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Inoue, Yuhei , Lock, Daniel, Sato, Mikihiro, Aizawa, Kurumi, Mikura, Akane, Kohno, Natsumi and Ogasawara, Etsuko (2024) What explains the well-being benefits of physical activity? A mixed-methods analysis of the roles of participation frequency and social identification. *Social Science and Medicine*, 340. 116454 ISSN 0277-9536

**DOI:** <https://doi.org/10.1016/j.socscimed.2023.116454>

**Publisher:** Elsevier

**Version:** Published Version

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**Additional Information:** This is an open access article which originally appeared in *Social Science and Medicine*, published by Elsevier

**Data Access Statement:** Data will be made available on request to the first author after April 1st, 2025, when the restrictions on data sharing are lifted.

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# What explains the well-being benefits of physical activity? A mixed-methods analysis of the roles of participation frequency and social identification

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## ARTICLE INFO

Handling Editor: Martin Hagger

### Keywords:

Sport  
Exercise  
Fitness  
Mental health  
Social identity approach  
Group identification

## ABSTRACT

**Objective:** Physical activity in a social setting is said to be associated with well-being because it provides opportunities for participants to form social relationships. However, there are inconsistent findings regarding the well-being benefits of participating in physical activity with others. To address this inconclusive evidence, we draw on the social identity approach to health and well-being to examine whether (a) the frequency of physical activity participation in a social setting and (b) the degree of social identification associated with it, have different relationships with participants' well-being.

**Methods:** We implemented a two-phase, mixed-methods design with members of women's only fitness clubs in Japan. In Study 1, we collected survey responses about social identification, life satisfaction, and eudaimonic well-being from 1118 members. The survey data were combined with respondents' objective participation data from a membership database. In Study 2, we interviewed a sample of club members to understand how the nature of social relationships differed depending on the degree of their social identification.

**Results:** Study 1 found that social identification with a fitness club, but not the frequency of attending the club for physical activity, was positively associated with members' well-being. Study 2 revealed that members with high social identification experienced more affective relationships with other members than those with medium or low identification.

**Conclusions:** Our research provides quantitative and qualitative evidence supporting the association between social identification and the well-being benefits of physical activity in a social setting. It confirms the predictions of the social identity approach to health and well-being, demonstrating that people enjoy well-being benefits from physical activity participation when it is internalized as a meaningful definition of self.

## 1. Introduction

Governments and public health organizations promote physical activity as a policy tool to improve people's well-being (e.g., [The UK Government, 2020](#); [World Health Organization, 2022](#)). However, empirical research indicates that the relationship between physical

activity and well-being is complex. In some instances, physical activity participation leads to well-being benefits ([Nabkasorn et al., 2006](#)); in others, it has non-significant or negative effects on participant well-being ([Downward and Dawson, 2016](#); [Wicker and Frick, 2015](#)). Therefore, we require a greater understanding of the conditions under which physical activity participation has positive effects, rather than

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<https://doi.org/10.1016/j.socscimed.2023.116454>

Received 21 December 2022; Received in revised form 14 November 2023; Accepted 22 November 2023

Available online 28 November 2023

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assuming that it enhances well-being (Buecker et al., 2021).

In this regard, one prevalent perspective posits that the well-being benefits of physical activity arise when people do it in a *social setting* (e.g., exercising with others) that can provide opportunities for social relationships (Bailey and McLaren, 2005; Lubans et al., 2016). However, the evidence supporting this perspective is inconclusive. While some studies have found that people enhance their well-being by engaging in physical activity in social settings (Stevens et al., 2021; Takeda et al., 2015), other studies have found no effect (Bailey and McLaren, 2005; Jetten et al., 2022).

To address these inconclusive results, we distinguish between *social contact* (e.g., frequency of participating in a social or group activity) and *social identification* (i.e., a person's sense of belonging to a category or group), so we can examine how each is associated with well-being in the context of physical activity participation. In doing so, we draw from Sani's (2012) and Sani et al.'s (2012) argument that contact between individuals alone is insufficient to explain the relationship between well-being outcomes and social activities. Interactions with others may be harmonious or disharmonious; enriching or depleting; meaningful or unimportant. In this vein, the social identity approach to health and well-being suggests that a person's social relationships are important to their well-being *to the extent that they are internalized as meaningful representations of self* (C. Haslam et al., 2018). Building on this approach, the central aim of our research is to examine whether (a) the frequency of physical activity participation in a social setting, and (b) the degree of social identification associated with it, have different relationships with participants' well-being.

We present data from a mixed-method research design conducted with physical activity participants at a chain of women's only fitness clubs in Japan. Study 1 combines (a) objective participation data recorded by fitness clubs' customer relationship management systems, and (b) members' survey responses about their social identification and well-being. This dataset offers a unique opportunity to analyze the different roles of social identification and contact (measured as the frequency of physical activity participation at a club) in explaining participants' well-being. In Study 2, we triangulate our quantitative findings with qualitative interview data, exploring how a person's degree of social identification is related to their social experiences during physical activity participation.

## 2. Theoretical background

### 2.1. Defining well-being

Well-being captures two types of individuals' optimal experience and psychological functioning: hedonic and eudaimonic (Ryan and Deci, 2001). Hedonic well-being refers to an individual's experience of happiness or pleasure (Ryan and Deci, 2001). Scholars have assessed hedonic well-being using measures of subjective well-being, including life satisfaction (Diener et al., 1985). Eudaimonic well-being refers to the fulfillment of one's potential or true nature (Ryan and Deci, 2001) and is predominantly conceptualized in six dimensions: (a) positive relations with others, (b) purpose in life, (c) autonomy, (d) environmental mastery, (e) personal growth, and (f) self-acceptance (Ryff and Singer, 2008). In this research we investigate hedonic well-being—operationalized as life satisfaction—and eudaimonic well-being.

### 2.2. Social identity approach to health and well-being

The development of social relationships has been shown to predict one's well-being and physical health (Kawachi et al., 1999). According to the social identity approach to health and well-being (C. Haslam et al., 2018), such benefits of social relationships arise because of the social identity people develop through their membership in a category or group. A critical distinction underpinning the social identity approach to health and well-being concerns the transition in self-construal from "I"

or "me" to "we" and "us." Sani et al. (2012) differentiate the effects of interactions with others based on whether they occur interpersonally (me & them), or within meaningful groups (we & us). Reviewing evidence underpinning Sani et al.'s work, Sani (2012) argues that social relationships may be associated with a variety of positive or negative emotional outcomes. As such, the likelihood a given social relationship will nourish and enhance a person's well-being increases when it lays the basis for "us" to access social and psychological resources (C. Haslam et al., 2018).

