compared to those who exercised individually (R. M. Eime et al., 2013a). Further, a systematic review of older adults participating in community groups with social and physical activities demonstrated improved social wellbeing driven by new and diverse social connections (Lindsay-Smith et al., 2018). Others found yoga, Thai chi, group walking and Pilates to improve the QoL of healthy adults (Marquez et al., 2020).

While meta-analyses have provided evidence of the effectiveness of PA in the prevention and treatment of chronic diseases and mental health conditions, and systematic reviews have shown a link between improved social and psychological wellbeing in healthy individuals who participate in group and club sports; there is a striking lack of research summarising the existing literature on the relationship between wellbeing benefits and physical activities from facility usage, such as leisure and fitness centres, in non-clinical populations with only one study conducted so far. Hendrickx et al. (2016) performed a systematic review on the benefits of swimming pool usage on health and wellbeing in remote Aboriginal communities in Australia. Most publications included in this review focused on ear and skin health, social and emotional wellbeing benefits were reported circumstantially with no methodologically sound measures used to assess these benefits. While the work by Hendrickx et al. (2016) provides some data on the wellbeing effects of swimming pool usage, the review was somewhat limited as it only included studies conducted in Australia with a specific focus on remote living Aboriginal children. Therefore, it is important to further explore the limited evidence for wellbeing outcomes gained through swimming pool usage on a more global scale and by including other settings such as multi-purpose leisure facilities and gymnasiums, as well as capturing benefits across the lifespan.

Level of physical activity

Recommendations regarding the level of PA required for physical health benefits and the prevention of chronic disease, across the lifespan, are well established (U.S. Department of Health and Human Services, 2018). It is recommended that children and adolescents aged 6–17 years engage in PA of moderate to vigorous intensity for a minimum of 60 min per day. Whereas for adults, at least 150–300 min of moderate-intensity or 75–150 min of vigorous-intensity per week or an equivalent combination of both intensity levels are recommended.

While these recommendations are crucial in the prevention of chronic illnesses, the dose-response relationship between PA and psychological and social health is less well understood. Some studies postulate that relatively low levels of activity such as a minimum of 20 min/week (Hamer et al., 2008) or 60 min/week (Burton et al., 2007) can generate psychological health benefits in adults. Marques et al. (2016) report that a more frequent pattern of activity is

necessary (≥ 150 min/week) to achieve social and mental health effects, while Mummery et al. (2004) found no significant difference in mental health outcomes between moderately (150–420 min/week) and highly active individuals (>420 min/week), suggesting that no additional health benefits are gained by increasing the amount of PA per week. However, findings from longitudinal studies suggest that any level of PA, including low levels (<150 min/week) are effective in reducing the risk of depression throughout the lifespan (Mammen & Faulkner, 2013). The lack of consensus in relation to the optimal amount of PA to achieve social and psychological benefits may be due to the different types of activities studied and measures used when assessing wellbeing outcomes (R. M. Eime et al., 2013a; Kim et al., 2008). It is also unclear at what intensity level physical activity needs to be performed to attain social and mental health effects.

Type, mode and setting of physical activity

Participation in PA is more likely to take place if the needs and interests of individuals are being met (Booth et al., 1997). Individual preferences exist when it comes to type, mode and setting of PA (Deelen et al., 2018). While some favour organised team sports with a competitive nature, others prefer leisure-based physical activities for fun and enjoyment; for some individuals, exercising solitary is the preferred choice, while others opt for group activities (Gavin et al., 2015)

Compared to many PA settings, aquatic, recreation and leisure centres are multipurpose facilities offering a variety of services and programmes which can be utilised for extended hours and all year round. These not only include predominantly indoor/outdoor swimming pools, gymnasiums (gyms) and group fitness classes but also wellness centres such as massage and spas and childcare services to facilitate regular attendance (Sport and Recreation Victoria, 2017).

In the past few decades, gyms have become increasingly popular settings for PA (Riseth et al., 2019). Most gyms offer group workouts, resistance training and cardiovascular exercise, providing opportunities for both group and individual activities (Bakken Ulseth, 2008). While health benefits have been identified as important motives for gym usage, individuals often choose to work out in this setting because it represents a safe place (compared to outdoor locations) that offers flexibility and support from staff and members (Riseth et al., 2019). Membership fees and commitment to pre-paid activities have been reported to enhance adherence and increase regular PA (Riseth et al., 2019). Further, swimming is one of the most popular PAs amongst children, adolescents and adults globally (Hulteen et al., 2017) and therefore swimming pools are potentially a good PA setting for wellbeing (Stubbs & Cummings, 2017).

In summary, PA plays an important role in achieving positive wellbeing outcomes in individuals across the lifespan and dose–response recommendations have been made to assist individuals in leading a healthy lifestyle. However, less is known about the beneficial effects of participation in settings such as aquatic, recreation and leisure centres, gyms and local swimming pools and the relationship between PA level and social and psychological benefits. Given the potential of these settings to play a key role in helping individuals of all ages achieve a healthy lifestyle, there is a need to synthesise the literature on the potential psychosocial wellbeing benefits that can be attained from participating in services and programmes at these settings.

