

STANDARD PAPER

Recreational Physical Activity in Urban India: Perceptions and a Pilot Intervention

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Abstract

The inactive lifestyle of urban Indians has increased their risk of non-communicable diseases (NCDs). A qualitative study was designed to explore barriers and facilitators related to exercise participation among urban Indians. Underpinned by the developmental life course theory, nine focus group discussions (FGDs) were conducted with 29 women and 26 men residing in Mumbai, India. Focus groups were gender and age stratified. Both thematic analysis and content analysis techniques were used to analyse the data. While the lack of time was mentioned as a barrier by all groups, an unstructured schedule was mentioned specifically by women and awareness of physical health benefits emerged as the most popular facilitator for recreational physical activity. Based on the results of the FGDs, a pilot exercise intervention for sedentary women ($N=6$) was conducted which consisted of a morning walk six days a week for 10 weeks. Post-intervention, an FGD was conducted to explore participants' perspectives on their experience in the intervention. The participants reported that the intervention enhanced exercise self-efficacy and well-being. Exercise as relaxation, spousal support, and need for peers to exercise with emerged as primary themes during the follow-up FGD. These findings can inform the development of age and gender-specific as well as culturally appropriate interventions to facilitate active living.

Keywords: physical activity; exercise; India; NCDs; urban; intervention; behaviour change

Introduction

In India, increased urbanisation, economic development, and inactive lifestyles have contributed to an increased proportion of disability-adjusted life years due to non-communicable diseases (NCDs), which is expected to keep rising (National Health Portal, 2019). Nine percent of this premature mortality worldwide is attributed to physical inactivity and is preventable (World Health Organization, 2019). Physical inactivity as a risk factor for morbidity appears to have an impact on par with smoking and obesity (Lee et al., 2012). Indeed, insufficient physical activity has emerged as one of the most critical modifiable risk factors not only for obesity, but also for chronic diseases like type II diabetes and coronary heart disease as well (Thornton et al., 2016). An improvement in physical activity levels would be one of the avenues to reduce the prevailing disease burden.

Regular physical activity is known to lead to a host of benefits to health, functioning, and well-being (Choi, Lee, Lee, Kang, & Choi, 2017; Kohl et al., 2012; Warburton & Bredin, 2017). For example, physical activity enhances mood and reduces anxiety, depression, and stress in healthy populations

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(Plante & Rodin, 1990; Rebar *et al.*, 2015). In addition, physical activity is associated with better cognitive function (Castelli, Hillman, Buck, & Erwin, 2007; Erickson, Hillman, & Kramer, 2015).

Despite these health benefits, many adults do not achieve the daily recommended levels of physical activity, that is, moderate to vigorous physical activity at least 30 min on five or more days per week (Marques, Sarmiento, Martins, & Nunes, 2015). Recent empirical evidence from India's largest study on physical activity reported that 54.4% ($n = 14,277$) of Indians aged ≥ 20 years were inactive, with fewer than 10% participating in any form of recreational physical activity (Anjana *et al.*, 2014). Urban residents (65%) were found to be more inactive compared to their rural counterparts (50%) (Anjana *et al.*, 2014). Comparable rural–urban differences in activity levels have been highlighted in two other studies (Millett *et al.*, 2013; Tripathy *et al.*, 2016).

Despite high levels of physical inactivity, there have been only a few studies on physical activity in the adult population in India, which are all based on self-reported data (Anjana *et al.*, 2014; Millett *et al.*, 2013; Tripathy *et al.*, 2016). Some research has highlighted facilitators and barriers of exercise with regard to the socio-ecological system such as neighbourhood, built environment features, and socio-economic strata (Adlakha *et al.*, 2015; Adlakha, Hipp, & Brownson, 2016; Adlakha *et al.*, 2017; Adlakha, Hipp, Sallis, & Brownson, 2018); however, there is paucity of research at the individual level.

A range of factors may influence physical activity. Sallis & Owen's review suggests that there are six categories of variables that include demographic/biological factors, psychological/cognitive/emotional factors, behavioural attitudes and skills, socio-cultural factors and physical environment factors (Sallis & Owen, 1999). A number of scholars further note that interventions must be designed to be sensitive to social, cultural, psychological, and environmental aspects of the population in question (Khambalia, Dickinson, Hardy, Gill, & Baur, 2012; Sallis & Owen, 1999; White, Randsdell, Vener, & Flohr, 2005). Generic interventions are not effective and have poor adherence as indicated by published evidence (Castellani, Ianni, Ricca, Mannucci, & Rotella, 2003; Garmendia *et al.*, 2013; Howlett, Trivedi, Troop, & Chater, 2019). Strategies suggested for effective interventions are coalescing behavioural and cognitive approaches, providing cues to remind participants of the programme, providing rewards and punishments, and enhancing participants' belief that they have control over the design and conduct of the programme (Howlett *et al.*, 2019; Robison & Rogers, 1994; Samdal, Eide, Barth, Williams, & Meland, 2017).

The current study explores the factors that influence recreational physical activity (also referred as exercise or leisure time physical activity) with respect to exercise among urban Indians in four age cohorts: 20–30 years, 31–40 years, 41–50 years, and 51–60 years. The results of this qualitative investigation were then further used to inform the design and implementation of a pilot exercise intervention for inactive females who wanted to become active. The goal of the intervention was to create behaviour change, in terms of participating in daily physical activity and developing exercise self-efficacy.

Objective (Phase 1)

To investigate recreational physical activity behaviours in both men and women across different phases of life informed by developmental life course (DLC) themes of time and place, life transitions, linked lives (social networks), and human agency (Elder, 1985; Moen, Dempster-McClain, & Williams Jr, 1992; Yoshioka & Noguchi, 2009), Phase 1 employed qualitative research methodology.