Shared social identity is made possible through a process of self-categorization (Turner et al., 1987). Rather than categorizations externally ascribed to an individual, self-categories are actively selected as meaningful representations of a person's identity in social context (Turner et al., 1994). In this sense, individuals are motivated to select categories that they perceive to be positively distinct from out-groups (Tajfel and Turner, 1979). This involves a process of self-stereotyping, through which members categorize themselves as *psychologically interchangeable* with other group members, and are positively differentiated from other groups. Such categorization provides the basis for consensus about how "we" behave, what "our" goals are, and what is valuable to "us" (Turner et al., 1987). In turn, this self-categorical relationship lays the foundation for members to exchange resources, such as trust, support, and respect, that enhance well-being (S. A. Haslam et al., 2012).

There is evidence that social identification promotes helping behavior towards other group members (Levine et al., 2005). Furthermore, shared social identity increases depersonalized trust and motivates members to exchange social support (Inoue et al., 2015; Levine et al., 2005). However, it is the self-categorical nature of support that renders it meaningful. As S. A. Haslam et al. (2012) argue, the support of others can be annoying, unhelpful, and consequently detrimental to well-being. Social support delivered through shared identity, therefore, is impactful for two reasons (C. Haslam et al., 2018). First, it is delivered through a framework of in-group norms and shared understandings about how "we" behave. Therefore, within groups, support is more likely to be given in a way that is meaningful to the receiver. Second, social support affects well-being because the act of giving or receiving support makes the in-group stronger and, as a result, enhances members' self-concept. It follows that rather than purely a product of frequent group participation or social contact—which may be spent alone or in disharmonious relations (S. A. Haslam et al., 2012)—social relationships are associated with members' well-being because of social identification (Jetten et al., 2017).

### 2.3. Social identification, physical activity, and well-being

The social identity approach to health and well-being provides insights into why some researchers have found that physical activity in social settings is positively associated with a person's well-being (Stevens et al., 2021; Takeda et al., 2015), while others have found no relationship (Bailey and McLaren, 2005). That is, this contrasting evidence may stem from the fact that previous studies overlooked the extent of participants' *social identification* and did not distinguish the well-being effects of social identification from those of mere physical activity participation in social settings (i.e., social contact).

There is nascent evidence that social identification associated with physical activity participation is linked with increased levels of well-being (Graupensperger et al., 2020; Jetten et al., 2022). Graupensperger et al. (2020) found a positive relationship between U.S. university students' social identification with university sport teams and their well-being. However, they did not examine the differential associations of social identification and the frequency of physical activity participation with well-being. Stevens et al. (2021) advocated for research on how participation frequency and social identification interactively influence the extent to which group-based physical activity is associated with well-being benefits. In this respect, Jetten et al. (2022) demonstrated that Australian adolescents' well-being was predicted by the

degree of their social identification with sport and other social groups, but not by their levels of physical activity. However, [Jetten et al.'s \(2022\)](#) measure of physical activity levels (i.e., results of physical fitness tests) did not capture the frequency of physical activity participation in social settings, leaving the differential roles of social identification and participation frequency unexplored. Therefore, we test the following hypothesis:

**Hypothesis 1.** Social identification will be more strongly associated with individuals' well-being than the frequency of physical activity participation in a social setting.

According to [Hypothesis 1](#), the frequency of physical activity participation in social settings is a weak predictor of people's well-being because the social contact associated with participation frequency may or may not be positive ([C. Haslam et al., 2018](#); [S. A. Haslam et al., 2012](#); [Sani, 2012](#); [Sani et al., 2012](#)). This prediction is consistent with studies indicating that the frequency measure does not consider (a) the meaning of physical activity in one's life ([Jetten et al., 2022](#); [Sani et al., 2012](#); [Sato et al., 2016](#)), or (b) the extent to which participants engage in *high-quality* social relationships ([Inoue et al., 2020](#)). However, consistent participation in a social or group activity may be associated with a person's social identification ([Stevens et al., 2020b](#)). As a result of physical activity participation, then, individuals may increase their social identification and, in turn, their well-being ([Inoue et al., 2020](#)). [Hypothesis 2](#) places social identification as a mediator of the relationship between frequency of physical activity participation and well-being:

**Hypothesis 2.** Social identification mediates the relationship between physical activity participation frequency in a social setting and individuals' well-being.

Building on the social identity approach to health and well-being ([C. Haslam et al., 2018](#)), it is expected that social relationships facilitated through physical activity are more meaningful—and more conducive to well-being—when people develop shared social identification with others who exercise in the same setting. In line with this notion, there is statistical evidence that social identification is associated with enhanced perceptions of social support from, and trust in, fellow in-group members ([Inoue et al., 2015](#)). [Bennett et al. \(2018\)](#) presented qualitative insights into the social experiences of participants in the GrOup-based physical Activity for Older adults (GOAL) trial. They found that through exercise participation, older adults developed social relationships that transcended the GOAL trial and buffered against isolation and other mental health concerns ([Bennett et al., 2018](#)). However, there is a lack of qualitative investigations that explore how physical activity-based social relationships differ depending on participants' degree of social identification with a group. We explore the following research question to address this lacuna:

**Research Question:** How does the nature of social relationships differ for physical activity participants depending on the degree of their social identification?

### 3. The current research

We addressed our hypotheses and research question by collecting data from members of women's only fitness clubs in Japan, all of which are part of the same national fitness club chain. Previous research has shown that fitness clubs provide a conducive setting for physical activity that facilitates shared social identification among members ([Evans et al., 2019](#)). This is particularly relevant to our study of women's only fitness clubs for two reasons. First, the focal clubs offered a structured exercise program (adopted across the club chain) in which all members participated in a circuit workout supervised by club employees. Participation in this program occurred in a confined, communal space, alongside other members, which was a suitable social setting. Second, gender is a salient social category that can be associated with individuals' sense of

social identity during physical activity as it heightens perceptions of intra-group similarities ([Dunlop and Beauchamp, 2011a, 2011b](#)). Consequently, researching a chain of women's only fitness clubs afforded us the opportunity to build upon prior assertions regarding the importance of intra-group similarities between members ([Dunlop and Beauchamp, 2011a, 2011b](#)).

Within this setting, we implemented a two-phase, mixed-methods design. In Study 1, we administered a survey to a sample of members of the women's only fitness clubs to measure their social identification, life satisfaction, and eudaimonic well-being. In addition, we obtained data on their participation frequency through a membership database. These two types of data were combined to test the hypotheses. In Study 2, we engaged a sample of fitness club members in qualitative interviews. The interview transcripts were analyzed to answer the research question. Ethical approval for the two studies was obtained from Juntendo University Graduate School of Health and Sport Sciences Research Ethics Review Board in February 2018.