The aims of this systematic review are:

- (i) to summarize the evidence in the current literature in support of the social and emotional wellbeing benefits associated with leisure/fitness centre usage across the lifespan,
- (ii) to identify gaps in the literature where further research is necessary to advance our current knowledge in this field,
- (iii) to highlight methodological issues to improve future research designs, and
- (iv) to make recommendations on the level of PA required to achieve social and psychological wellbeing outcomes.

This systematic review is part of a larger project, funded by the Australian Research Council, which investigates the wellbeing outcomes of aquatic and leisure centre usage in Australia.

Method

This systematic review was registered on PROSPERO (ID-CRD42021292945). A narrative synthesis approach was used due to heterogeneity of study designs and the differences in outcome measures amidst the included studies.

Eligibility criteria

The PICO (Population, Intervention, Comparison, Outcome) model was used to develop a well-built systematic search strategy:

Population: Healthy individuals of all ages who engage in PA at settings such as multipurpose aquatic, recreation and leisure centres, outdoor/indoor swimming pools and gyms (hereinafter referred to as leisure/fitness centres).

Intervention: Physical activities at leisure/fitness centres that provide aquatic services and fitness rooms (e.g. gym), or group fitness programmes to improve the wellbeing outcomes of participants.

Comparison: To fully address the research question, all study designs were accepted (e.g. cross-sectional, longitudinal, observational, randomised and non-randomised trials, single-arm studies).

Outcomes: Studies reporting on wellbeing outcomes in the psychological, emotional, or social domain as opposed to physical and physiological health benefits.

Studies were excluded if they reported on clinical populations (e.g. individuals suffering from chronic health conditions or those diagnosed with a mental/cognitive disorder) as the literature on this topic area has been summarised previously (e.g. Correa Marson et al., 2016; Rees et al., 2017; Strasser et al., 2013; Tang et al., 2022) or on physical or physiological benefits of leisure/fitness centre participation as opposed to psychological and social benefits. Studies focusing on competitive sport (e.g. elite sport, Olympics, Paralympics, sport clubs) were also excluded as well as research addressing wellbeing benefits for staff and/or volunteers working at leisure/fitness centres (e.g. trainers, fitness instructors, lifeguards, managers, administrative staff, physiotherapists) as the aim of the review was to summarize the literature on the benefits of facility usage on user wellbeing as opposed to employee experience, which was beyond the scope of this review.

Studies included in the review were those of original research, peer-reviewed articles and grey literature published from January 2011 – December 2021. More specifically, studies reporting on wellbeing benefits in healthy individuals of all ages (e.g. psychological, emotional, social) resulting from active and/or passive participation at leisure/fitness centres. The time range was chosen since social and emotional wellbeing has evolved only in recent years in this research field. Physical activity guidelines were historically developed on physical and physiological health benefits and were originally not linked to social and mental wellbeing, and only in more recent years has this occurred. Therefore, it was considered very unlikely that literature looked at social health and mental wellbeing prior to the specified timeframe.

Search strategy and study selection

Prior to conducting the systematic search, the protocol registries PROSPERO, Cochrane and Joanna Briggs, as well as the systematic review databases Campbell Library, TRIP and OT Seeker were searched. No existing systematic literature reviews on the topic under investigation were found.

A systematic literature search was conducted on 15 December 2021, utilising nine electronic bibliographic databases: AUSPORT, SPORTDiscus, EMBASE, MEDLINE, CINAHL complete, PsycINFO, Web of Science, PubMed and Scopus. In addition, ProQuest Dissertation & Theses Global (PQDT) database was searched for the inclusion of unpublished work. The Google Scholar

search engine was utilised to identify relevant peer-reviewed articles in the subject area. The Google search engine was also used to identify any grey literature such as international, national and state reports related to the topic under investigation. Snowball searching for citations and references of key articles was performed to identify potentially eligible papers.

The following key terms were used within the systematic title, abstract and keyword search:

(‘aquatic* cent*’ or ‘swimming pool’ or ‘outdoor pool’ or ‘sport* facility’ or ‘sport* cent*’ or ‘athletic* cent*’ or ‘leisure cent*’ or gymnasium) AND (‘physical activity’ or ‘leisure activity’ or exercise or swim* or hydrotherapy or aquatic or ‘group fitness’ or aerobic* or ‘weight training’ or ‘resistance exercise’ or ‘strength training’ or ‘cardiovascular exercise’ or ‘cross training’) AND (wellbeing or well-being or benefit or QOL or ‘quality of life’ or satisfaction or self-efficacy or happiness or ‘mental health’ or depression or stress or anxiety or mood or ‘social health’ or connectedness or ‘social rel*’).

