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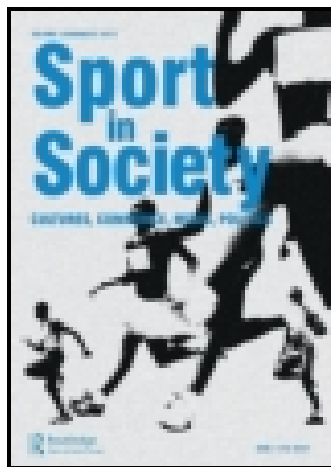
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## Older women and their participation in exercise and leisure-time physical activity: the double edged sword of work

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This study explores the complex relationship between paid work and participation in exercise and leisure-time physical activity among older women. The role of other factors that enable, motivate and constrain physical activity is also investigated. National context is explored using British Household Panel Survey data. Interviews with key stakeholders and women in their fifties, sixties and seventies explore individual motivation and decision-making in depth. The research enhances understanding of the relationship between employment and participation in physical activity among older women by highlighting positive as well as negative interactions. However, the overall relationship appears to be dominated by the negative constraints on time imposed by employment. Confounding factors include level and type of activity, type of employment, age and health. Psychological, social, environmental and economic factors are also important. These findings have implications for the development of effective interventions within the context of an extending working lives policy agenda.

### Introduction

This study investigates how time in paid work impacts on the participation of older women in exercise and leisure-time physical activity (PA). The role of other motivational and constraining influences is also examined. The context for the study is the promotion of active ageing as a major policy objective in the UK and more widely (European Commission 2010; Department of Health 2011, 2010). This can be seen partly as a response to evidence that while people are living longer they are often doing so in poor health (Marmot 2010; Eurostat 2012). Such considerations raise questions over the implications of recent increases in statutory pension ages (SPA) for health and well-being in later life. While increases in SPA are intended to raise the employment participation of older people by increasing the financial disincentives for retirement (Blossfeld, Buchholz, and Kurz 2011), ill health remains an important barrier to employment participation among older people (Herz and Rones 1989; Bound et al. 1999; McNair et al. 2004; Irving, Steels, and Hall 2005; OECD 2006; Porcellato et al. 2010; Carmichael, Hulme, and Porcellato 2013). Ill health can induce temporary withdrawals from the labour force and is also an important determinant of permanent withdrawal associated with early retirement (Disney, Emmerson, and Wakefield 2006; Jones, Rice, and Roberts 2009). Beatty, Fothergill, and Macmillan (2000, 620) suggest that employed people with health problems are 'particularly vulnerable to redundancy and job loss'.

While there is likely to be some decline in health with age, this relationship is mitigated by a range of factors including individual characteristics, gender (Sun, Norman, and While 2013) and lifestyles, such as an increase in time spent watching TV (Touvier et al. 2010) and marital status, with married individuals showing a greater tendency to exercise

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(Pettee et al. 2006). In this study, we follow Pettee et al.'s (2006, 544) definition of exercise and PA: exercise as 'planned, structured and repetitive bodily movements done to improve or maintain one or more components of physical fitness' and PA as 'bodily movement produced by skeletal muscles that result in increased energy expenditure', so including activities such as gardening. The positive link between health and participation in exercise and leisure-time PA is well established (Gratton and Tice 1989; Vuori and Fentem 1995; Khaw et al. 2006; Coalter 2007). There is also evidence of a strong link between health and PA among older people (Parkatti et al. 1998; Gulsvik et al. 2012) and older women in particular (Mensink, Ziese, and Kok 1999; Pratt, Macera, and Wang 2000). For adults 45 and over, the health benefits of regular participation in exercise have also been found to greatly outweigh the costs due to injury (Nicholl, Coleman, and Williams 1991).

Nevertheless, participation in physical exercise declines with age (e.g. Ruchlin and Lachs 1999; DCMS/SU 2002; Downward and Riordan 2007; Shaw and Spokane 2008; Sun, Norman, and While 2013). A reversal of this trend would therefore be expected to impact positively on the health of older people. Furthermore, the participation of women in exercise and recreational PA is lower relative to men throughout the life course (Shaw et al. 2010) and women alongside older people and socially disadvantaged young people have been identified as a target group for interventions (DCMS/SU 2002). While there is some evidence that participation by older women in competitive sports is increasing (Pfister 2012), attitudes to exercise and PA and the mechanisms for behaviour change among older women remain under researched. More is known about barriers to PA. These include daily activities, being busy, feeling tired, laziness, experiencing health problems, having difficulty managing time and not wishing to exercise alone, although women over 60 have been found to report lower level barriers to PA than younger women with the exception of barriers associated with ill health (Kowal and Fortier 2007). Some of these barriers are amenable to intervention and could be transformed through effective behavioural change mediation. There is also evidence that individual factors including levels of self-motivation are likely to be an important influence on older women's engagement in PA (Lindström et al. 2003; Stephan et al. 2010).