Objective (Phase 2)

Based on findings from Phase 1, an intervention was planned with the purpose of encouraging inactive women to begin 'walking' and to develop exercise self-efficacy, which would sustain future physical activity. According to McAuley (1993), the role of self-efficacy in adherence to exercise is critical. The group walking activity was expected to enable vicarious learning in a supportive environment for participants. Maibach and colleagues confirmed the role of self-efficacy in adopting healthy behaviours (Maibach, Flora, & Nass, 1991), while Bandura (2001) suggested that low efficacy is likely to

increase the vulnerability for relapse (Bandura, 2001). Exercise efficacy operates at multiple levels in case of inactive individuals which include adopting physical activity, adhering to it, and prevention of relapse. The impact of the intervention was assessed by a focus group discussion (FGD).

Methods

The research protocol implemented in this study was verified against the Consolidated Criteria for Reporting Qualitative Research checklist to ensure rigour had been attained when reporting the themes (Tong, Sainsbury, & Craig, 2007). The research protocol for both Phase 1 and Phase 2 was approved by the Institutional Ethics Committee of the Indian Institute of Technology Bombay.

Phase 1: Qualitative Study

Theoretical model

The DLC perspective (Elder & Shanahan, 2006) was employed to inform this qualitative inquiry. Underpinned by a social view of human development, the DLC framework provides a useful lens to understand behavioural trajectories (e.g. changes or constancy in exercise behaviour). DLC hypothesizes individual development cumulatively, such that an individual's behaviour is shaped not only by the multiple environmental settings within which the individual is embedded but also by his/her previous experiences up to that point (Elder, 1985).

Study design

This study used a qualitative research methodology, that is, FGDs to explore views of Indian men and women on physical activity, in particular their beliefs and factors (i.e. facilitators and barriers) influencing their engagement with physical activity. Based on the DLC perspective in an attempt to cover a wide age range, four age cohorts such as 20–30 years, 31–40 years, 41–50 years, and 51–60 years were selected. This methodology was employed due to its effective use of in-depth exploration of health behaviours in adults (Lindsay, Greaney, Wallington, & Wright, 2017; Ranasinghe et al., 2016; Waters et al., 2016) and its provision of equal opportunity to all respondents to share their insights on the topic of interest (Krueger & Casey, 2014; Neuman, 2005).

Sample recruitment

Participants were recruited from Mumbai Metropolitan Area, India. Participants were identified through both social and professional networks of the three researchers (NR, RB, and MK) and were recruited through convenience sampling. All the three authors (RB — WFGD2; NR — WFGD1,3, MFGD1–4; MK — WFGD4) approached the participants (32 men; 31 women) from different age groups either in person or over telephone.

FGD guide

A semi-structured FGD guide was prepared by the research team. This guide included a series of original, open-ended questions which were based on the review of literature and research objective. Some of the key questions included in the guide (the complete FGD guide is attached as a Supplementary Material) are as follows:

Discuss your daily routine.

Do you exercise? Discuss type of exercise.

Do your friends exercise on a daily basis? Discuss.

What are some reasons that prevent you from exercising?

What are some reasons that enable you to exercise?

Are you aware of any facilities in your neighbourhood to exercise? Discuss.

Data collection

Focus groups with 4–10 participants in each group were conducted between February and November 2019. The FGDs were facilitated by three experienced qualitative researchers (NR — WFGD1,3, MFGD1–4; RB — WFGD2; MK — WFGD4) who explained the study objectives and the procedure in detail during face-to-face meetings with the participants. Written informed consent was obtained from all the participants prior to conducting the FGDs. Depending on their preference, discussions were conducted in either English or Hindi, or a mix of both languages, which is a common way of communication among Mumbai residents. All FGDs were audio recorded and field notes were also taken by two researchers (NR — WFGD2,4; RB — WFGD1,3, MFGD1–4). Each focus group took about 45–90 min. Upon completion, the participants received a small token gift (coffee mug) as a compensation for their time.

Data analysis

All audio recordings were transcribed verbatim; participants' names were anonymised by replacing them with codes. Whenever Hindi was used, audio files were directly transcribed into English since the transcribers (NR and RB) were fluent in both languages. Finally, transcripts were checked against the original audio files to ensure accuracy.

Transcribed data were transferred to QSR NVivo 12 software (QSR International, Melbourne, Australia) for analysis as well as subjected to manual analysis using two qualitative data analysis techniques. First, content analysis was used to collate participants' responses to obtain frequencies of barriers, facilitators, and type of recreational physical activity. Second, a recursive four-stage thematic data analysis approach informed by Braun and Clarke (2006) was applied to collate answers, classify themes across the qualitative data, and build an explanation from the discussions (Braun & Clarke, 2006). In Stage I, all the researchers (NR, RB, and MK) familiarised themselves with the data and identified topics of potential interest through repetitive reading of transcripts and replaying of digital recordings (Braun & Clarke, 2006). Subsequently, initial codes were generated in Stage II using both transcripts and field notes. Following the coding process, the multidisciplinary research team (NR is a public health nutritionist; RB is a social psychologist; MK is a health psychologist) met on a regular basis in Stage III to search and identify themes by clustering similar codes. They also revisited the transcripts and reviewed the themes to confirm that each theme was coherent and substantial, with distinct boundaries and a clear unifying concept (Braun & Clarke, 2006). The process of reviewing potential themes is critical as it enhances the reliability of the interpretations (Elo *et al.*, 2014). Finally, in Stage IV, each theme was redefined and illustrative quotes that capture the 'essence' of a theme were extracted from the transcripts (Braun & Clarke, 2006).