Review process

Search results from all electronic databases and the Google search engine were exported to an EndNote Library, and duplicates were removed by author LH. Title/abstract screening was performed first and manuscripts not meeting the inclusion criteria were excluded. The full text of potentially relevant studies was then reviewed for eligibility. The screening process was conducted independently by author LH and CY. Discrepancies among reviewers were resolved through discussion until 100% agreement was reached.

Data extraction

Data from publications meeting the inclusion criteria were extracted into a coding spreadsheet. Information extracted from quantitative studies included first author/year of publication, country, design, aim, participants, setting/programme, activity, measures of interest, outcomes of interest and key findings. Information extracted from qualitative and mixed-method studies included first author/year of publication, country, aim, participants, setting/programme, method, theory and analysis, outcomes of interest and key findings. If necessary, study authors were contacted to retrieve additional study details.

Risk of bias assessment

The randomised controlled trial included in the review was assessed for risk of bias (RoB) against the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2022) by authors LH and CY independently and discrepancies in scores were resolved through discussion. The evaluation comprised five domains: randomisation/allocation concealment, blinding of participants/personnel, blinding of outcome assessment, incomplete outcome data and selective reporting. An overall RoB was assigned based on the highest RoB rating in any of the five domains.

Results and discussion

Systematic database search

A total of 1642 publications were retrieved from the systematic database search and 25 manuscripts were found through other sources (snowball search for citations and references of key articles), 687 were duplicates and therefore removed. After the screening of titles and abstracts, 64 full-text papers were assessed for eligibility. Of those, 33 articles were excluded for reasons as shown in the flow diagram. A total of 31 manuscripts were included in the review comprising 25 quantitative, four qualitative and two mixed-method papers (Figure 1).

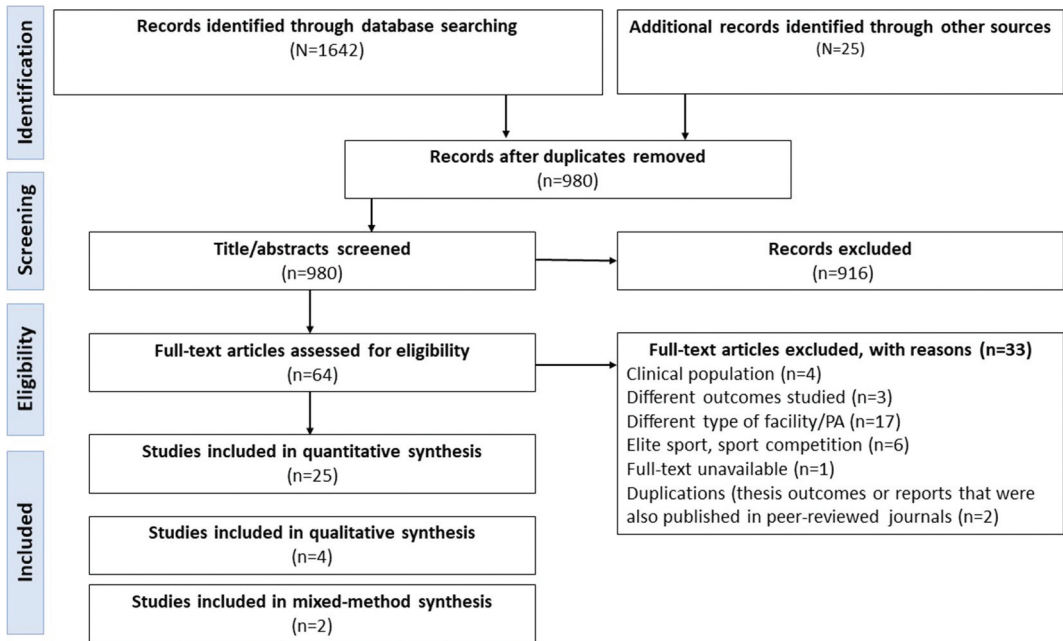


Figure 1. PRISMA flow diagram of systematic literature search and screening processes.

Overview of included studies

An overview of the 31 included articles is provided in Tables S1–S3. Studies originated from 13 different countries, mainly the USA (19%), Australia (16%) and the UK (16%). Eleven studies focused on PA at gyms, seven at indoor/outdoor swimming pools, eight at multipurpose leisure centres and five articles included a combination of various settings. Sample sizes across studies varied greatly ranging from 5 to 7133 participants and most studies (71%) included both genders. Most papers focused on the adult population (range 18–100 yrs), two studies involved adolescents aged 14–19 years and three articles comprised university students aged 18–24 years. Most investigations (65%) examined both social and psychological benefits; some studies explored associations between outcome variables and individual characteristics (Ayyildiz et al., 2019; Howat et al., 2012; Howat, 2014; Leyton Roman et al., 2018; Mastrantonio Ramos and Coduras Martinez, 2020; Ramos et al., 2021; Tower et al., 2014; Tuero & Gonzales-Boto, 2018); type and mode of PA (Howat, 2014; Howat et al., 2012; Ramos et al., 2021; Tower et al., 2014), or frequency and level of PA (Ayyildiz et al., 2019; R. Eime et al., 2014; Elkins et al., 2011; Farid & Dabiran, 2012; Howat et al., 2012; Kahlin et al., 2016; Mastrantonio Ramos and Coduras Martinez 2020; Rahbari et al., 2013; Thakur & Joshi, 2016; Whiteman-Sandland et al., 2018).