Research on the direct links between PA and employment is also limited. This is a striking omission in the context of policy drives to extend working lives since ill health impacts negatively on hours of work and employment participation. There has been more research looking at the links between retirement and PA, and a positive association has been found in some studies (Koeneman et al. 2012) but not all (Berger et al. 2005; Slingerland et al. 2007). It should be noted, however, that early retirees (55–58) may leave work because of ill health (Rijs, Cozihnsen, and Deeg 2012) which could account for evidence that suggests leisure-time PA can increase with age (Lahti et al. 2011) although the general trend is for PA to decrease with age (Sun, Norman, and While 2013). It is also possible that the health benefits of increased participation in physical exercise could have a positive effect on the employment participation of older people (Gratton and Tice 1989). This prediction is consistent with a socio-ecological approach that implies a link between an individual's behaviour, their environment and wider social constructs such as occupational class (Foster et al. 2005; Arkenford 2006).

In contrast, rational choice theories of the allocation of time predict a negative relationship between employment and leisure-time PA (Downward and Riordan 2007; García, Lera-López, and Suárez 2010). Within this theoretical framework, individuals maximize utility by allocating their time between daily activities such as sleeping and eating, paid work, home production, transport and leisure activities including exercise and sport (Cawley 2004; Humphreys and Ruseski 2007). Since time is finite and employment

constrains time for such activities, a negative trade-off is predicted (Downward 2007; Breuer and Wicker 2008). In line with this, Im et al.'s (2011) research framed from a feminist perspective finds that North American women are constrained by lack of time due to their working schedules and the obligations of family life. However, consumption may also depend on income from employment. The relationship between employment and participation in exercise and leisure-time PA is therefore likely to reflect negative as well as positive influences and the overall effect is difficult to predict.

Studies concerned with the participation of older people in PA or active ageing in a more general way have been largely quantitative (Phillips, Arber, and Ginn 2001; Agahi and Parker 2005; Mein et al. 2005; Agahi, Ahacic, and Parker 2006; Nimrod, Janke, and Kleiber 2009; Broese van Groenou and Deeg 2010; Chaudhury and Shelton 2010; Shaw et al. 2010). Some quantitative studies have explored the relationship between PA and the transition into retirement (e.g. Berger et al. 2005; Slingerland et al. 2007) but there is limited exploration of the relationship with employment among the 50–65-year-old age group. A review by Allender, Cowbur, and Foster (2006) of qualitative research on participation in sport and PA in the UK identifies only four studies focussed on the participation of people 50 and over (Finch 1997; Hardcastle and Taylor 2001; Cooper and Thomas 2002; Stathi, McKenna, and Fox 2003). Arkenford (2006) is a more recent addition to this list but focusses on activity in retirement. Qualitative studies on activity in later life have been undertaken in other countries (e.g. Cloos et al. 2010) but in line with UK studies, few have explicitly explored the links between participation in PA and employment. One reason for this has been a focus on people in the 60-plus age group who are more likely to be in a pre-retirement or post-retirement phase.

This paper uses primary and secondary data and a mix of methods to examine these issues. The study contributes to this literature in three main ways. First, it focuses on older women. Second, it examines the relationship between employment status and participation in exercise and leisure-time PA among the 50-plus age group. Third, using qualitative methods we explore in depth the influences that enable and constrain choices relating to more active life styles.

### Methodology and data

This research utilizes primary and secondary data. We follow Khan (2009) by defining an individual who is at least 50 years old as older. This classification reflects existing literature and policy statements on older people and particularly older workers (OECD 2006). However, we acknowledge that old age is an imprecise term and ageing is both a socially and culturally constructed process.

Secondary data from the British Household Panel Survey (BHPS) is used to provide national context and some contrast by age group and gender. The BHPS is a large and nationally representative survey including respondents from all parts of Britain. The data are derived by pooling all 18 waves (1991–2008).

The primary data are derived from 36 interviews with a sample of older women ( $n = 30$ ) and key stakeholders ( $n = 6$ ). The interviews were conducted individually by the authors either in the home or workplace of the interviewee at their convenience. The Age and Employment Network (TAEN) provided initial introductions to individual interviewees and the organizations. The sample of female interviewees was further extended through a mixed and emergent sampling strategy, incorporating both purposive and snowball approaches. Our aim was to maximize variety according to age, PA experience, employment and marital status. Participants' ages ranged from 51 to 76 and

there were varying levels of participation in leisure-time PA (Table 1). Only three sample members participated in a competitive sport (badminton, tennis, golf), although one woman competed in dance (Gina). The sample included women who were fully retired ( $n = 10$ ); semi-retired with some part-time paid or voluntary work ( $n = 12$ ); and employed either full time or part time ( $n = 8$ ). A range of careers were represented, from factory work to senior managers. Marital status also varied within the sample. Participants who said that their health impacted on PA are highlighted in Table 1 ( $n = 10$ ). Full ethical approval for the study was given by the University of Birmingham Ethics Committee.

In-depth, open-ended interviews lasting between 1.5 and 2 hours allowed the women the space to introduce and reflect on issues that they perceived as relevant (Mishler 1986; Kvale 1996). While predetermined boundaries were not set on the topics that could be explored, we asked the interviewees detailed questions about their working lives and their participation in physical exercise and activity and to reflect on their experiences of PA and how these related to their experiences of work and retirement.