## 4. Study 1

### 4.1. Method

#### 4.1.1. Study design

In Study 1, we distributed a paper-based survey to participants via postal mail. The information obtained from the survey was matched with participation data obtained from a membership database. This allowed us to combine self-reported data with objective behavioral data, alleviating common methods bias ([Podsakoff et al., 2003](#)).

#### 4.1.2. Participants and data collection procedures

The target population was members of women's only fitness clubs within the same national fitness club chain in Japan. To collect data from a representative sample of this population, we selected 11 franchise clubs located in nine different Japanese prefectures (Tokyo, Kanagawa, Miyagi, Hiroshima, Fukuoka, Fukui, Shimane, Kumamoto, and Tokushima) that vary in population sizes and geographical regions. Then, for each club, we selected ~180 members using stratified sampling to ensure that the age distribution of the sample represented that of the population. The age range of most members of the women's only fitness club chain was between 40 and 79 years. Therefore, we restricted our selection of potential participants to those aged between 40 and 79 years. This procedure led us to sample 1984 members across the 11 clubs. We determined the initial sample size based on the available funding for the project to obtain the maximum number of survey responses possible within the research budget.

We mailed the survey, an information sheet, a consent form, and a prepaid return envelope to the home addresses of the 1984 members in November 2018. The information sheet provided an overview of the survey's purpose and the entire research process. Potential participants were informed that any personal information obtained for the study would be handled in accordance with their fitness clubs' terms and conditions of membership. We strictly followed these guidelines when analyzing all data obtained, including survey and participation data. Participants were instructed to provide consent to participate in the survey by completing the enclosed consent form after carefully reviewing the information sheet. Each participant received a 500-yen gift voucher mailed to their home address approximately one month after the survey. The survey incentives were funded by a grant from the organization that commissioned this project.

Of the 1984 members surveyed, 1202 returned the survey to the research team, resulting in a response rate of 60.6%. Among the 1202 participants, three returned the questionnaire without signed consent, 38 had missing data on all study variables, and 43 had missing data on one or more (but not all) study variables. We excluded these 84 individuals, which resulted in a final sample of 1118 participants (56.4% of the original sample). The average age was 63.0 years ( $SD = 8.7$  years);

45.7% had a high school diploma as the highest academic qualification; 44.4% were unemployed or a homemaker; 10.5% lived alone; 13.1% had no children; and 62.3% had a household income of less than 5 million yen. Regarding age categories, of the 1118 participants, 7.7% were in their 40s, 24.4% were in their 50s, 44.0% were in their 60s, and 23.9% were in their 70s. These percentages were similar to the age distribution (aged between 40 and 79 years) of the women's-only fitness club chain's membership. Specifically, the age distribution of all members was 8% in their 40s, 23% in their 50s, 42% in their 60s, and 27% in their 70s.

4.1.3. Measures

All study variables, apart from the frequency of attending the fitness club for physical activity, were measured via the survey. Unless otherwise noted, our survey measures used a 7-point Likert scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Detailed descriptions of the survey items are presented in Table 1.

The dependent variables were life satisfaction and eudaimonic well-being. *Life satisfaction*, which refers to “a global assessment of a person's quality of life” (Diener et al., 1985, p. 71), was measured with three items (see Table 1) from the Satisfaction With Life Scale (SWLS; Diener et al., 1985). These three items have been shown to be a valid and reliable short form of the SWLS (Inoue et al., 2017; Kjell and Diener, 2021). We adopted the validated Japanese version of the items from Diener (n.d.).

We measured *eudaimonic well-being*, which is concerned with “the degree to which a person is fully functioning” (Ryan and Deci, 2001, p. 141), using a six-item subscale from the Mental Health Continuum Short Form (Keyes et al., 2008). In this subscale, each of the six items measures one of the dimensions of eudaimonic well-being (i.e., positive relations with others, purpose in life, autonomy, environmental mastery, personal growth, and self-acceptance; Ryff and Singer, 2008). Participants rated the extent to which they had experienced a feeling of eudaimonic well-being on a 6-point scale from 0 (*Never*) to 5 (*Everyday*). We used a Japanese translation of the six-item scale from Keyes (2018).

The independent variables were social identification and the frequency of attending the fitness club for physical activity (i.e., “participation frequency”). First, we measured participants' *social identification* with their fitness club using an adapted three-item scale validated by Kang et al. (2015). This scale was adapted from Homburg et al. (2009) to measure customers' social identification with service organizations. In the context of this research, social identification was defined as members' sense of belonging to their fitness club, which provides “both a

self-definitional and an emotional meaning” (Homburg et al., 2009, p. 42). In line with this definition, the three items shown in Table 1 captured the emotional value of club membership (i.e., ‘pride’ and ‘feel good’; cf. Tajfel, 1982) and the degree to which the club fitted with members' self-definition (cf. Oakes et al., 1991). The use of Kang et al.'s scale was appropriate for our research setting, as the focal women's only fitness clubs were for-profit service organizations (where members produced and consumed the product simultaneously) and club members were customers. Before administering the survey, we employed a back translation technique (Brislin, 1986) to verify the accuracy of our Japanese translation of Kang et al.'s (2015) scale.

Second, from the fitness club's membership database, we obtained information on each respondent's *participation frequency*. We operationalized participation frequency as the number of times each member attended their fitness club to participate in the supervised exercise program during the month preceding the survey administration ( $M = 10.1, SD = 4.7$ ). This was obtained from the club's customer relationship management system and was matched with each participant's survey responses based on their member identification number. Participation in the exercise program was the only activity that took place at the examined fitness clubs. Consequently, the current measure of participation frequency captured the number of times each participant took part in the exercise program during the observation period, making it an appropriate measure of the frequency of physical activity participation in a social setting (i.e., fitness clubs in the current research).

4.2. Analysis and results

We performed a confirmatory factor analysis (CFA) using Mplus 7.0 to check the construct validity and reliability of all multi-item scales. Based on the CFA results, the hypothesized measurement model had an adequate fit:  $\chi^2/df = 150.72/51 = 2.96, CFI = 0.98, SRMR = 0.03,$  and  $RMSEA = 0.04$ . Table 1 shows that the construct reliability (CR) values for the scales of the study variables ranged from 0.85 (for social identification) to 0.89 (for life satisfaction). All CR values exceeded the threshold of 0.70, which provided evidence of scale reliability (MacKenzie et al., 2011). Regarding construct validity, each scale's average variance extracted (AVE) value was above the threshold of 0.50 thus demonstrating adequate convergent validity (MacKenzie et al., 2011; see Table 1). Lastly, Table 2 shows that the square root of each scale's AVE exceeded the correlations between any pair of scales, providing evidence of discriminant validity (MacKenzie et al., 2011).