Of the 25 quantitative studies, 21 were individual-based observational studies with a cross-sectional design. There were two population-based cohort studies, one being cross-sectional (Mitchell, 2013) and one reporting on both cross-sectional and long-term outcomes (Kekäläinen et al., 2020). One paper was an interventional study involving a randomised controlled trial (Kahlin et al., 2016), and another reported on the cost-effectiveness and mental health outcomes of a two arm PA programme (Verhoef et al., 2016). Sixty per cent of studies involved one participant group only without a comparison group, and therefore the reported outcomes need to be interpreted with caution and causal inferences are limited. All four qualitative studies evaluated psychological and social wellbeing benefits resulting from swimming pool usage and both mixed-method papers examined the benefits of multipurpose leisure centres.

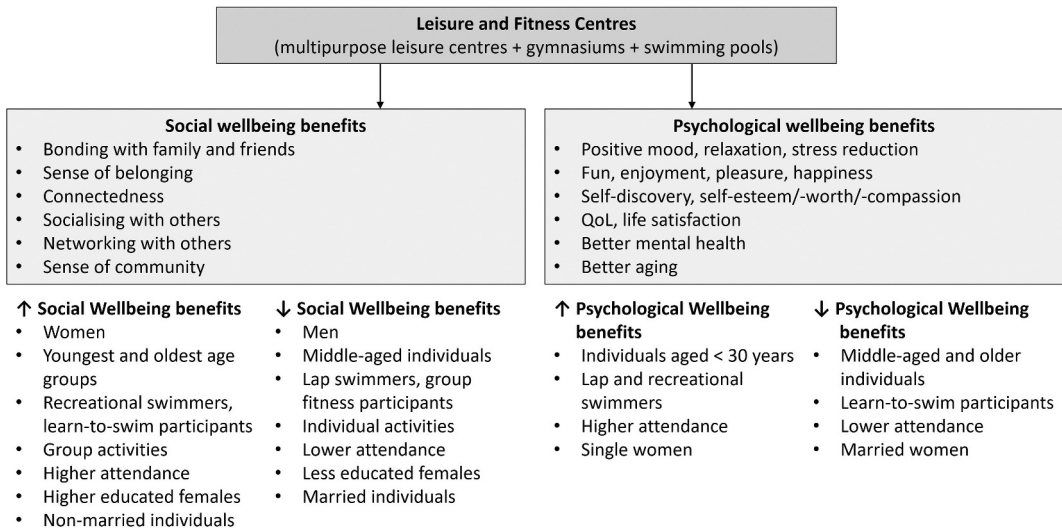


Figure 2. Data synthesis: summary of findings.

Outcomes of interest reported on in this review are within the psychological and social domains only, although some of the included studies may have examined additional outcomes beyond those under investigation (e.g. physical, intellectual). Mental health/wellbeing was the most investigated psychological outcome ($n = 8$), followed by stress reduction ($n = 6$) and relaxation ($n = 6$). Bonding with family/friends, socialising with others ($n = 5$, respectively), social benefits ($n = 4$), and belongingness, social capital ($n = 3$, respectively) were the most frequently studied social outcomes.

A summary of the main findings retrieved from the included studies is presented in [Figure 2](#).

Risk of bias assessment of efficacy study

Methodological rigour of the included randomised trial (Kahlin et al., 2016) was low, demonstrating high level of bias ([Table 1](#)). Therefore, findings need to be interpreted with caution.

Multipurpose leisure centre usage

Evidence of the social and psychological benefits from PA at multipurpose leisure centres came from five cross-sectional studies (Howat, 2014; Howat & Assaker, 2016; Howat et al., 2012; Kumar et al., 2019; Wang, 2021) and the two mixed-method papers (Kumar et al., 2018; Tower et al., 2014).

Tower et al. (2014) examined the community benefits of leisure centres at four metropolitan and two regional settings. The study involved semi-structured interviews with nine managers, the analysis of existing financial documents, vision and goals statements and survey data from 1373 adult users. Interviewees reported that leisure centres aim to provide programmes and services to enhance community connections, but implementation may be

Table 1. Risk of bias (RoB) assessment for randomised controlled trials ($n = 1$).

First author, year	Randomization, allocation concealment	Blinding of participants/personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting
Kahlin et al., 2016	SC	L	H	L	L

Note: SC=Some Concern, L=Low risk of bias, H=High risk of bias.

hindered by lack of resources. Survey data suggested that 24% of users came to the centre to socialise with others and participants were appreciative of the culture at the centre and the diversity of people.