The sample of stakeholders included organizations that represented older people, were concerned with health and well-being or were generally focussed on providing access to sport and recreational exercise. They included sports and leisure centres (providers) and groups working within the NHS, a local council and Age UK. In these interviews, we discussed policy innovations and interventions designed to encourage older people to be more active.

In both sets of interviews, a flexible prompt sheet was used which was augmented as interviews progressed. To determine participation in PA, we used structured questions to record activities on a daily, weekly, monthly and less regular basis. All interviews were recorded and transcribed verbatim to address issues of credibility and confirmability (Lincoln and Guba 1985). Analysis of the transcripts was ongoing. Initially, the authors took three transcripts and coded them, then compared codes, agreed on which codes seemed to reflect the data best before analysing another two scripts and comparing again. This iterative process was repeated across all transcripts producing a set of inductively generated categories (King 2004). The NVivo (version 10) qualitative data analysis package was utilized to help with this process. All names have been changed.

### **National context**

Table 2 shows national representative figures for female participation in recreational PA by age. Equivalent figures for males are provided for comparison. The BHPS data identify people who participated in any sport or went walking or swimming at least once a week or less frequently, watched live sports, were active in a sports club or worked in the garden. These are fairly broad indicators of activity and they do not take account of time or intensity. However, they do capture regular, low-level participation. According to these broad measures, older women in the UK are less active than older men and, except for gardening, older women are also less active than younger women. Interestingly, older women are less likely than older men to report that age inhibits their activities.

The activity rates for employed sample members in Table 2 show that within the older age group, employed women and men are less likely to participate in recreational PA on a weekly basis, but they are also less likely to be inactive (i.e. participating no more than once a year). However, regardless of age, employed respondents are more likely to be active in a sports club and watch live sports. Compared with their peers who are not in



Table 1. The sample of interviewees.

Name	Age	Employment status	Participation in sport/exercise activity		Marital status, no. of children
			At least weekly (health issues where relevant)	Less often	
Louise	76	Retired	Cycling regularly (with dog), gardening (health limits walking)		Divorced, two children
Claire	57	Retired	Gym, gardening (arthritis limits activity)		Co-hab., one son
Regina	67	Retired: some part-time work	Swimming, jogging, regular cycling, gardening, walking for leisure	Sailing	Married, two children
Jillian	59	Employed part time (because of health)	Walking (stairs at work, half an hour a day and weekly country walks), yoga, weights (rehabilitation related, ill health inhibits more activity)		Single
Sally	58	Semi-retired: still working in own business	Walking the dogs, swimming	Hot-air ballooning	Divorced
Phyllis	63	Semi-retired (because of health)	(disability prohibits – arthritis)		Divorced, one child
Lynette	62	Semi-retired	Regular walking – walking club (e.g. 10 miles), walking holidays	Swimming	Married, two children
Stephanie	67	Retired	Regular walking and walking holidays, yoga	Cycling, swimming, gardening	Single, three children
Lena	75	Retired: does voluntary work	Walking the dog three times a day		Widow
Gina	56	Working full time	Regular and competitive dancing (min 3 x a week), keep fit, pilates	Walking	Married, two children
Lorna	55	Working full time	Gym, yoga, swimming (arthritis – knees – inhibit walking, sports)		Single, two daughters
Maeve	69	Retired	Walks regularly to shops, etc., as does not have a car		Married, one son
Gloria	64	Retired: some part-time work. Training to be a yoga teacher	Dance, yoga, aerobics, swimming, walking (with dog), gardening		Married, two children
Jeanette	55	Working full time	Cycling at weekends – as transport (health restricts more, knees)	Cycling to work swimming, canoeing	Married, two children
Megan	56	Semi-retired	Until a year ago gym 3 x week, gardening	Walking	Partner, two children
Elsbeth	56	Retired (because of ill health)	(Physical health prohibits)		Single
Grace	66	Retired	Walking, gardening		Married, two children
Kate	51	Works part time	Swimming, walking, tennis	Cycle, aqua fit, surfing, sailing	Married, two children
Carol	64	Retired	Swimming, walking		Widowed, two children

(Continued)



Table 1 – *continued*

Name	Age	Employment status	Participation in sport/exercise activity		Marital status, no. of children
			At least weekly (health issues where relevant)	Less often	
Sara	61	Semi-retired: works three days per week	Swimming, badminton, pilates		Lives with partner, two children
Rachel	68	Semi-retired: works one day per week	An hours walking on days not working Walking for exercise daily		Married, four children
Karen	62	Retired	Yoga, walking for exercise two to three times per week (until recently broke toe)		Married, three children
Linda	59	Employed	Walking for leisure at weekends		Widow, two sons
Helena	59	Employed	Walking for exercise at lunch time – employer initiative, Wii exercise game		Married, three children
Corinne	64	Employed	Walking – work-related activity and weekends for leisure (health problem inhibits exercise)	Golf (pitch and put) monthly	Married
Elizabeth	63	Semi-retired: still doing consultancy work	Not done much for last six months but prior to that walking around park and yoga weekly	Swimming	Married, two children
Brenda	65	Semi-retired: works three days per week			Divorced, two children
Marjorie	73	Retired			Widowed, one son
Melissa	66	Semi-retired: works two days per week	Has some health issues but tries to get out walking once a week when possible (mobility problems)	Swimming	Married
Susan	72	Retired	Regular walking including long (2–7 mile) walks, keep fit, gardening		Divorced
Organizational sample					
Good Living – regional unit linked to a national organization (Age UK) supporting older people					
Health and Wellbeing – health-focussed group linked to regional council X					
Community Health – NHS health and physical activity office in town W					
Leisure Centre S – community centre in urban location					
Sports Centre Z – public access centre linked to an educational organization					
Leisure Centre M – community centre in semi-rural location					