We then estimated a hypothesized structural model (see Fig. 1) using Mplus 7.0, which included paths from participation frequency and social identification to life satisfaction and eudaimonic well-being (Hypothesis 1). In addition, we added a path from participation frequency to social identification to test Hypothesis 2. The structural model had an acceptable fit:  $\chi^2/df = 177.70/60 = 2.96, CFI = 0.98, SRMR = 0.03,$  and  $RMSEA = 0.04$ . Fig. 1 shows that social identification was positively associated with life satisfaction ( $\beta = 0.35, t = 9.90, p < .001$ ), and eudaimonic well-being ( $\beta = 0.28, t = 8.13, p < .001$ ). The 95% confidence intervals (CI) for the unstandardized coefficients of these paths excluded zero (social identification to life satisfaction:  $B = 0.383, 95\% CI [0.304, 0.461]$ ; and social identification to eudaimonic well-being:  $B = 0.295, 95\% CI [0.222, 0.371]$ ), which supported their statistical

Table 1

Standardized factor loadings, construct reliability coefficients, and average variance extracted for the measurement model in Study 1.

Construct/Item	$\beta$	CR	AVE
<i>Social Identification</i>		.85	.65
I will tell others that I am proud to be a member of the club.	.78		
I feel good to be a member of the club.	.88		
The club fits me well.	.75		
<i>Life Satisfaction</i>		.89	.73
In most ways my life is close to my ideal	.77		
The conditions of my life are excellent	.89		
Overall, I am satisfied with my life	.91		
<i>Eudaimonic Well-being</i> (In the past month, how often did you feel ...)		.88	.55
that you liked most parts of your personality	.69		
good at managing the responsibilities of your daily life	.62		
that you had warm and trusting relationships with others	.72		
that you had experiences that challenged you to grow and become a better person	.71		
confident to think or express your own ideas and opinions	.83		
that your life has a sense of direction or meaning to it	.85		

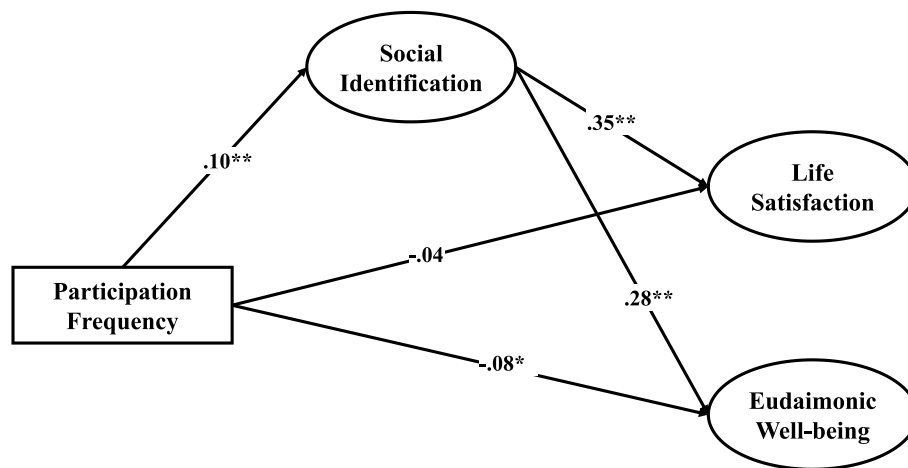
Notes.  $N = 1118$ ;  $\beta$  = standardized factor loading; CR = construct reliability coefficient; AVE = average variance extracted. All standardized factor loadings were significant ( $p < .01$ ).

Table 2

Descriptive statistics and correlations of the multi-item survey scales in Study 1.

Constructs	$M$	$SD$	CR	AVE	1	2	3
1. Social Identification	5.24	.95	.85	.65	(.81)		
2. Life Satisfaction	4.31	1.22	.89	.73	.34	(.86)	
3. Eudaimonic Well-being	2.50	1.14	.88	.55	.27	.59	(.74)

Notes.  $N = 1118$ . Values in parentheses represent the square root of the average variance extracted. All correlations are significant ( $p < .01$ ). CR = construct reliability coefficient; AVE = average variance extracted.



**Fig. 1.** Results of the Structural Model in Study 1.  $N = 1118$ . Standardized path coefficients are shown. Rectangles represent observed variables, and circles represent latent variables. \* $p < .05$ , \*\* $p < .01$ .

significance. In contrast, participation frequency was not significantly associated with life satisfaction ( $\beta = -0.04$ ,  $t = -1.19$ ,  $p = .24$ ;  $B = -0.008$ , 95% CI [-0.023, 0.005]), and had a negative association with eudaimonic well-being ( $\beta = -0.08$ ,  $t = -2.46$ ,  $p = .01$ ;  $B = -0.017$ , 95% CI [-0.030, -0.004]). These results indicated that members' social identification had a positive association with well-being, but their frequency of physical activity participation at their club did not, which confirmed [Hypothesis 1](#).

Regarding [Hypothesis 2](#), participation frequency had a positive association with social identification ( $\beta = 0.10$ ,  $t = 3.03$ ,  $p = .002$ ;  $B = 0.020$ , 95% CI [0.007, 0.033]). Social identification was then positively associated with life satisfaction ( $\beta = 0.35$ ,  $t = 9.90$ ,  $p < .001$ ;  $B = 0.383$ , 95% CI [0.304, 0.461]) and eudaimonic well-being ( $\beta = 0.28$ ,  $t = 8.13$ ,  $p < .001$ ;  $B = 0.295$ , 95% CI [0.222, 0.371]). We conducted a mediation analysis using the indirect effect approach proposed by [Zhao et al. \(2010\)](#). This involved calculating an indirect effect ( $a \times b$ ) using the path coefficients from the independent variable to the mediator ( $a$ ) and from the mediator to the dependent variable ( $b$ ), and assessing the statistical significance of the indirect effect by obtaining its 95% CI ([Zhao et al., 2010](#)). Our analysis revealed that participation frequency had positive indirect associations with life satisfaction ( $\beta = 0.03$ ,  $t = 2.86$ ,  $p = .004$ ;  $B = 0.008$ , 95% CI [0.003, 0.013]) and eudaimonic well-being ( $\beta = 0.03$ ,  $t = 2.81$ ,  $p = .005$ ;  $B = 0.006$ , 95% CI [0.002, 0.010]), and these associations were mediated by social identification, which supported [Hypothesis 2](#).