Phase 2: Pilot Intervention

Rationale

Based on the results of the FGDs, women in the 30–40 age group were inactive but expressed a desire to exercise; therefore, an intervention was designed for this cohort. Since the lack of company was mentioned as a barrier to exercise, a structured group activity was planned. Walking was selected as it is a natural aerobic activity which people have a low resistance to engage in and hence is easy to sustain (Morris & Hardman, 1997). Walking not only has physical health benefits but also has a protective effect against anxiety and depression (Johansson, Hartig, & Staats, 2011). Also, the university campus being a green space was ideally suited to walking and offered a variety of routes.

Sample recruitment

Participants were recruited using a flier, inviting women in the 30–40 years age group to participate in a 'Morning Walk Programme'. The fliers were posted in residential buildings in a middle-income neighbourhood (university campus). No stringent inclusion criterion was adopted for the

intervention. Women who volunteered were enrolled in the intervention. No participant was excluded from the study.

Intervention design

A morning walk which was a structured group activity was planned as the intervention. The activity was conducted six days a week for 10 weeks. Through mutual consensus, a morning slot from 5.30 a.m. to 6.00 a.m. was arranged, as childcare was taken care of by their spouses at that hour. The second author (RB) organised and participated in the programme. A meeting spot at a junction was decided and a circular route covering approximately 1.6 km returning to the junction was defined. A WhatsApp group of the participants was created to keep everyone informed in case there was a change in plans and allowed participants to interact. RB made wake-up calls to participants upon request. The intervention offered a supervised activity at a set time, thus providing participants a structured activity six days a week for 10 weeks. The participants were introduced to the Google Fit application to keep track of the number of steps taken to help them continue walking post-intervention. An FGD was conducted two months after the intervention with the participants to assess the effect of the intervention.

This design employed several behaviour change techniques mentioned by Abraham and Michie (2008). To begin with intention formation for the desired behaviour was created through fliers that advertised the programme, the specific goal setting was provided in terms of the structuring of the intervention regarding when, where, how often, and with whom the activity occurred (Abraham & Michie, 2008). Modelling was another technique used as the researcher participated in the intervention, general encouragement which involves offering support to help invoke the behaviour was provided by the researcher (Abraham & Michie, 2008). The intervention also provided opportunities for social comparison, to observe similar others' behaviour, and incorporate changes into one's own behaviour (Abraham & Michie, 2008).

Data collection

The second author maintained an attendance record for the programme. The intervention was conducted in a community setting at a university campus, and it was followed up by an FGD conducted by the second author. The FGD lasted for 90 min, and it was audio recorded.

Data analysis

The audio recording was transcribed and thematic analysis was used to analyse the transcribed data as described in Phase 1.

Results

Phase 1: Qualitative Study

Participants

A total of nine focus groups with 4–10 participants in each group were conducted. Focus groups were gender and age stratified (i.e. four FGDs with females, with one in each age category: 20–30 years; 31–40 years; 41–50 years; 51–60 years; five FGDs with males with one in each age category except for 31–40 years where two FGDs were conducted because of participant drop out in the first FGD) to facilitate free discussion (Krueger & Casey, 2014). The participant dropout contributed to variation in focus group size. Nevertheless, similar variations in focus groups have been reported in the past (Jepson et al., 2012; Long et al., 2012). Moreover, scholars propose that FGDs can work effectively with as few as three and as many as 14 participants (Gill, Stewart, Treasure, & Chadwick, 2008; Morgan, 1996).

Urban, middle-class individuals formed the study sample. Fifty-eight participants (29 males; 29 females) gave their consent to participate in our research. However, three participants declined to participate in the FGDs for personal reasons. Therefore, a total of 55 participants (26 males; 29 females)

were enrolled in the study. Owing to personal and professional links, some of the participants were known to the researchers. All the participants except one had a university degree. All the married female respondents were mothers. Participants' annual income fell in the range of INR (Indian rupee 200,000–INR 500,000 and above; Meyer & Birdsall, 2012). Socio-demographic information of the participants was collected by NR (WFGD1,3, MFGD1–4) and RB (WFGD2,4) via face-to-face interview.

Themes

The results are reported for the four cohorts:

Life stage: 20–30 years (MFGD1 vs. WFGD1)

All the respondents ($N = 12$) unanimously viewed physical activity as an absolute necessity; however, none of the young women ($N = 6$) engaged in exercise on a day-to-day basis. Among the men, all reported exercising regularly. The young men had a more active peer group as compared to women (Table 1).

Barriers

Lack of time

The lack of time due to hectic work schedules was a barrier mentioned by both men and women. However, none of the women in this group were able to exercise as they found their work schedule exhausting.

'Every day there is so much work in the office that there is no time. Moreover, I am very tired. Sometimes, I have to even work till late in the night and there is no point of doing exercise after that.' P1, WFGD1

Time as a barrier appeared consistently across all age and gender groups. Therefore, this theme is not repeatedly discussed for each age group.

'No, we do not get time to exercise.... When kids are around you have so much to do so where is the time to exercise.' P6, WFGD2

'Time schedule does not allow. The amount of work we do during the month end we sit in office even till 12 o'clock ... So, my work schedule does not allow. After that we just feel like relaxing for a day or two and then you want to catch up on other things like giving time to family ...' P1, MFGD3

Lack of motivation

Lack of motivation was mentioned across all age groups, by women in the younger age groups, and by men in the older age groups.