Table 2. Activity and employment by age and gender.

BHPS 1991–2008 Full sample $n = 193,103$	Females		Males	
	20–49 $n = 68,639$	50–70 $n = 35,026$	20–49 $n = 59,631$	50–70 $n = 29,807$
<b>Activity</b>				
% active (walks/swims/plays sports at least once a week); subsample $n = 79,197$	46.4***	44.8##	48.8	46.2
% not active (never/almost never/no more than once a year); subsample $n = 79,197$	26.4***	36.0###	24.5	34.3
% active in a sports club subsample $n = 114,272$	15.0***	7.9###	26.1	16.3
% watch live sports (at least monthly); subsample $n = 79,197$	9.3***	4.3###	21.5	14.6
% work in the garden (at least weekly); subsample $n = 79,197$	17.5***	39.0###	20.5	46.9
% age often inhibits activities; subsample $n = 7,560$	1.0***	6.3###	1.5	7.7
% age never inhibits activities; subsample $n = 27,560$	49.8***	20.3###	47.7	17.8
<b>Employment status and activity</b>				
% of employed also active (weekly); subsample $n = 79,151$	46.15 <sup>†</sup>	43.86 <sup>††</sup>	48.91	42.71 <sup>†††</sup>
% of employed not active; subsample $n = 79,151$	24.54 <sup>†††</sup>	31.65 <sup>†††</sup>	23.45 <sup>†††</sup>	32.69 <sup>†††</sup>
% of employed active in a sports club; subsample $n = 113,952$	16.93 <sup>†††</sup>	9.66 <sup>†††</sup>	27.62 <sup>†††</sup>	18.41 <sup>†††</sup>
% of employed watch live sports (at least monthly); subsample $n = 79,151$	9.89 <sup>†††</sup>	4.76 <sup>†††</sup>	22.35 <sup>†††</sup>	15.13 <sup>†††</sup>
% of employed work in the garden (at least weekly); subsample $n = 79,151$	17.69 <sup>†</sup>	36.71 <sup>†††</sup>	21.5 <sup>†††</sup>	43.08 <sup>†††</sup>

Notes: The data were restricted for some variables because some questions were not asked in all years.

\*\*\*, \*\*, \* In  $t$ ,  $\chi^2$  tests, means/distributions of older/younger females different at 1%, 5% and 10% levels respectively.

###, ##, # In  $t$ ,  $\chi^2$  tests, means/distributions of older females/older males different at 1%, 5% and 10% levels respectively.

†††, ††, † In  $t$ -tests, means of employed/not employed (within gender/age group) different at 1%, 5% and 10% levels respectively.

employment, older employed women and men are less likely to garden on a weekly basis but the opposite is true for younger respondents.

The figures in [Table 2](#), while interesting, do not control for confounding factors. This is done using multivariate analysis and the logit estimator to model the probability of participating in recreational activity. [Table 3](#) presents the results of the estimation process. The estimations include variables to capture the influences of gender, age and employment status. We also control for confounding influences that have been shown to be significant in previous research: educational attainment, health status, household income as a proxy for socio-economic status, retired status, geographical region and marital status. The latter is included as [Petee et al. \(2006\)](#) find that marital status and the PA of spouses are important influences on the PA of older adults. The omission of other potential confounders is a limitation of the secondary data analysis. This is compensated for to some extent by the longitudinal nature of the BHPS data, which enables individual heterogeneity to be modelled using the random intercepts model to represent within-subject dependence. The interviews also facilitated an exploration of a wider range of influences.

The dependent variable is the BHPS measure of at least weekly participation in walking, swimming or sport (ACTIVE). Estimation (a) explores the effect of age by including a dichotomous variable that takes the value one for sample members aged 50 and over (the reference group is aged 20–49). In estimation (b), age and gender are interacted in order to explore whether the effect of ageing is different for men and women.

Table 3. Logit regressions: odds of participating in recreational physical activity<sup>†</sup>.