The criteria suggested by [Fey et al. \(2023\)](#) were used to assess the effect sizes of the hypothesized relationships: a standardized coefficient ( $\beta$ ) of  $< 0.2$  represents a small effect, a  $\beta$  between 0.2 and 0.5 represents a medium effect, and a  $\beta$  of  $> 0.5$  represents a large effect. For [Hypothesis 1](#), there was a medium effect from social identification to the two well-being outcomes. On the other hand, the significant direct path from participation frequency to eudaimonic well-being displayed a small negative association. For [Hypothesis 2](#), the standardized coefficients of the indirect effects of participation frequency indicated that its mediation effects on both well-being outcomes through social identification were small.

We conducted post hoc power analysis using pwrSEM ([Wang and Rhemtulla, 2021](#)) to determine the appropriateness of our sample size. We used an alpha of .05 with 2000 simulations to estimate power based on the observed data. For [Hypothesis 1](#), our final sample size of 1118 provided over .99 power to detect the significant paths from social identification to life satisfaction and eudaimonic well-being. Regarding [Hypothesis 2](#), we had sufficient power to detect the indirect associations of participation frequency with life satisfaction (0.84) and eudaimonic well-being (0.83).

We performed sensitivity analyses to check the robustness of the results. First, given the potential effect that the handling of missing data may have on hypothesis testing ([Sidi and Harel, 2018](#)), we estimated the hypothesized structural model with a sample of 1161, which included the 43 participants who had missing data on one or more (but not all) study variables. In this analysis, we estimated missing data using full information maximum likelihood (FIML) in Mplus 7.0. The path coefficient values from the structural model using the FIML estimation ( $N = 1161$ ) were almost identical to those from the structural model using listwise deletion ( $N = 1118$ ). In addition, the results of the two models provided consistent support for the hypotheses. This indicated that the handling of missing data did not affect the results of our hypothesis testing.

Second, we tested an alternative structural model which specified the two well-being variables as mediators and social identification as the outcome variable. This alternative model did not fit the data as well as the hypothesized structural model:  $\chi^2/df = 490.97/61 = 8.05$ , CFI = 0.93, SRMR = 0.17, and RMSEA = 0.08. Regarding individual paths, participation frequency was positively associated with social identification ( $\beta = 0.11$ ,  $t = 3.38$ ,  $p = .001$ ). In addition, there was a significant positive relationship between life satisfaction and social identification ( $\beta = 0.28$ ,  $t = 6.73$ ,  $p < .001$ ) and between eudaimonic well-being and social identification ( $\beta = 0.13$ ,  $t = 3.18$ ,  $p = .001$ ). In contrast, participation frequency was not significantly associated with life satisfaction ( $\beta = -0.00$ ,  $t = -0.07$ ,  $p = .95$ ) and eudaimonic well-being ( $\beta = -0.05$ ,  $t = -1.55$ ,  $p = .12$ ) which, in turn, produced the non-significant indirect effects of attendance frequency on social identification through life satisfaction ( $\beta = -0.00$ ,  $t = -0.07$ ,  $p = .95$ ) and eudaimonic well-being ( $\beta = -0.01$ ,  $t = -1.40$ ,  $p = .16$ ). The results provided further support for [Hypothesis 2](#).

Third, the literature on social capital and well-being highlights the role of social capital in predicting individuals' well-being (e.g., [Kawachi et al., 1999](#); [Nyqvist et al., 2013](#)). Social capital encompasses "the networks, norms of reciprocity, and trust among members of a neighborhood or community" (C. [Haslam et al., 2018](#), p. 7), reflected in individuals' perceptions of the extent to which they enjoy trustworthy and cooperative relationships across different life domains ([Lee et al., 2013](#)). Given the well-documented association between social capital in a neighborhood and residents' well-being ([Nyqvist et al., 2013](#)), the effect of social identification with the fitness club—which pertains to a specific domain of members' social life—on life satisfaction and eudaimonic well-being might become inconsequential when controlling for the extent of social capital members' experienced in their neighborhood. To test this potential explanation, we estimated a structural model with social capital as an additional predictor of life satisfaction and

eudaimonic well-being, alongside social identification and participation frequency. In this analysis, we used Lee et al.'s (2013) three-item scale to measure members' perceptions of social capital in the area where they lived (see Supplementary Tables A and B for descriptions of measurement model results with social capital). The sample size was reduced to 1115 given missing data on social capital.

The structural model with social capital provided an acceptable model fit:  $\chi^2/df = 439.44/97 = 4.53$ , CFI = 0.96, SRMR = 0.09, and RMSEA = 0.06. Specifically, social capital had a significant positive association with life satisfaction ( $\beta = 0.50$ ,  $t = 15.03$ ,  $p < .001$ ), and eudaimonic well-being ( $\beta = 0.40$ ,  $t = 11.81$ ,  $p < .001$ ). In controlling for social capital, social identification was positively associated with life satisfaction ( $\beta = 0.19$ ,  $t = 5.25$ ,  $p < .001$ ) and eudaimonic well-being ( $\beta = 0.15$ ,  $t = 4.16$ ,  $p < .001$ ), while participation frequency had a non-significant association with life satisfaction ( $\beta = -0.04$ ,  $t = -1.46$ ,  $p = .14$ ) and a negative association with eudaimonic well-being ( $\beta = -0.08$ ,  $t = -2.71$ ,  $p = .007$ ). Additionally, participation frequency was positively associated with social identification ( $\beta = 0.10$ ,  $t = 2.99$ ,  $p = .003$ ). Based on these direct paths, a mediation analysis using the indirect effect approach (Zhao et al., 2010) revealed that social identification significantly mediated the positive relationship between participation frequency and life satisfaction ( $B = 0.004$ , 95% CI [0.001, 0.008]) and between participation frequency and eudaimonic well-being ( $B = 0.003$ , 95% CI [0.001, 0.006]). These results provided consistent support for Hypotheses 1 and 2, which indicated that social identification with the fitness club explained unique variance in members' well-being when controlling for members' perceptions of social capital.

Fourth, because our study involved participants recruited from 11 different clubs, a potential multilevel structure existed based on club membership. To address this concern and examine the potential effects of club-level influence, we tested a structural model that included paths from 10 club dummies (representing 11 clubs) to social identification, life satisfaction, and eudaimonic well-being. The results of this analysis provided consistent support for our hypotheses (see Supplementary Table C for detailed results). Additionally, we performed a post-hoc power analysis, which confirmed that our data had sufficient power to detect the hypothesized relationships. These analyses addressed concerns about the potential effects of club-level influence on our hypothesis testing. The data analysis and output scripts for the main and sensitivity analyses reported above are available in the following online repository: [https://osf.io/mjxf2/?view\\_only=0cd33e1f28ba449b9877f645aa653a](https://osf.io/mjxf2/?view_only=0cd33e1f28ba449b9877f645aa653a). This repository also contains scripts for additional analyses we performed to assess the robustness of the results. These include a structural model that controlled for the effect of membership tenure (i.e., the duration of time respondents held membership at their fitness club) on social identification and the calculations of interclass correlations. These analyses collectively indicated the robustness of the results from our hypothesis testing.