Kumar et al. (2018) study compared private and public leisure centres at the micro level (focus groups with 24 centre users with at least 6-months membership) to investigate users' subjective wellbeing and social capital. Focus group participants emphasised the mental wellbeing benefits resulting from using the centre 'being able to do the class . . . has really impacted on my sense of wellbeing and kind of like how I feel about myself ultimately' (non-profit centre user, p557) and 'not only from a physiological point of view but also from a mental perspective, it made me feel better' (public centre user, p557). Users also associated the leisure centre as a place that generates opportunities to bond with family, socialise and network 'in the gym you see friendships, you see bonds, you see people really like dig deep for someone else' (public centre user, p557). The author's stated that user wellbeing and social capital were not influenced by centre type. Following the evidence gained from their qualitative investigation with leisure centre users, Kumar et al. (2019) surveyed a sample of 361 users across 30 leisure centres, aged 32–59 who engaged in various activities (e.g. swimming, weight training, cardio activity, exercise classes) over a 4-week period. Findings suggested that leisure activities impacted positively on users' health and indirectly on their subjective wellbeing (happiness). Participation was higher in those who attended with individuals they had previously met and connected with.

Wang (2021) evaluated the relationship between quality of life (QoL) and leisure centre involvement in users aged 45 years and older. The three dimensions of leisure involvement included attraction (importance and pleasure), self-expression (the impression of self someone wishes to convey to others) and centrality (the extent users organise their life around the activity). Overall QoL was significantly associated with all three dimensions of leisure involvement, social QoL with self-expression and psychological QoL with attraction and self-expression. Therefore, those users who reported greater enjoyment from their leisure activities, who had more self-confidence and placed more importance on fitting the activity into their daily life experienced better QoL. Another study (Howat & Assaker, 2016) investigated social and psychological benefits and its influence on loyalty and overall satisfaction. Participants associated their leisure centre usage with relaxation, stress release, improved self-esteem and an opportunity to spend time with family and friends.

Three studies investigated demographic characteristics associated with wellbeing outcomes at leisure centres. Psychological benefits, such as relaxation, stress reduction or self-esteem, were found to be highest in younger individuals (<30 years); social benefits were found to be greater in women than in men (Howat, 2014; Tower et al., 2014), less present among middle-aged individuals but more common in the youngest and oldest age groups (Howat, 2014; Howat et al., 2012; Tower et al., 2014).

Type and mode of PA appeared to play a role in wellbeing outcomes. Stress reduction and relaxation were found to be highest in lap and recreational swimmers compared to learn-to-swim participants (Howat et al., 2012). Social benefits were reported more commonly by recreational swimmers and those taking part in swimming lessons compared to lap swimmers and gym users (Howat, 2014; Howat et al., 2012). Leisure centre users who participated in group programmes reported greater social benefits than those who exercised individually (Howat, 2014; Tower et al., 2014).

Only one study reported on PA behaviours associated with wellbeing benefits at leisure centres. Howat et al. (2012) found higher levels of self-esteem in users who visited the setting more frequently (>once per week).

Gym usage

A total of 16 studies reported on the social and psychological benefits of gym participation, and most of them (75%) included a comparator.

The single group studies produced mixed results in terms of psychological outcomes from gym usage. In their longitudinal study, Kekäläinen et al. (2020) analysed mental wellbeing and subjective health of individuals at age 42 and 50 who participated in various leisure-time PAs, including gym training. Cross-sectional analysis revealed no significant relationship between gym training and mental wellbeing at age 42 and 50. Gym training was the least commonly reported activity type with less than one-third of participants engaging in it at least once a month. The authors concluded that gym training might be of more interest to younger or older individuals than middle-aged persons. In contrast, Molina Garcia et al. (2018) found gym usage to be associated with emotions of pleasure and happiness in their sample of 202 gym users with a mean age of 42.5 years. However, it is unclear how regularly the gym was used and with what intensity-level users exercised in order to attain these benefits. Leyton Roman et al. (2018) studied a sample of 202 gym users and found participation in gym exercises associated with emotional (fun, enjoyment, feelings of competence and autonomy) and social benefits (relationships/spending time with friends). In addition, fun, enjoyment and social benefits were more commonly reported by users from rural than urban areas and social benefits more frequently by females than males.

The randomised controlled trial conducted by Kahlin et al. (2016) tested the efficacy of a 6-month PA programme (gym training, aerobic classes) in 104 physically inactive female high-school students. The 60 females in the intervention group received an individualised training programme and exercised at least once a week whereas the 44 control subjects received their regular school sport and education programme. Global self-esteem, physical self-worth, sport competence and body attraction increased significantly from baseline to 6 and 12-month in intervention participants. Significant group differences emerged at 6 months with programme participants reporting higher levels of physical self-esteem compared to the control group. Correspondingly, Thakur and Joshi (2016) found significantly higher levels of self-esteem and self-compassion in adolescent girls aged 14–19 years who undertook gym training 30 min/day, minimum of 5 days/week for at least 6 months ($n = 30$) compared to non-active females with sedentary lifestyles ($n = 30$). Findings from these two trials provide some evidence on the beneficial effects of gym usage on psychological wellbeing in adolescent girls, however more studies with larger samples and longer follow-up periods are needed to determine lasting beneficial effects.