Dependent variable Independent variable	BHPS variable: ACTIVE (= 1 if walks/swims/plays sport at least once a week; 0 otherwise)			
	(a)		(b)	
	Odds ratio	95% CIs	Odds ratio	95% CIs
Female	0.833***	0.778–0.892	0.817***	0.755–0.884
Age 50–70	0.993	0.900–1.035		
Interaction: female* age 50–70			0.993	0.908–1.087
Interaction: male* age 50–70			0.935	0.850–1.028
Employed (employee or self-employed)	0.734***	0.678–0.794	0.733***	0.677–0.793
Retired	1.325***	1.119–1.479	1.323***	1.119–1.476
Married/co-habiting	0.825***	0.775–0.879	0.826***	0.776–0.880
Controls for:				
Educational attainment			Yes	
Monthly income			Yes	
Long-term health condition/disabled			Yes	
Geographical region			Yes	
Survey year			Yes	
No. of obs.			71,615	
No. of groups			19,627	
Log likelihood		–39604.4		–39623.41
Wald $\chi^2$ (44)		6877.65***		6878.52
$\rho$ (intra-class correlation)		0.462		0.462
$\chi^2$ test of $\rho = 0$ (random effects model)		7824.43***		7828.26***

Notes: Model (a) includes the age 50–70 dummy variable; Model (b) includes two older-age (50–70) and gender interaction variables.

<sup>†</sup>Sample is all respondents aged 20–70 excluding those in full-time education in BHPS waves 6, 8, 10, 12, 14, 16, 18 (measure of activity only available in these BHPS waves).

\*\*\*, \*\*, \* significantly different from zero at 1%, 5% and 10% levels of significance respectively.

In both estimations, female gender is negatively related to the measure of activity. Somewhat surprisingly, age neither on its own nor interacted with gender is a significant influence. This lack of significance of age potentially reflects the confounding influence of declining health on participation in PA since health status is included among the controls. In both estimations, employed status is negatively related to the measure of participation: being employed reduces the odds of being active by nearly 30%. In contrast, being retired is consistently positively significant. Being married or cohabiting with a partner is linked negatively to participation.

These results confirm that females in the UK are less active than males but suggest that the negative relationship between age and participation in sport and PA reflects other influences correlated with age such as ill health. In contrast, employed status is linked significantly and negatively to activity, although a positive correlation was found between employment and membership of a sports club. These results need to be juxtaposed against the finding that retirement is linked to an increase in recreational PA, and retirement and older age are also linked. Overall, the analysis suggests a mix of counterbalancing influences on the relationship between age and activity. These are associated with confounders such as employment status and health and potentially moderating effects linked to marital status, education and income. One objective of the qualitative research was to provide scope for exploration and interpretation of these relationships and particularly the underlying causes of the negative relationship found between employment status and activity.

### **The qualitative experience of participation in exercise and leisure-time PA**

The findings of the qualitative research are presented firstly by looking at issues raised by the interviewees concerning the relationship between employment, exercise and leisure-time PA. We then look more generally at factors which participants viewed as enabling and constraining their involvement in such activity.

#### ***The impact of employment on participation***

As discussed, there is a potentially positive link between activity and employment through the positive effect of the former on health. This was commented on mainly by the organizational representatives ‘... in today’s society where some people are under quite a bit of stress. By doing the physical activity and the release of the endorphins, it does help people to cope with everyday pressures’ (Good Living). This link was also associated with an indirect positive effect of activity on productivity in employment because of fewer days off due to sickness, or less stress: ‘a physically fitter workforce would be more productive’ (Sports Centre Z). One provider also commented on the ‘positive correlation between participation in sport and activity and levels of education and profession’ (Sports Centre Z). This suggests that the impact of employment is likely to be confounded by type of occupation.

Some potentially positive links from work were also noted including access, provision and a social element. Providers talked about how employers could facilitate participation in sports and fitness activities, for example staff could be given ‘more flexibility in their working day’ to avoid ‘peak times’ because ‘you need a bit more than an hour if you want to do a work-out’ (Sports Centre Z). One organization had tried to engage with local workforces through a health event and badminton tournaments but said that some employers made this sort of engagement difficult (Health and Wellbeing).

Only a small number of the individual women interviewed ( $n = 5$ ) identified a positive link between employment and activity. One said that the physical activities she participated in (gym, swimming and yoga) had a positive influence on her employment because they kept her fit and healthy. She also thought her yoga practice gave her new skills that she used in her work-supporting drug users: 'if you're able to breathe effectively you can reduce your anxiety levels ... which then reduces the propensity to use drugs or go out and commit crime' (Lorna). Another participant occasionally cycled to work 'when I haven't got to carry too much' (Jeannette). Only one participant (Gina) saw exercise as central to their work. She incorporated dance into her work as a full-time teacher and also worked part time as a fitness instructor.

Two participants had recently taken part in an activity programme facilitated by their employer. This involved walking for half an hour three times a week during their lunch break. They found the programme both motivating and enjoyable: 'it takes you away from your computer and gets you out of the office' (Corinne). The social aspect was also considered important 'as you're walking you do all chat and you all get to know each other' (Helena). It was felt that this had improved their productivity: 'You feel more inclined to do some more work and get on with what you're doing' (Helena). The benefits of social interactions for women to increase PA have been noted in previous research (Im et al. 2011) which also suggested an improvement in mental well-being.