#### 4.3. Discussion

Study 1 indicated that social identification associated with physical activity participation in a social setting—but not the frequency of participation in that setting—had a moderate positive relationship with individuals' life satisfaction and eudaimonic well-being. These results support the theoretical predictions of the social identity approach to health and well-being (C. Haslam et al., 2018) and Sani et al. (2012) that the benefits of physical activity in a social setting can be explained by the degree of a person's social identification, rather than the extent of social contact indicated by participation frequency.

Importantly, Study 1 demonstrated that when social identification was controlled, participation frequency had no direct association with life satisfaction and a small negative association with eudaimonic well-being. This supported findings presented in previous physical activity research that indicated negative or non-significant relationships in this

domain (Downward and Dawson, 2016; Wicker and Frick, 2015). Yet, based on the results of the mediational analysis, participation frequency still had a small positive relationship with well-being when more frequent participation was associated with stronger social identification among participants. Supporting prior work (see Beauchamp and O'Rourke, 2020; Jetten et al., 2022; Stevens et al., 2020a), participation in physical activity that was a meaningful part of a person's self-concept (i.e., social identification) had a positive association with participants' well-being.

Overall, the results from Study 1 highlighted a positive relationship between social identification and well-being benefits from physical activity participation. To provide more in-depth insights into this facilitating role of social identification, Study 2 explored how social identification may be connected to the nature of social relationships that people experienced when taking part in physical activity.

## 5. Study 2

### 5.1. Method

#### 5.1.1. Study design

The purpose of Study 2 was to address our research question by illustrating how the nature of social relationships for physical activity participants varied by the degree of their social identification. We conducted semi-structured individual and group interviews in September 2019 with a sample of women that were members of the fitness clubs described in Study 1.

#### 5.1.2. Participants and data collection procedures

We purposefully recruited 19 members ( $M_{age} = 64.3$  years;  $SD_{age} = 6.8$  years) who participated in Study 1. All participants confirmed their willingness to participate in Study 2 interviews through the signed consent process in Study 1. We offered each interview participant a gift voucher as compensation. Members who participated in either an individual or group interview received a 3000-yen gift voucher, while those who participated in both received a 6000-yen gift voucher. To cover travel expenses, all participants received an extra 1000-yen gift voucher. All the compensations were covered through the research funding from the organization that commissioned this project.

The 19 individuals were selected via purposeful criterion sampling (Palinkas et al., 2015) using the following criteria: (a) their social and psychological profiles as indicated by their survey responses in Study 1, and (b) the location of their fitness club. For the former, the social identification scores of the 19 participants ranged from 1.33 to 7.00 ( $M = 5.14$ ;  $SD = 1.32$ ). For location, participants were recruited from three clubs situated in three different Japanese prefectures (Tokyo, Kanagawa, and Miyagi) that varied in population size, and were accessible to the members of our team that conducted interviews. We conducted 13 semi-structured interviews (nine individual and four group interviews) informed by an interview guide. Participants were asked how much they interacted with others at their fitness club. Then, we asked follow-up questions to gain more detailed insights into the nature of their relationships with other members. Examples of these questions included: "do you usually have a conversation with other club members?" and "have you developed a good relationship at your fitness club?" All interviews were recorded and transcribed verbatim in Japanese. The characteristics of the interview participants are presented in Table 3.

#### 5.1.3. Analysis

Data were analyzed using reflexive thematic analysis (Braun and Clarke, 2021), which employed a combination of inductive and deductive coding. Our thematic analysis followed the six phases outlined by Braun and Clarke (2006) and involved three authors. In Phase 1 (data familiarization), the fourth author read and reread the interview transcripts, identified relevant quotations which illustrated the social relationships experienced by members at the fitness club, and started

**Table 3**  
Characteristics of interviewees in Study 2.

Participant	Interview type	Age	Social identification score	Social identification group classification
A	Group 1/ Personal	62	4.67	Low
B	Group 1	60	6.67	High
C	Group 1	68	5.67	Medium
D	Group 1	78	5	Medium
E	Group 1	64	4	Low
F	Group 2	60	4.67	Low
G	Group 2/ Personal	65	5.33	Medium
H	Group 2	70	5	Medium
I	Personal	58	4.67	Low
J	Personal	60	4.33	Low
K	Personal	56	1.33	Low
L	Group 3	61	7	High
M	Group 3/ Personal	57	5.33	Medium
N	Group 3	63	4.33	Low
O	Personal	53	4	Low
P	Personal	68	5.67	Medium
Q	Group 4/ Personal	69	6	High
R	Group 4	73	7	High
S	Group 4	77	7	High

noting down initial coding ideas. In Phase 2 (generating initial codes), the fourth author manually analyzed each quotation using an inductive coding approach. This process led to the development of five initial codes grounded in the data, capturing different natures of social relationships: (a) intimate interactions beyond the club setting, (b) enjoyment of interactions at the club, (c) casual conversations, (d) exchanging greetings only, and (e) no interactions. In Phase 3 (searching for themes), the fourth author re-examined the five codes and collated them into three preliminary themes: preliminary theme 1 (combining codes a & b), preliminary theme 2 (retaining code c), and preliminary theme 3 (combining codes d & e).

The next two phases of thematic coding involved reviewing themes (Phase 4) and defining and naming themes (Phase 5; Braun and Clarke, 2006). In these phases, the fourth author reviewed each of the three preliminary themes and their corresponding quotations across interview participants. Based on this review, the fourth author generated initial names and definitions for each theme that captured its meaning. Subsequently, the second author, who possessed extensive expertise in the social identity approach, analyzed and interpreted the quotations, codes, preliminary themes, and their initial names and definitions as proposed by the fourth author. This analysis employed a deductive coding approach informed by the social identity approach to health and well-being (C. Haslam et al., 2018). Through this process, the second author confirmed that the three preliminary themes adequately captured the social relationships described by interview participants. However, the second author also suggested amendments to the names and definitions of the three themes to align them with prevalent concepts and terminology in the social identity approach.

To synthesize the perspectives from the inductive analysis conducted by the fourth author and deductive analysis conducted by the second author, any ambiguities or inconsistencies between their interpretations were addressed through collaborative discussions facilitated by the first author (Creswell and Poth, 2016). These discussions continued until all three authors established a shared understanding and consensus on the interpretations of the final themes, as well as their names and definitions.