'There is no self-motivation to do exercise. I always think of doing exercise, but it does not materialize as we cannot manage to find time for doing it' P2, WFGD1

'I feel there is lack of motivation or internal drive.' P5, WFGD2

'I think it's lack of motivation ... You can always get up early or exercise late... ' P4, MFGD3

'There is lack of motivation. Maybe I will just do it [physical activity] for 5 min and then spend time on other activities like religious activities, eating food etc. Because of lack of motivation, I don't devote much time to it.' P2, MFGD4

Social media

The younger group mentioned that a lot of their free time was taken up using social media and this was a major hindrance to exercising regularly. Women across the remaining three age groups also mentioned social media as a barrier.

Table 1. Themes Associated with Exercise Identified from Content Analysis of FGDs with Men (M) and Women (W)

Themes	Number of participants reporting a theme								
	20–30 Years		31–40 Years			41–50 Years		51–60 Years	
	WFGD1 N = 6	MFGD1 N = 6	WFGD2 N = 7	MFGD2a N = 5	MFGD2b N = 4	WFGD3 N = 6	MFGD3 N = 5	WFGD4 N = 10	MFGD4 N = 6
Exercise is a necessity	6	6	7	5	4	6	4	10	1
Exercise is a part of daily routine	0	4	0	1	1	4	1	10	2
Decrease in exercise from childhood and adolescence	5	6	7	5	4	4	5	5	5
Engagement of peer group in exercise									
0–25%	2	1	7	1	0	3	3	0	5
26–50%	3	1	0	4	1	0	1	8	1
51–75%	0	0	0	0	2	1	1	0	0
76–100%	1	4	0	0	1	2	0	2	0
Barriers									
Lack of time	4	4	5	2	2	3	4	5	1
Work stress	2	1	0	5	4	0	1	0	2
Unstructured schedule	0	0	7	0	0	1	0	5	0
Lack of motivation	5	2	5	2	3	2	5	0	4
Social media	6	2	5	1	1	4	0	2	1
Lack of peers	2	0	3	0	0	2	0	4	0
Lack of family support	0	0	2	0	0	3	0	2	0
Menstruation	5	0	0	0	0	0	0	0	0
Exercise not a priority	0	0	0	0	0	0	3	0	3
Lack of facilities	0	0	0	4	0	0	2	0	0

(Continued)

Table 1. (Continued.)

Themes	Number of participants reporting a theme								
	20–30 Years		31–40 Years			41–50 Years		51–60 Years	
	WFGD1 N = 6	MFGD1 N = 6	WFGD2 N = 7	MFGD2a N = 5	MFGD2b N = 4	WFGD3 N = 6	MFGD3 N = 5	WFGD4 N = 10	MFGD4 N = 6
Facilitators									
Physical health benefits	6	6	7	4	4	6	5	10	4
Mental health benefits	4	3	3	0	0	3	0	10	0
Time out for self	0	0	3	0	0	3	0	10	0
Creating a habit of exercise	0	0	1	0	0	4	0	2	0
Physical appearance	0	2	0	3	2	0	1	0	0
Enjoying sports	2	6	2	5	4	2	5	0	4
Engagement in different forms of exercise									
Yoga	3	3	2	1	0	4	1	10	3
Working out at gym	0	2	0	3	3	0	1	0	1
Swimming	0	1	1	0	0	0	2	0	1
Running	1	2	1	0	0	0	2	0	0
Skipping	0	0	0	1	0	0	1	0	0
Cycling	0	1	3	0	0	0	0	0	1
Walking	1	1	4	0	2	1	3	1	2
Dancing/Zumba	2	0	2	0	0	1	0	0	0

'I am so engrossed in Tik Tok that I have no time for other things. I need to leave Tik Tok to do exercise.' P5, WFGD1

'Even if I wake up at 7.00 am, I just waste my time on phone. I will check news, WhatsApp. It's like that I will get entangled in one thing or the other ... so I cannot do exercise ...' P5, MFGD1

'One more barrier that I want to add is that Facebook and all ...' P3, WFGD2

Lack of peers

The lack of peers who exercised was mentioned as a barrier by women across all age groups.

'If I exercise alone, I don't enjoy it.' P3, WFGD1

'When the friend circle does exercise with interest, then it automatically happens ... I would easily do it in a group.' P3, WFGD1

'To step out of the house alone is very difficult. If someone is there, I am very happy.' P2, WFGD2

'When we do it (yoga) alone, it gets boring and then we don't do it ...' P10, WFGD4

Menstruation

Young women reported that cramps and excessive bleeding made exercising quite challenging during menstruation.

'First 6–7 days I cannot exercise as there is severe stomach pain. Also, there is lot of weakness' P1, WFGD1

'During menstrual cycle, one should not do heavy exercise as it results in strain on the stomach.' P3 WFGD1

Facilitators

Physical health benefits

Physical health benefits associated with exercising repeatedly emerged as a major facilitator among participants in every age group. Some of these benefits included fitness, stamina, overall health, and weight loss.

'I have more energy after I exercise. My day is more productive. I have realized that effect long back. So, I want to maintain it.' P2, MFGD1

'Health issues; In general, I have a problem of headache and there is body pain. So, if I ever do exercise, I will do to overcome these health issues' P2, WFGD2

'Now I started walking because I feel lethargic and I get tired very fast. I wanted to build my stamina ...' P1, MFGD2b

'After a certain age, women tend to gain weight. So, exercise is necessary for fitness.' P2, WFGD4

'Sometimes, I feel heavy, so I start walking and then my body becomes easy. Flexibility comes in ...' P4, MFGD4

Young women also mentioned that there is increased awareness of the health benefits associated with exercise in the current decade which was not available in the public domain in the last few decades. This heightened awareness was especially highlighted by female respondents across all age groups.