Indirectly, employment could also facilitate participation in activity by providing the income to cover costs and provide access to private transport. Costs involved in reaching a facility, to participate in an activity or to join a club were raised by five interviewees (see also Arkenford 2006). For example, one retired woman in her 70s complained that the council had removed the concession for older people such that the price of exercise classes had doubled (Susan). As a result, she was no longer able to attend these classes, but had started to walk with friends instead. In contrast, Karen (retired) talked about the positive impact of the local 'passport to leisure' scheme which meant that 'it doesn't cost us anything to go swimming'. Women in employment may also be more likely to be able to afford a car and therefore transport could be less of an issue for them. Two women said they struggled to get to exercise classes because they did not drive. Another was deterred from swimming because of the distance of the journey to a pool. However, Maeve said she did quite a lot of walking precisely because she did not have a car suggesting that not owning a car can also increase participation in some forms of physical exercise. This is supported by previous research which shows that access to a car and participation in walking and cycling are negatively linked (Carmichael, Grix, and Palacios 2012).

In line with rational choice theories of the allocation of time, however, 'work demands' were argued by many interviewees to constrain opportunities for participation in physical recreational activities. As noted by one organizational representative, 'lunch time or straight after work or before work is the only time they get to do exercise' (Health and Wellbeing).

Six of the women who were employed full time spoke candidly about the constraints on their time imposed by being at or commuting to work: 'If I didn't have to work I might be able to, for example, take my grandchildren swimming' (Jeanette). Similarly, Lorna stressed that she would be more active if she 'had less work'. Another participant commented that the only activity she undertook outside work during the week was housework although she was more active at the weekends: 'I do try and cycle, but that's sort of limited to the weekends' (Jeanette). Another interviewee, Helena, described the mental barrier to activity after work, 'instead of thinking when you finish work - I'll go to the gym for an hour. I'm thinking I'm going home' (Helena). For women working full time, the job can appear to 'take over' making it difficult to manage work-life balance.

Four interviewees identified work as a major cause of inactivity either through work-related ill health or because of the type of work they did. For example, Lorna was constrained by arthritis in her neck, shoulders and knees and this was attributed to working for many years as a hairdresser. Deskwork and sitting at a computer were also identified as causes of ill health and neck and shoulder pain. One woman had made a conscious choice to reduce her working hours because of the sedentary nature of her work being 'stuck at a screen' (Sara). Another semi-retired participant who had worked mainly at a desk said: 'I like the fact that I'm not sitting in a chair and my body is going back to how it used to be' (Gloria). This point highlights how women workers in the UK may be particularly vulnerable to what Im et al. (2011) in their US study refer to as the encouragement of sedentary lifestyles in western culture.

The constraints on activity imposed by employment were highlighted by the contrast between those employed ( $n = 8$ ) and those who categorized themselves as fully ( $n = 10$ ) or semi-retired ( $n = 12$ ). Gloria, for example, said that her week was currently structured around leisure activities such as salsa classes and yoga, whereas previously it had been all about work. She also enjoyed gardening, which had previously been 'just another thing to be done'. Two women (Regina, Elizabeth) only joined gyms after retiring and one contrasted her current activity level with her lack of activity when working: 'when I was working I did absolutely nothing' (Regina). Others who were currently employed spoke wistfully about what they hoped to do when retired. Four of the employed participants (Table 1) also participated in a wider range of activities while on holiday including sailing, surfing and canoeing. In contrast, one of the participants appeared worried about lack of activity in retirement: 'well the keep fit thing is a perennial one – you know sort of making sure I do more walking and things like that and swimming' (Sara).

### *Additional enablers and barriers to participation*

Enablers for participation in exercise and leisure-time PA were linked to motivation. They related mainly to: intrinsic benefits associated with social aspects, enjoyment and health; past experiences of activity; and the influence of others. Many women ( $n = 19$ ) stressed the importance of the social features of participation: 'I often go walking with friends so that's again semi-social' (Sara). This important motivator was also recognized by providers who adopted strategies such as encouraging people to join a gym with a friend or have a 'gym partner' (Leisure Centre M) linking exercise and fitness with social events such as skittles and quiz nights and organizing less strenuous activities during which people could talk as well as play (e.g. table tennis).

Another motivator was the sheer enjoyment or pleasure of the activity itself: 'it was fabulous once I was in [the sea]' (Stephanie). Enjoyment associated with walking and gardening was also linked to being outside: 'we have such great countryside to walk in' (Lynette). Feelings of satisfaction were linked to some activities such as going to the gym. However, walking and cycling were sometimes undertaken simply as an alternative form of transport (not just to work, but, for example to go to the shops, also to visit friends).

Recognition of the health benefits of activity was mentioned as an important driver by many of the participants: 'you need to keep moving to keep supple' (Marjorie). This was particularly true for some of those with ill health; Lynette who suffered from asthma said 'I've actually got to work harder at keeping fit' and Jillian considered walking to be part of her 'recovery regime'. Weight loss was a related motivation: 'it sort of helps with the weight as well' (Corinne). Others wanted to stave off the effects of ill health associated with older age: 'so I'm not a burden to anyone' (Sara). One woman was very aware of the



health benefits of more strenuous activity: 'I need to break a sweat to be able to keep fit' (Elizabeth). Similarly, one of the providers thought having heart rate monitors on the gym equipment were useful for older people who wanted to 'hit an aerobic zone' (Leisure Centre M).