For the adult population, studies have reported that those who exercise more regularly are more likely to have better social and psychological outcomes. In a sample of 125 University students, those who engaged in regular PA at the gym reported lower levels of loneliness and stress and a greater sense of community, compared to non-active individuals (Elkins et al., 2011). A study of 416 adult males, those who used the gym at least twice weekly for more than 6 months, reported better quality of life compared to non-users (Rahbari et al., 2013). Similarly, Ayyildiz et al. (2019) investigated the quality of life in 355 female gym users and found greater psychological wellbeing in those who exercised more frequently than those with lower attendance. Single women reported greater psychological benefits than married women and females with higher education levels experienced better social wellbeing than less educated individuals. These findings correspond with those of Mastrantonio Ramos and Coduras Martinez (2020) who in addition found lower levels of social and psychological wellbeing in woman than in men. Further, Farid and Dabiran (2012) examined the relationship between the level of PA and health-related quality of life in 360 female gym users who exercised at least 30 min/day on 3 days a week at moderate-intensity. While the authors found higher levels of mental and social wellbeing in their high-level compared to the moderate-level group, the differences were not significant, suggesting that no additional health benefits are gained by increasing the dose of PA. Yet, the absence of a control group limits the interpretation of the results. Mastrantonio Ramos and Coduras Martinez (2020) found lower levels of social and psychological wellbeing in women who exercised more (450 min/week) compared to those who worked out less (210 min/week). Further, when analysing the cost-effectiveness of the Give it a Go Program (free 4-month gym membership, 725 participants, attendance at least 5×/month) Verhoef et al. (2016) reported improved quality of life in participants due to the mental

health gain of moderate-to-high PA. Correspondingly, in their sample of 725 seniors (>55 years) Gutierrez et al. (2018) found that physically active individuals had higher levels of psychosocial wellbeing and were more likely to achieve better ageing than non-active seniors. These results demonstrate that the adult population benefits both socially as well as psychologically from regular gym usage.

Studies comparing gym usage with other types of PA have produced noteworthy results. Analysing data from a large cross-sectional population survey, Mitchell (2013) compared mental health and wellbeing resulting from regular activity in natural (e.g. parks, forests, beach/water side) and non-natural environments (e.g. gyms, home/garden, local streets) and found gym usage to be independently associated with better mental health. While better mental health was associated with the use of any natural and non-natural environment and the additional use per week of a non-natural environment, wellbeing was associated with the use of any natural and non-natural environment and the extra use of a natural environment per week. In their sample of 793 adult women from rural locations, R. Eime et al. (2014) compared gym goers, sport club participants and walking track users and found mental health and life satisfaction to be higher in sport club participants compared to gym goers and walkers. Participants were further categorised based on their level of PA performed in the previous week (<150 min, 150 min–350 min and >350 min). While the authors found a dose–response between level of PA and physical health, this was not the case for mental health and life satisfaction. Likewise, Lower et al. (2013) found gym usage (group fitness) to be inferior to sport club activities and intramural sports in terms of perceived social benefits. Findings from these studies demonstrate that sport participants gain greater social and psychological benefits than individuals who exercise at gyms. Previous research has highlighted the social culture often associated with team sports (R. M. Eime et al., 2013b, b) as well as a greater emphasis on maintaining existing rather than establishing new networks in the gym setting (Bakken Ulseth, 2008), which may explain the outcomes reported in these investigations. Further, Whiteman-Sandland et al. (2018) compared a group of traditional gym users (TG) with a group of cross-fit gym users (CFG) in relation to social outcomes. While the groups did not differ significantly in terms of frequency of attendance (both groups attended 4–5 times/week), bridging and bonding levels as well as feelings of belongingness were significantly higher in the CFG than in the TG group. CFG members were more likely to engage in group sessions, whereas TG participants preferred to exercise individually, which may explain the differences in social wellbeing among the groups. The authors stressed different age distributions between the two groups with TG participants being older than CFG users; and hypothesised that older individuals are less interested in building social networks than younger people, and this may have impacted their findings.

Swimming pool usage

Evidence of the social and psychological benefits from activities encompassing swimming pool usage was provided by four cross-sectional studies and four qualitative papers. Eubank and Devita (2015) interviewed five undergraduate students, aged 18–24 years who participated in recreational swimming at the university's swimming pool at least once per week. All participants reported better wellbeing outcomes including a more positive mood, feeling relaxed, happier and less stressed. Swimming was also associated with a sense of belonging with other students who participated in informal swimming. 'I feel happy. I had a really good swim, and I was swimming with a friend which brought my mood up as well' (p128).