'There is increased awareness now. Earlier it was not there.' P5, WFGD1

'Earlier exercise was not so popular, now there are many things.' P2, WFGD4

Mental health benefits

Mental health benefits were mentioned by quite a few participants. Improved concentration, positivity, and stable mind were some of the benefits which were reported. In the remaining three cohorts, that is, 31–40 years, 41–50 years, and 51–60 years, this facilitator was exclusively cited by female respondents.

‘Secondly, by doing yoga, I may reduce the negative thoughts which is there in my mind.’ P4, WFGD1

‘My motivation is stable state of mind. I realize that my body is full of energy when I exercise. More active. So, I know career wise I will be productive if I exercise., so I exercise.’ P2, MFGD1

‘My experience with exercise has always been good when I do (exercise). So, the days which I do exercise I feel good. Good in the sense, whatever things I am doing, I enjoy it. The days when I do not do exercise are more stressful for me.’ P3, WFGD2

‘Mind becomes fresh. You feel stress free.’ P6, WFGD3

‘Yoga takes care of mental health of an individual. A lot of physical diseases are connected to the (health of) mind. If our mental health is good, physical health will be automatically good. This is the reason why one should do yoga. It leads to positive thinking.’ P6, FGD4

Physical appearance

Young men cited muscular physique as a motivator to exercise regularly. This theme reoccurred across two other cohorts (i.e. 31–40, 41–50) only for men.

‘Health consciousness and physical appearance ... I am a little bit frank, if I have to go outside may be to a beach with a group and I have to open my shirt so someone should not comment on my body, that is the reason I am doing exercise.’ P6, MFGD1

‘Body image is the facilitating factor to go to the gym’ P2, MFGD2b

‘The body shape towards which we are moving these days. I used to be very fit. Now I am putting on weight every month, month by month ... so that is driving me to do more exercise every day.’ P1, MFGD3

Life stage: 31–40 years (WFGD2 vs. MFGD2a and MFGD2b)

All the women participants were married with children, whereas some male participants were single. A majority of the men were exercising regularly, whereas none of the women were doing so. Men in this cohort also had a more active peer group.

*Barriers**Unstructured schedule*

Apart from a lack of time, an unstructured schedule was a barrier mentioned by most married women across the three age groups. The young mothers particularly were emphatic about the absence of a structured schedule because of prioritising the family’s needs which kept changing. The participants mentioned that this prevented them from making concrete plans to exercise and maintain a consistent schedule for exercise.

‘[...] I do not get time to walk, because when the elder one goes to school then I have to look after the younger one.’ P7, WFGD2

‘[...] After dropping her [daughter] to school I go for walk, I try to walk at least 3–4 days in the week. Now she has vacation, so the schedule is upside down.’ P5, WFGD2

‘With exercise the thing is, we try several things. But there is no continuity because of schedule of children, our schedule is disturbed. I stopped the evening exercise as I thought that children’s evening schedule is getting disturbed because of my exercise.’ P4, WFGD2

‘... There was something or the other going on, either in-laws or children that prevented me from exercising’ P2, WFGD3

‘With lot of household work, exercise doesn’t happen. Then one gets irritated.’ P10, WFGD4

Lack of facilities

Male participants reported the lack of open spaces to play cricket. This barrier was also cited by a few middle-aged male participants.

‘So, I used to go every weekend to play cricket. In Mumbai you don’t get that luxury because the city is very crowded. And you don’t have that much space to play.’ P5, MFGD2a

‘... there is a playground but it is messy, there are bushes and mosquitoes and stray dogs’ P1, MFGD2a

Work stress

All the male participants reported their work schedule as being a big barrier to exercise despite actively participating in sports in school and college. Work pressures combined with the long commute did not permit recreational physical activity. This barrier was also cited by men across other cohorts as well as young unmarried female participants.

‘I used to play football for my college and club at district level. I’ve done a couple of marathons. Post-employment, I used to play cricket on weekends and that also stopped, no workout after that.’ P1, MFGD2a

‘During college life I used to daily do at least 40–45 min of cycling. Weekends I used to go swimming. After joining office, it all stopped.’ P2, MFGD2b

*Facilitators**Enjoying sports*

A majority of the male participants across all age groups and a few female participants reported being actively engaged in sports and games in their school and college days. They mentioned that in the absence of digital devices, all their recreation involved outdoor physical activity.

‘Playing cricket or football or badminton at night. We were engaged around 6–7 h in a day playing sports only in school.’ P1, MFGD2a

‘... I still get calls on the weekends to play cricket from my friends ...’ P4, MFGD2b

‘Like when I was small, I used to play so many games. In a day I used to play more than 5–6 h. It was fun ... Now we can’t even find an hour, not even 10 min to play any sport ...’ P1, MFGD3

‘... In college days, I used to enjoy playing badminton. Then I used to go for morning walk and do some yoga. I used to walk for 6 km. Now everything is irregular.’ P6, MFGD4

‘In school life, I used to do a lot of exercise. I used to do swimming also for one hour. I have been regular in sports until post-graduation. But after coming to Mumbai, I could not engage in any activity.’ P2, WFGD1

‘I used to play. I have played till state level. I had a good stamina. But what happens is everything stops after marriage.’ P5, WFGD2

Life stage: 41–50 years (WFGD3 vs. MFGD4)

A large segment of the mid-life sample believed that it was essential to engage in physical activity as it has a major impact on health. However, only a few women respondents reported regular engagement in recreational physical activity.

*Barriers**Lack of family support*

Other barriers exclusively cited by women included the absence of family support. This barrier was reiterated in two other focus groups carried out with women (WFGD2 and WFGD4). Two female respondents described the lack of support from family members as...