This iterative process of collectively reviewing and deliberating on the data interpretations among the authors played a vital role in enhancing the confirmability (referring to the degree to which findings were derived from the data) of our qualitative analysis. In addition, the

combined use of inductive and deductive coding allowed us to integrate deductive insights with an inductive process of theory development, providing interpretive space to explore the data for commonalities, consistencies, and ideas that were common across participants (Braun and Clarke, 2021).

Once the three final themes were determined, we proceeded to Phase 6 (producing the write-up of thematic analysis findings) in which we selected representative quotations for each theme and developed a coherent and logical narrative of the findings derived from the thematic analysis. In this final phase, we reviewed each of the three themes by considering participants' social identification scores from their survey responses. We classified the participants into three groups that roughly corresponded to the top one-third (66.7% or above), middle one-third (33.3%–66.6%), and bottom one-third (below 33.3%) of the percentile distribution for the participants' social identification scores: high (6–7;  $n = 5$ ), medium (5–5.99;  $n = 6$ ), and low (4.99 or below;  $n = 8$ ). Next, we explore the nature of social relationships for the different identification-based groups.

## 5.2. Findings and discussion

### 5.2.1. Overview of themes

The analysis revealed three themes, which illustrated the nature of social relationships between members: (a) affective ties, (b) casual interactions, and (c) non-social participation. Commonalities in participant responses were largely attributable to the degree of their social identification with the fitness club. First, *affective ties* referred to the nature of relationships where participants interacted, and enjoyed relationships, with other members. For example, participants discussed their personal life with other members at the club or at gatherings outside the club. Second, we interpreted *casual interactions* as superficial social relationships in which participants interacted with other members through brief conversations or small talk. A key difference from the first theme is that participants in the second theme did not attribute emotional meaning to their interactions with other members. Third, our interpretations of *non-social participation* included participant responses that described little or no interaction with other members. These participants made a conscious effort to engage in minimal interaction with other members, or avoid interactions completely, so they could focus on personal exercise goals. Supplementary Table D provides illustrative quotations for each of the three themes.

Our interpretations of the data revealed that participants in the medium- and low-identification groups had minimal or superficial relationships with other members. In contrast, those in the high-identification group tended to report rich, affectively meaningful social relationships that transcended their attendance at the club (see also Bennett et al., 2018). In the analysis that follows, we present our themes in two sections. First, we concentrate on our analysis of the social relationships that high identifiers spoke about during their interviews. Second, we explore our interpretations of the social relationships described by medium- and low-identification groups.

### 5.2.2. Nature of relationships for participants with high social identification

Participants with high social identification predominately discussed having positive and affectively meaningful relationships with other members. High identifiers described how their social interactions increased their enthusiasm for coming to their fitness club. All but one participant (Participant L) in the high-identification group discussed their "affective ties" to other members. For example, from Participant B's responses, we observed that their social relationships went beyond the club environment and involved frequent forms of social support with another participant: "I keep in touch with her [i.e., the other member] via mobile phone and go out for dinner together ... When I do not see her at the club, I wonder if she is fine, and I think she does the same." The meaning attached to their shared identity also influenced *when* participants attended the fitness club. Participant R explained that she usually



went to the club at a regular time of the day to ensure she could engage in social engagements with trusted club members, which enhanced her enjoyment from exercising. Further, Participant Q noted that it was exciting for her to get acquainted with other club members whom she did not know previously. She also highlighted why normative interactions with other members were important whilst exercising:

[When employees at her club advised members to focus on exercise without talking with others,] I spoke to the employees that doing exercise is not about working out quietly. By talking with others while exercising, we could get relaxed, which, in turn, would get our muscles relaxed and make our bodies move better. So, I told them not to discourage interactions during exercise.

These findings indicated that for members with high social identification, developing social relationships with others is an enjoyable and important aspect of participating in physical activity at the fitness club (S. A. Haslam et al., 2012). As shown by Bennett et al. (2018), the social relationships formed through physical activity provide access to social and psychological resources.

### 5.2.3. Nature of relationships for participants with medium/low social identification

Most participants with medium and low social identification (11 out of the 14 participants in these groups) explained that they had superficial or no interactions with other members. Specifically, seven participants in these groups described how they intentionally engaged in minimal interactions with others, which we interpreted as a part of the “non-social participation” theme. For example, Participant H noted: “I can do exercise without interacting with others. I exchange greetings with other members yet do not talk about my personal life.” This was a minimal form of interaction that was specifically confined to the context of the club and did not include content beyond this environment (e.g., “my personal life”). She also stated that she avoids talking with other members to concentrate on exercising. In this example, Participant H deliberately isolated herself from other members to pursue personal, rather than shared, goals. Participant O was in a similar situation: “I do not have any individuals [at the club] whom I talk to every time. I just say hello to others, but I do not have any close acquaintances.” Participant E further noted: “I have yet to make any friends at the club.”

In line with the “casual interactions” theme, four participants noted that they maintained some level of relationship with other members. However, the social interactions they experienced were not affectively significant. Participant F highlighted this point: “I modestly talk to some members, but we are not so close to going out together during holidays.” This quote highlighted the somewhat isolating experiences of participants with less internalized or meaningful identities. Participant I said that even though she interacted with other members when she waited for her turn at the club, she tended to keep a distance from others: “I had occasions where I exchanged advice with other members when they or I had concerns, for example, about our health. However, we are not so close to discussing our personal matters.” In this quote, Participant I explained her engagement in informational support with other members. However, again, this form of interaction was brief, confined to the club space only, and not affectively significant.

Overall, in support of the social identity approach to health and well-being (C. Haslam et al., 2018), our interpretations of participants interview responses suggested that social relationships during physical activity tended to be more positive—and beneficial for well-being—when people developed shared social identification with the club in which they exercised. This evidence provided additional qualitative insights to existing research which has demonstrated the role of social identification in facilitating high-quality social relationships (Inoue et al., 2015; Sani et al., 2012).

## 6. General discussion

Researchers have argued that physical activity in a social setting has a positive relationship with well-being because it can promote social relationships (Lubans et al., 2016; Stevens et al., 2021). However, there were inconsistent findings regarding the benefits of participating in physical activity alongside others (Bailey and McLaren, 2005; Stevens et al., 2021). To address this inconclusive evidence, we drew on the social identity approach to health and well-being (C. Haslam et al., 2018) and work by Sani (2012) and Sani et al. (2012), which explored the different associations of participation frequency (a measure of social contact) and social identification with well-being. From our analysis of survey responses and behavioral data obtained from members of women’s fitness clubs in Japan, we demonstrated that the well-being benefits of physical activity participation were associated with social identification, but not participation frequency. Extending the work of Stevens et al. (2020b), our findings also indicated that the frequency of a person’s participation had an indirect positive association with their well-being which was mediated by their social identification. Moreover, we presented qualitative evidence suggesting that the nature of social relationships people experienced during physical activity varied by their social identification levels.