Lenneis et al. (2022) examined the perceptions of 14 Danish Muslim women aged 26–58 years who participated in gender segregated swimming sessions at two public indoor swimming pools. Data were collected through semi-structured interviews and 2× weekly ethnographic field observations over 2 months at each setting. Women-only swimming sessions generated feelings of comfort, wellbeing and familiarity. Women perceived the swimming

sessions as beneficial for their mental health ‘when I’m in the water I don’t think about anybody but myself . . . I feel free, I feel happy Swimming helps me both physically and mentally’ (p46). Being with other Muslim women resulted in a sense of belonging, with socialising seen as a positive side effect.

McNamara et al. (2020) compared three qualitative studies that examined the benefits of blue spaces on end users’ wellbeing. The first study conducted semi-structured interviews and observations involving 79 indoor swimming pool users, aged 3–81 (respondents were adults). The second study included eight semi-structured interviews, diaries and observations of regular walkers/runners aged 28–72 years along the Royal canal. The third study included eight structured guided interviews and observations of individuals aged 21–55 years who walked along the Grand canal as well as a beach. Participants across all studies reported mental health improvements and wellbeing benefits. Indoor swimming was associated with stress relief, improved self-esteem and feelings of relaxation and serenity ‘swimming enhances my overall mood . . .’ (p9). The outdoor canal space was described as a place to think and relax, to calm the mind and body. Participants across all three studies reported a sense of self-discovery and saw the blue space as an opportunity to socialise and bond with others, ‘the 7 am gang are like a family, they would do anything for each other’ (p10, swimming pool user).

A. R. Anderson et al. (2014) conducted in-depth interviews with five users of a seasonal outdoor community pool. Users described the pool as a place where you can relax, escape from everyday life stressors, and improve your mental health: ‘This pool provides a very good mental health benefit for a lot of people’ (p150). The pool was also seen as a place to socialise and make connections with others ‘This is a good place to meet people’ and ‘I’ve developed a lot of really great friendships’ (p152). Users expressed a sense of community and described the pool as a place for generational bonding ‘(You have) elderly people, middle-age, young people, all ages all using the same facility’ (p153). Middlestadt et al. (2015) replicated these findings in their cross-sectional study involving 74 users of the same swimming pool by examining their predisposition to use the pool next summer. Participants associated the community pool with social benefits including spending time with family/friends, connecting with other parents and networking with other swimmers, as well as with psychological benefits such as relaxation, being able to reduce stress levels and evoking fun and enjoyment. Later in 2021, Ramos et al. investigated the same outdoor setting using a larger sample of 364 users and were able to replicate findings from the previous investigation (Middlestadt et al., 2015). Another cross-sectional study (Drohomyrecka & Wojciszekiewicz, 2016) examined 50 women who participated in aqua aerobic classes. Participants reported receiving pleasure from participation and most women (75%) experienced better mood. While aqua aerobic sessions were offered 5×/week, it is unclear how often classes were attended. The small group of females studied, and the lack of a control arm limits interpretation and generalisation of findings.

Demographic variables, distance to the centre, frequency of usage and activity type have been found to be associated with wellbeing outcomes (Ramos et al., 2021). Married individuals/couples and those who lived further away from the pool were less likely to report social wellbeing outcomes. On the other hand, individuals who had been using the pool for a longer period and those who intended to use the pool more frequently in the future reported greater social wellbeing than their counterparts. Greater perceived emotional wellbeing was found in lap swimmers compared to other user types (Ramos et al., 2021). Tuero and Gonzales-Boto (2018) studied 251 users who participated in aquatic group programmes and leisure swimming. The authors reported greater levels of enjoyment, happiness and pleasure from swimming in women than men; those aged 60+ years reported higher levels of satisfaction, pleasure and enjoyment and used the pool primarily for socialising compared to younger users.

Summary of findings

Only seven studies reported on the relationship between PA and wellbeing benefits through participation at multipurpose leisure centres. While findings from both qualitative and quantitative research highlight the potential of these facilities to generate social and psychological outcomes across the lifespan, the overall lack of research involving leisure centres limits generalisation. There is some indication that certain types and modes of PA lead to greater wellbeing, but none of the studies investigated the amount or level of exercise needed to achieve these benefits. Given the advantage of mixed-method research to provide stronger inference by adding both complexity and breadth to a study (Wasti et al., 2022), only two of the seven papers used a mixed-method design for their investigations. Therefore, more research is needed to replicate and confirm findings from these studies and to gain better insights into the dose–response relationship of exercising at these facilities.

Altogether, very few studies investigated the relationship between swimming pool usage and wellbeing outcomes. However, findings from both qualitative and quantitative studies demonstrate that beneficial social and psychological effects can be attained from participating in activities at swimming pools. However, it is unclear what amount and level of activity is needed to achieve these outcomes. Since all studies focused on the adult population no conclusions can be drawn regarding the benefits of swimming pool usage on children and adolescents. Given the popularity of swimming, particularly in the younger cohort, future investigations should include samples with a wider age range and investigate the relationship between different aquatic activities (e.g. recreation and lap swimming, educational swimming, aquatic group exercises) and wellbeing outcomes.