‘Once we start our work [housework], we have no time to rest or sit down or relax. We continuously work like a machine. There is absolutely no support from anyone.’ P2, WFGD3

‘They [family] should give time to us. We give time to everybody in our family, but no one gives time to us.’ P3, WFGD4

Exercise not a priority

Many male respondents in the last two cohorts did not perceive exercise as a priority in their lives and so did not see the need to engage in it regularly.

‘There are no barriers as such, but I just don’t do it. As such, there is no demand from the body.’ P2, MFGD3

‘I think it’s laziness ... You can always get up early or exercise late so, laziness is the factor’ P4, MFGD3

‘All facilities are available, but we do not do exercise. I just don’t feel like doing it ...’ P4, MFGD4

‘Also, the body is functioning properly so there is no feeling from inside to exercise. Every day I think that I will do tomorrow, but that tomorrow never comes.’ P1, MFGD4

Facilitators

Creating a habit of exercise

Four middle-aged women emphasised the significance of developing a habit of exercising to maintain a regular exercise regime. Likewise, two female respondents from the last cohort (WFGD4) as well as one young mother (WFGD2) reiterated the importance of habit.

‘Walking has become my habit. If I do not go for a walk one day, I feel my day is incomplete.’ P3, WFGD3

‘I do it (yoga) every day.’ P7, WFGD4

Life stage: 51–60 years (MFGD5 vs. WFGD4)

All 10 female respondents and only one male respondent reported on the necessity to engage in exercise. This gender disparity was also quite apparent with regard to exercise participation where all the women ($N = 10$) consistently engaged in exercise as compared to men ($N = 2$). The women had a more active peer group when compared to their male counterparts. This is a quote by one of the men.

‘Everyone in my friend circle loves eating and drinking ... Nobody does exercise.’ P2, MFGD5

Facilitators

Taking time out for self

All the 10 female participants in this last cohort talked about the essential requirement of taking time out from their busy schedules for exercise. This facilitator was also cited by a few married women in two other age groups, that is, 31–40 and 41–50.

‘... With so many things going on, I try to take some time out for myself.’ P5, WFGD2

‘[...] We have to take out time for ourselves.’ P6, WFGD3

‘Women themselves should decide for themselves that “I need this much time for myself”’ P5, WFGD4

‘Unless you decide for yourself, we will not get time. If a woman’s job is to take the family ahead, she has to be healthy first....’ P2, WFGD4

Phase 2: Pilot Intervention

Participants

Eight women volunteered to participate and were recruited into the intervention (None of them were participants of the previous FGDs). However, two participants dropped out citing inconvenient timing.

Six of the eight women (31–40 years) participated for the entire duration. They were all university graduates. Two worked full time, two part time, and two were home makers. They were married with children and had one child each except for one participant who had two children. None of them were engaged in regular exercise prior to intervention. All the participants were family members of university staff who lived on the campus.

An average attendance of 85% was recorded.

Themes

The following themes emerged during the FGD held after the intervention.

Sense of well-being

All the participants overwhelmingly reported feeling invigorated.

‘I felt like the very best me it lasted all day.’ P5

‘There was a fresh feeling for the rest of the day, a kind of alacrity.’ P4

Exercise self-efficacy

The participants mentioned that they felt unsure about completing the whole programme when they began, however, that they felt invigorated after walking, which made them want to continue and this gave them a sense of confidence.

‘Morning walk is a very good concept for women. As a group activity, it promoted regularity. A woman may not step out of the house for physical activity because there are so many other responsibilities. When there are other women, it gets done easily and I found it beneficial for health.’ P1

‘The moment you start realizing its (walking program) benefits, you tend to continue it...Initially when the group was started, I was not sure whether I will be able to leave the house that early. But as it progressed, I started liking it. At first it was tough. Later on, I said I can handle it.’P5

Exercise as relaxation

The participants viewed exercise as a form of relaxation. They valued this ‘time out for themselves’, given that they faced multiple stressors such as busy schedules, not enough support from the partner, extended family being far away, and difficulties finding trustworthy childcare.

‘... twenty days I used to be okay, last one week I would get full fed up ... not feeling well, get irritated, I would not shout but something would go on that no one is there to take care of me. Now-a-days I think better engage in some physical activity ...’ P5

‘Exercise is relaxing like music class. ... physically, mentally that time I am not worried about anything ...’ P3

Support from spouse

Participants emphasised that if their husbands recognised the importance of exercise and encouraged them, it helped them continue with an exercise programme.

‘My husband says it is good, he will push and sometimes help me also. He says it will make you active ...’ P3

‘If the partner says, you have to continue exercise, we will find out some way to do that work.’ P5

Instrumental support in terms of help with childcare and housework and emotional support in terms of encouragement to exercise was mentioned by the participants.

Structured activity and peers to exercise with

The participants were of the opinion that exercising with similar others (other mothers) facilitated engaging in exercise as well as maintaining continuity. Having a structured programme helped them to set a goal of walking every morning 6 days a week.

‘... if someone is getting together and someone is waiting for us ... if someone is there to boost us up, it is helpful. If we are alone and if we are busy, we push it to tomorrow ... tomorrow’
P5

‘As a group activity, continuity is maintained. It is boring to walk alone.’ P4

‘I thought I would never be able to complete this program, but because of the others it kept me going.’ P1

The participants wanted to know if any other exercise programmes were being planned in the future by the researcher. They believed that a structured activity provided a clear goal which motivated them. Homogeneity in the intervention group led to group cohesiveness which further enhanced the adherence to ‘Morning Walk’.

Importance of fitness in contemporary times

The participants pointed out that for their mothers’ generation, it would not have been possible to engage in activities like dance/going to gym.