Life history was also relevant. Several of the women ( $n = 6$ ) said they were active because they had always been active and it was a way of life. Comments such as 'I've done it all my life' (Sara) or 'since I was about three' (Sally) and 'I've cycled a lot since I was eight' (Louise) are indicative. As one provider remarked if people in their thirties and forties are encouraged to be active then when they are older they are 'still in that mind-set' (Leisure Centre M). In contrast, lack of activity at a younger age was sometimes given as a reason for not participating in older age.

Friends and partners could play a key role in motivating activity and lack of friends to participate with could have the opposite effect. In line with the findings of Pettee et al. (2006) spouses can be important and partners could be encouraging or not: 'I mean if your partner doesn't like it, it makes it more difficult' (Claire). For others, the significant 'other' motivating them to exercise was a pet, usually a dog: 'well of course I take the dog three times a day' (Lena). For one woman, her sheep and, in the past, a horse were a reason for her to be active (Louise). Two others (Jillian, Megan) highlighted the significance of a particularly inspirational teacher/trainer. One provider also talked about positive demonstration effects associated with elite sports and thought that the 2012 Olympics could be beneficial (Leisure Centre M). However, when asked none of the women said that successful sportsmen or sportswomen had influenced them.

Wider barriers to participation were often linked to supply side factors such as limited opportunities for participation or lack of appropriate facilities: 'it would be nice to have more clubs and groups and things for people to go along and do things' (Linda). Other barriers included psychological factors, caring responsibilities and ill health: 'I've got rheumatoid arthritis and everything, so I'd be frightened of breaking bones, so I don't attempt anything like that' (Sally, talking about activities she had participated in when younger). On the supply side, providers highlighted how certain groups (e.g. ethnic minorities, people with disabilities, menopausal women, overweight people) require the availability of certain types of activity, appropriate equipment and social settings such as women-only classes and different exercise routines. Membership of some ethnic and religious group can also affect the willingness of women to engage in mixed gender activities where they are required to undress to some degree. In these circumstances, lack of appropriate facilities and suitably qualified staff are a barrier to participation. Previous research (Im et al. 2011) has recognized that the PA experience is influenced by gender including issues related to body image, cultural stereotypes and lack of encouragement for women to engage in PA. In response to such demands, one of the providers (Leisure Centre M) said they deliberately maintained an age and gender mix within their staff so they could choose 'the right fitness instructor' to suit individual need. They also trained instructors to teach mixed ability classes. The importance of front-line staff in leisure centres was highlighted by Melissa who said an instructor had assumed she knew what to do and just left her 'to it on machinery that I'd never used before and he never showed me. So I never went back . . . .' Another interviewee who had developed serious arthritis (Phyllis) and had previously managed to swim and exercise with low-impact aerobics found the lack of advice and little availability of appropriate classes curtailed her exercise.

Providers were also concerned that older people sometimes lacked confidence when it came to trying new activities, for example one leisure centre manager commented 'I think there is a huge intimidation barrier in terms of the fact that it's into the unknown'



(Sports Centre Z). Another centre manager (Leisure Centre S) commented that many people's experiences of fitness activities were coloured by negative experiences at school where the emphasis on team sports and competition had put them off recreational physical activities. Lack of motivation was also identified as an issue, with participation in exercise sometimes only triggered by a health scare or recommendation from a GP.

Such considerations suggest that interventions designed to raise activity rates among older people must do more than simply open up accessibility to activities available to younger people. Older people can be put off simply by the atmosphere of gyms or the manner of the instructor (Hawley et al. 2012), just entering one may be an insurmountable barrier for some older people especially if they see only younger people attending. One woman thought gyms could be very intimidating for this reason: 'Well, older people and me and others find the gym can be intimidating because you've got young people in leotards and what have you, you know, and you're not going to do it'. (Melissa). Another participant said she would not go to a gym populated by younger people: 'No, I don't like it because they have a view about themselves' (Gloria). She also felt that the social element was facilitated when class members were 'men and women of my age and older'.

Issues such as clothing and etiquette are important and some facilities were viewed more positively because of their flexible or more casual image: 'You could do it in your ordinary clothes, you don't have to change' (Melissa). One woman said that she would only go to a women-only gym: 'going to a mixed gym would just be too much for me' and she felt the same about swimming 'it would have to be women only' (Jillian).

Some activities were identified as particularly suitable for older people, e.g. table tennis, tai chi, yoga, pilates, badminton and dancing. One provider highlighted the provision of 'body blitz', a light aerobic class that was particularly popular with over fifties (Leisure Centre M). A contrasting view was articulated by three interviewees who argued that there were negative stereotypes associated with age and physical exercise and that providers needed to be more innovative:

I think it needs some research on the whole exercise thing and what leisure people think older people can do because ageing's changing and people are changing and yet we've still got this stereotype of what you want is, you know, a tea dance or bowls. Well, bowls is good for somebody who wants to do it, but if I saw that I'd think 'No, that's not for me'. So they need to be a bit more ... inventive. (Melissa)

Relatedly, Gloria who is training to be a yoga teacher said that some people have asked her 'aren't you too old to be doing that?' She says 'they might think I am, but I so don't'.