A somewhat greater number of studies ($n = 16$), albeit low, reported on wellbeing benefits obtained through gym usage with most studies including a comparator. Only one investigation utilised a randomised controlled design, involving adolescent girls only, making it difficult to extend findings to boys in this age group. While there is consensus among studies that greater frequency of usage results in better outcomes, results with respect to the optimal amount of gym exercise required to achieve wellbeing benefits were mixed with levels ranging from as low as 90/min week to 210 min/week. It is further unclear what type of exercise was performed when investigating the dose–response relationship in these studies, which limits the interpretation of findings. Since the popularity of gyms has increased continuously over the past two decades, these facilities should be studied more intensively using more robust study designs and longer follow-up periods to enhance the somewhat limited knowledge of how gym usage can be beneficial to individuals' social and mental health and to provide more guidance on the amount of exercise needed to achieve these benefits.

Limitations

There are some limitations to this systematic review. While the review consisted of a clearly defined and comprehensive search strategy and comprised grey literature, conference abstracts were excluded as they often report on preliminary findings, with changes in outcomes from conference abstract to full-length publication in up to 41% of cases, which could have biased the findings of this review (Toma et al., 2006). There was substantial variety in participants, study designs, measures used and objectives studied amongst the included studies, which limited synthesis and permitted meta-analysis. The evidence presented in this review is primarily based on findings from cross-sectional studies, and more longitudinal investigations are therefore needed to allow for causal inference.

Conclusion and future directions

Findings from this review demonstrate that participation in physical activities at leisure/fitness centres goes beyond physical benefits. There is consensus across studies that PA impacts positively on the psychological and social wellbeing of individuals. People not only engage in PA to escape from everyday stressors and for relaxation purposes but for fun and enjoyment. There was also consistent agreement on

aspects of self-esteem and self-discovery expressed through both PA and setting. This underlines the value of these leisure/fitness centres as public resources to enhance resilience, autonomy and personal growth. However, the benefits observed extend beyond individual gain as these settings provide opportunities for social interactions. They represent a platform where people form relationships with others, develop social networks and bond with family and friends. It is the social nature of these settings that creates a sense of community and belonging and contributes to overall wellbeing. There are individual preferences when it comes to sport participation. People who exercise in solitary and are more focused on their individual activity benefit less socially than those participating in group activities; however, there is mutual agreement that psychological wellbeing is not compromised.

Evidence has emerged that frequency of participation plays an important role in attaining wellbeing outcomes; yet there are little data on the relationship between PA intensity and psychosocial benefits. While there was an overall lack of investigations into influential factors, there is some support to suggest that women, the younger and older generation attain greater benefits from leisure/fitness centre usage. However, more research is recommended to confirm and extend the current literature as the differences observed can be beneficial for managers when developing training programmes, especially where leisure/fitness centres serve a mix of different gender and age populations. Further, the cross-sectional design used in most studies precludes causal inferences and future research is recommended to examine the causal relationship between PA and wellbeing outcomes in leisure/fitness centres. Future research designs should include more RCTs with longer intervention testing and follow-up periods as well as various modes and intensities required to obtain both psychological and social wellbeing benefits to determine the dose–response relationship more accurately.

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Notes on contributors

Leila Heckel is a Research Fellow at UniSA Business. She holds a PhD in Psychology, and her research interest lies in wellbeing outcomes in the sport and leisure industry, particularly social and psychological benefits through participation in aquatic recreation and leisure centres.

Rochelle Eime is the Director of the Sport and Recreation Spatial Program at Federation University and Victoria University. Rochelle's research focuses on investigating sport and recreation participation, facilities and health for evidence-based decision-making.

Adam Karg is the Co-Director of the Sport Innovation Research Group in the Swinburne School of Business, Law, and Entrepreneurship. His main research areas are concerned with sport fans and customer equity across sport and leisure settings.

Heath McDonald is the Dean of Economics, Finance & Marketing at RMIT University. Heath has a background in consumer research and product management and his research focuses on customer acquisition and retention, particularly in subscription markets.

Carleigh Yeomans is a Research Fellow at Swinburne University of Technology in the School of Business, Law and Entrepreneurship. She holds a PhD in marketing, with her main research areas focusing on customer behaviour, engagement and retention in sport and leisure subscription contexts. Additional research interests lie in the areas of analytics and innovation applied to sport and leisure, particularly concerning community wellbeing, participation and marketing.

Ian O'Boyle is the Director of CERM Performance Indicators at UniSA Business. Ian is a leading researcher in sport management, governance, leadership, and performance management focused within the sporting context.

ORCID

Leila Heckel  <http://orcid.org/0000-0002-9138-1034>
 Rochelle Eime  <http://orcid.org/0000-0002-8614-2813>
 Adam Karg  <http://orcid.org/0000-0001-5264-0163>
 Heath McDonald  <http://orcid.org/0000-0002-0849-4274>
 Carleigh Yeomans  <http://orcid.org/0000-0002-9459-3534>
 Ian O'Boyle  <http://orcid.org/0000-0003-3501-8692>

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