‘Yes, if my mom would go to gym it would definitely be ridiculed but if I go to a gym, it is considered very good — you are doing this. Things are changing, outlook of society is changing.’ P1

‘Fitness has assumed importance these days, for a number of reasons like mass media, peer pressure.’ P4

The participants reasoned that their mothers never felt the need to exercise as household chores involved physical activity; however, the idea of exercise as a leisure activity is not very prevalent in India (Anjana *et al.*, 2014).

Putting the family ahead of self

In the Indian cultural context, mothers are expected to be self-sacrificing and prioritise childcare and household chores over everything else.

‘... You are a mother; why do you need to exercise?’ P3

‘They ask ... So why should you be worried about your physical fitness anymore? ... But I know that if I am not physically active it will be just a matter of five or six years when I will just sit in one chair and simply not be able to move from there.’ P1

‘Some women wake up after 50 and they realize that they should have started physical activity early.’ P2

They also mentioned the lack of structured schedule in terms of changes in childcare, housework, or the arrival of houseguests that led to discontinuing exercise routines.

Discussion

The present study addresses exercise-related concerns across different age groups and highlights the importance of tailor-made exercise interventions. The results give us insights into the gender

differences at each age group with women experiencing more barriers to exercise. Women also emphasised the mental health benefits of exercise and the need for taking time out for self. A pilot intervention was designed specifically for women in the 30–40 age group as they reported the most barriers. The 10-week walking programme recorded good attendance and participants reported improved exercise self-efficacy post-intervention.

The results of this study are analysed within the DLC framework that captures the biological, social, and historical world we live in (Elder, 1985). We have considered four separate age cohorts and tried to understand the myriad influences on their exercise behaviour. In India, being inactive is normative among the middle-class (Anjana et al., 2014) and is also well documented in studies among the South Asian diaspora (Dave et al., 2015; Horne & Tierney, 2012). In this cultural context, the significance of exercise is highlighted and reflected in the present findings. The effects of age, culture, and gender emerged and are discussed below.

Among the young adults (20–30 years), only male respondents exercised regularly for recreation, whereas young women tended to use social media to relax rather than engaging in exercise. In the 31–40 age group, the transition points of marriage and parenthood resulted in reduced frequency of exercise as seen in the literature (Albright, Maddock, & Nigg, 2006; Bellows-Riecken & Rhodes, 2008; McIntyre & Rhodes, 2009). The lack of a structured schedule and the lack of support with childcare were expressed by women, in particular. In the middle-aged group (41–50 years), though all acknowledged the health benefits of exercise, it was a majority of women that exercised regularly. For these women, with older school going children, time was now freed up to exercise and they discussed the importance of inculcating exercising as a habit. However, men in our study expressed the belief that exercise was not a priority, mirroring the views of the South Asian male population residing in UK (Bhatnagar, Shaw, & Foster, 2015; Koshoedo, Paul-Ebhohimhen, Jepson, & Watson, 2015). A similar pattern was observed in the older group (51–60 years).

A variety of indoor and outdoor leisure time activities were reported with yoga being the most popular activity practised across all age groups followed by walking and going to the gym. Yoga has become increasingly popular as classes are held in the community frequently and it is a structured group activity. It is perceived as having multiple therapeutic benefits along with spiritual benefits (Woodyard, 2011). Walking was reported across genders, while going to the gym was reported solely by men. The lack of facilities and work stress were mentioned specifically by men in the 31–40 age group as they lamented the lack of open green spaces to play cricket in Mumbai. Mumbai is the fourth most populous city in the world with an estimated population of over 20 million and population density of 73,000/sq.mile (World Population Review, 2022). Reduced activity levels since childhood was reported by all participants.

The major gender difference that emerged was the cultural expectation that women prioritise their family's needs above all others (Kakar, 1978). This is clearly visible across the age cohorts with the young unmarried women having no family demands and not requiring social support to exercise. The transition point of marriage and motherhood is seen in the constraints faced by young mothers who are the least able to exercise, a finding consistently reported in the past (Albright et al., 2006; Bellows-Riecken & Rhodes, 2008; Deem & Gilroy, 1998; McIntyre & Rhodes, 2009). As children became older and left home, women in the older groups had increasingly more time to exercise. Women reported viewing exercise as a 'time out for self' and as having mental health benefits, as previously documented (Alvarado, Murphy, & Guell, 2015; Jewson, Spittle, & Casey, 2008; Kulkarni, 2018, 2021; Vaughn, 2009; Yarwood, Carryer, & Gagan, 2005). Given how tied down to the home women are (especially homemakers), exercise was seen as a 'break' from the home. In contrast, men who went out to work on returning wanted to 'relax' at home. The long work-day prevented men from exercising and this was mentioned by the men in the 31–40 and 41–50 age groups. Other than the first two groups, the number of men exercising was low and in the older two groups they held the belief that exercise was not a necessity as documented in the South Asian population (Bhatnagar et al., 2015; Koshoedo et al., 2015). One of the motivating factors for men was physical

appearance, and this has not only been highlighted by young men but also by middle-aged men in a number of overseas investigations (Ashton *et al.*, 2015; Caperchione *et al.*, 2012; Hoare, Stavreski, Jennings, & Kingwell, 2017; Hooker, Wilcox, Rheaume, Burroughs, & Friedman, 2011).