### 6.1. Implications

This research provides novel insights into the conditions under which physical activity has a positive association with well-being. A prevalent perspective was that physical activity participation—when conducted with others or in groups—offered opportunities to establish social relationships, which were associated with well-being (Lubans et al., 2016; Takeda et al., 2015). However, this perspective has received inconclusive empirical support (Buecker et al., 2021; Shvedko et al., 2018), and required a new explanation. Against this background, based on the results of Study 1, we showed that social identification associated with physical activity participation in a social setting (e.g., fitness club) had a significant positive relationship with well-being. In addition, qualitative findings from Study 2 indicated that not all individuals engaged in affective social relationships through physical activity participation. Instead, such high-quality social relationships tended to be confined to participants with more internalized and meaningful identities. In sum, we have buttressed emerging findings suggesting that the well-being benefits of social relationships during physical activity are associated with the extent to which participants develop social identification (Jetten et al., 2022).

We have contributed new evidence to the social identity approach to health and well-being (C. Haslam et al., 2018) and reinforced its application to the physical activity domain, developing on calls from other researchers (Beauchamp and O’Rourke, 2020; Stevens et al., 2020a; Stevens et al., 2021). Researchers have accumulated evidence about the well-being benefits of social identification in relation to different social categories or groups (e.g., Fong et al., 2021; C. Haslam et al., 2008; Sani et al., 2012). This work has been supplemented with a growing research stream focused on social identities that form in relation to physical activity, exercise, and sport groups (Graupensperger et al., 2020; Jetten et al., 2022). Despite this advancement, within the physical activity domain, there was a paucity of research assessing whether social identification—which represents the *subjective* value attached to group membership—was a stronger correlate of well-being than the frequency of in-group participation and social contact (Stevens et al., 2021). Our research has filled this void, demonstrating that social identification explained greater variance in well-being than the frequency of physical activity participation in a social setting (i.e., social contact). This evidence supported the central tenets of the social identity approach to health and well-being (C. Haslam et al., 2018). Future research might consider explanations for why increased participation frequency has no or a negative association with well-being, drawing

from evidence on exercise intensity (Downward and Dawson, 2016; Wicker and Frick, 2015).

Our findings call for policymakers, government officials, and health practitioners to pay closer attention to the settings in which people engage in physical activity. As our findings indicate, physical activity participation could be associated with greater well-being benefits if it is conducted in settings that encourage social identification. Together with findings from previous research (Dunlop and Beauchamp, 2011b; Evans et al., 2019), we have highlighted that same gender fitness clubs represent one such setting. There is also evidence that other social settings—including school/university sport teams (Graupensperger et al., 2020; Jetten et al., 2022) and community running events (Stevens et al., 2019)—are instrumental in promoting social identification. Such physical activity settings should be given more prominence in future public health policies and interventions aimed at enhancing well-being and tackling mental health issues through physical activity. Relatedly, a common barrier for participating in physical activity in social or group settings is the cost of membership. To allow more people to enjoy the well-being benefits of social identification associated with physical activity participation, governments and governmental agencies may implement policies that enable individuals below a certain income level to receive financial support towards their membership fees.

### 6.2. Limitations and directions for future research

This research is subject to some limitations. First, the strengths of this research rest on its application of a mixed-methods design complementing a survey (in Study 1) with interviews (in Study 2), use of stratified sampling techniques to gather a representative sample from the study population (in Study 1), and integration of objective behavioral data with self-report survey data (in Study 1). However, since we relied on cross-sectional data to address the objectives, we could not establish causality for the observed relationships. Therefore, future studies may develop interventions based on our findings and implement randomized controlled trials to ascertain causal relationships among social identification, participation frequency, and well-being.

Second, we used an established scale of social identification developed within relevant service contexts (Homburg et al., 2009; Kang et al., 2015) to assess members' identification with their fitness club. However, it is worth noting that other measures of social identification exist in the literature (cf. Postmes et al., 2013). Hence, it would be desirable to examine the extent to which the relationship between social identification and well-being are consistent when using alternative measures of social identification.

Third, the participation data examined in Study 1 were collated monthly by the clubs, which prevented us from considering how members' patterns of participating in their fitness club varied within the month. It would be worthwhile to assess how daily and/or weekly variations in members' participation patterns influence the relationships between participation frequency, social identification, and well-being, to gain a more nuanced understanding of these relationships.

Fourth, our participation data referred to participation frequency during the month prior to administering the survey that measured members' social identification. Examining participation frequency as a lagged independent variable partially addressed concerns about a reverse association where social identification predicted participation frequency (Ansari, 2021; Giordano et al., 2012). Still, it is important for future studies to acknowledge and address the reciprocal relationship between participation frequency and social identification, particularly when assessing these variables concurrently (Stevens et al., 2020b).

Moreover, our evidence was based on data collected from members of women's only fitness clubs in Japan. Given the nature of activities members engaged in (i.e., exercise in a confined, communal space with other members) and shared gender identity, a focus on this population was appropriate for understanding the relationships among physical activity participation in a social setting, social identification, and well-

being. Nevertheless, to assess the generalizability of our findings, future studies should test these relationships by collecting data from other population groups as well as in other physical activity settings.

## 7. Conclusion

This mixed-methods research has provided quantitative and qualitative evidence that supports the association between social identification and the well-being benefits of physical activity in a social setting. We have contributed to a more comprehensive understanding of the conditions under which physical activity is associated with well-being. Our research further confirms the theoretical predictions of the social identity approach to health and well-being, suggesting that people enjoy well-being benefits from physical activity participation in a social setting when it is internalized as a meaningful definition of self. We hope the current work will inspire a body of future research striving to show that social identification and participation frequency have different relationships with participants' well-being in a variety of physical activity settings.

### Funding acknowledgements

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by funding from Curves Japan Co., Ltd.

### Data statement

Data will be made available on request to the first author after April 1st, 2025, when the restrictions on data sharing are lifted.

### Data availability

Data will be made available on request.

### Acknowledgements

The development of this article was supported through a research leave scheme by the Faculty of Business and Law at Manchester Metropolitan University. The authors would like to thank Professor Dominic Medway for his helpful feedback on an earlier draft of this article.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.socscimed.2023.116454>.

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