Another gender difference that emerged was the excessive use of social media among women who perceived it as a barrier to exercise. Social media and technology have largely been associated with negative health repercussions because of their sedentary nature (Cleland, Schmidt, Dwyer, & Venn, 2008; Vaterlaus, Patten, Roche, & Young, 2015). Also, women expressed the need for a peer group to exercise with as opposed to men. This is a unique cultural phenomenon documented in the South Asian population (Dave *et al.*, 2015; Jepson *et al.*, 2012; Mathews, Lakshmi, Ravindran, Pratt, & Thankappan, 2016). An intervention with women in Kerala suggested that peer support increased physical activity among women in comparison to the control group (Mathews, Sauzet, & Thankappan, 2021). Based on this cultural aspect, a group-based walking intervention was designed.

The intervention was designed for women to provide peer support and was effective in encouraging an inactive group to become physically active during the 10-week intervention period. All the women who volunteered were mothers of young children who were in the 30–40 age group. From the previous FGD (WFGD2), it was seen that this group was the keenest to exercise but unable to do so because of the lack of childcare. The average attendance rate of the current intervention (85%) compared well with another intervention with mothers of young children in the US which had a lower attendance rate (74%) (Clarke *et al.*, 2007). In the US study (Clarke *et al.*, 2007), the intervention period was eight weeks with supervised activity once a week while in our study supervised activity was conducted six days a week for a 10-week period. The themes emerging from the follow-up FGD after the pilot intervention reiterated the views of the four FGDs conducted with women. Overall, the intervention had a positive impact and participants reported increased exercise self-efficacy.

Walking-based interventions have been successful in improving physical and psychological well-being in both healthy (Morgan, Tobar, & Snyder, 2010) and clinical female populations (Guglani, Shenoy, & Sandhu, 2014). In the same vein, our intervention resulted in the women experiencing a sense of enjoyment, freedom, and well-being. They felt invigorated and motivated to exercise thus increasing their exercise self-efficacy, as recorded previously (Clarke *et al.*, 2007; Lewis, Marcus, Pate, & Dunn, 2002). The structured nature of the activity created a set goal, illustrating the effectiveness of the behaviour change techniques. The participants also appreciated having peers to exercise with and felt motivated by the presence of similar others (mothers), highlighting the cultural tendency in South Asian cultures of socialising in same sex groups (Dave *et al.*, 2015; Jepson *et al.*, 2012). Underpinned by the DLC framework (Elder, 1985), linked lives or social networks influenced agency to exercise in participants. Social networks create social norms regarding exercise as seen in the group of older middle-aged women (WFGD4). This can be compared to work by Lee and colleagues in which group cohesion was intentionally introduced to promote exercise in middle-aged women (Lee *et al.*, 2012). Group cohesion can also be viewed as social connectedness (Bowins, 2021). Echoing the findings of our previous FGDs (regarding prioritising family ahead of self), our study participants reported that participating in the intervention would have been impossible without active support from their spouse. Here, one can see the intersection of time (age) and place (Indian context), especially among married women who have more cultural obligations (Kakar, 1978). Women also mentioned increased knowledge of the value of exercise which acted as a facilitator as opposed to the previous generation.

Strengths and Limitations

One of the major strengths of this study is the inclusion of four age groups across genders enabling the analysis of the intersection of age and gender with respect to exercise. Applying the DLC framework drew attention to transition points in life such as parenthood and empty nest and the cultural

context in which exercise was located. The FGD groups were homogenous and provided rich data regarding barriers and facilitators for a healthy population as opposed to a clinical population. Informed by the FGD results, an intervention programme was designed and implemented. The results of the intervention have implications for an inactive urban population. It is one of the first few studies on exercise (leisure time or recreational physical activity) to provide qualitative data as well as a gendered perspective in the Indian context. The sample was restricted to the urban middle class in one city, and generalisations would be limited to this demographic. The older women participated in a yoga class twice a week that may account for their motivation to exercise as compared with other women in their age cohort. The intervention sample consisted of wives of university staff members and hence is generalisable only to urban-educated middle-class women. Also, the pilot intervention did not use an objective measure of walking pre- or post-intervention; however, the post-intervention FGD provided rich contextual data from the participants' perspective.

Implications for Research and Practice

The findings have implications for developing tailored interventions that take into consideration age-, gender-, and culture-specific relevant factors (Sallis & Owen, 1999). Cultural aspects such as exercising in a same sex homogenous group, which is perceived as an opportunity to socialise, may prove effective in the South Asian middle-class context. Though social media was cited as a barrier in the present context, it can be used as a facilitator for physical activity interventions (e.g. WhatsApp group in our intervention) to enhance active living (Flores Mateo, Granado-Font, Ferré-Grau, & Montaña-Carreras, 2015; Vandelanotte et al., 2013; Zhang, Brackbill, Yang, & Centola, 2015). Our findings also recommend incorporating cognitive-behavioural aspects such as self-efficacy and habit strength for effective and sustainable behaviour change (Di Maio, Keller, Hohl, Schwarzer, & Knoll, 2021; Fleig, Pomp, Schwarzer, & Lippke, 2013). With the objective of promoting active living, the positive impact of exercise and negative impact of sedentary lifestyle should be advocated by public health professionals. If regular exercise is projected as normative behaviour in Indian society, it could substantially postpone morbidity due to NCDs. Future work to develop interventions that are theoretically oriented and use evidence-based behaviour change techniques suited to the characteristics of the specific population will be of value to inform policy decisions (Howlett et al., 2019).

Conclusion

In this study, age- and gender-specific barriers and facilitators to engaging in exercise were elicited across four age groups in a sample of Indian adults living in Mumbai. An intervention was developed to address the barriers that women in the 31–40 age group faced such as lack of childcare and motivation. The inactive group of women successfully completed the 10-week walking intervention programme. After engaging in this intervention, the participants expressed increased exercise self-efficacy and a sense of well-being that may enable them to sustain exercise post-intervention.

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