As mentioned earlier, the majority of our interviewees highlighted the importance of the social aspect of exercise. Older people may find themselves more isolated and the opportunity to socialize alongside exercising could be an important incentive. A number of the women suggested that they would be more likely to attend a leisure centre if there was a social element to it. For example, Maeve commented, 'I'd be more likely to go if I could sit, have a cup of tea and a chat afterwards'. Timing was also an issue, for example going out in the evening was not always an option: 'I don't like going out in the evening on my own ... as you get older it is quite frightening' (Sara). However, some community providers located in schools can only open in the evenings on weekdays (Leisure Centre M).

The participants talked about how family commitments prevented them from committing to physical activities. In general, the interviewees were more likely to participate in activities such as walking, gym or swimming which are easier to fit into a busy schedule. Some with extensive caring responsibilities such as Jean who had looked after both aged relatives and grandchildren found their own ways to exercise: 'I go out with the pushchair and the children walking, down the park' (Jean).

Finally, pre-existing injuries or health problems were a particular barrier. Arthritis, back, knee and hip problems were a common problem: 'I find the arthritis quite difficult because I can't do what I want to do' (Claire). A few of the women had quite serious health problems and this could be very restrictive: 'I have to be very careful in what sort of exercises I actually do' (Corinne). One woman said that she would just 'like to be able to walk without it hurting' (Phyllis). However, as already noted, ill health could also be a spur to activity. Age by itself was not mentioned as a barrier to activity, although Lynette at 62 recognized that she was becoming more limited: 'starting to get a bit of a problem with one foot and things like that'.

## Discussion

The research highlights some general patterns in the relationship between participation in physical leisure activities and older age. It also highlights the complexity and individuality of underlying attitudes towards PA. The quantitative analysis tends to reinforce previous research findings that female gender is negatively related to participation. However, controlling for confounding factors, including health and income, suggests that the relationship between age and activity is more complex and qualified by both employment and marital status as well as health. In particular, the decline in activity associated directly with age was insignificant after controlling for these and other factors. While the qualitative data are based on a small-scale exploratory study and therefore we cannot make generalizations, this part of the research highlights the diversity in enablers and barriers to participation in recreational PA faced by older women. This analysis indicates that constraints on time, income and attitudes are all important influences on participation in exercise and physical activities. These influences are in turn shaped by a diverse range of factors incorporating psychological, social, historical, environmental and economic aspects. While such factors are not exclusively relevant to older women, constraints on time are a feature of the double burden of work and home shouldered by women who are more often than not the main carers for children, older relatives and husbands at different stages in their lives.

In line with the results of the regression analysis and previous quantitative studies (Mein et al. 2005; Downward and Riordan 2007; García, Lera-López, and Suárez 2010), the interviewees mostly perceived employment to be a barrier to participation in exercise. This was particularly true for those in full-time work. However, in the interviews, some positive links between work and activity were also identified, e.g., through improvements in health, participation in work-related activities and indirectly, earned income. These exceptions may underpin a potential paradox in the relationship between activity and employment; the majority of interviewees commented that the reason work impacted upon PA was a lack of time, yet some previous studies suggest that when people retire and their time is no longer constrained by work there is a reduction in PA. This is because the cessation of work-related activities such as walking and cycling in commuting is not compensated for by increased recreational PA (Slingerland et al. 2007). Thus, retirement can result in a net reduction in PA rates, particularly amongst those previously employed in non-sedentary work (Berger et al. 2005). In contrast, the retired interviewees in our sample tended to link retirement positively with activity although some were financially constrained. The statistical analysis also identified a strong, positive link between retirement and participation in PA (in line with Koeneman et al. 2012). However, a limitation of the quantitative research is that the measure of activity is quite broad. More research is needed in this area.

While employment status is important, barriers to participation in sport, exercise and recreation are not restricted to economic or time allocation considerations. They include psychological inhibitors such as fear, embarrassment and lack of confidence which are likely to be particularly pertinent for older women. Life-history experience of activity is also important and memories from participation in sports at school can contribute to negative perceptions. More tangible barriers include lack of opportunity, ill health and costs such as those linked to club membership and travel as well as opportunity costs. Indeed, the relatively high costs of some club memberships are likely to underpin the positive relationship found between employment and active membership of sports clubs. Price increases (including those associated with the removal of a subsidy) can impact on whether some older people participate in an activity and pricing strategies need to maintain participation as well as encourage enrolment. Older women in particular are often caring for others, e.g. their husbands, parents, children and grandchildren, and these responsibilities constrain their ability to maintain attendance at organized activities. In these circumstances, pay-as-you-go options are more attractive than paying by term or having to pay tennis or golf club memberships. The built environment was only discussed indirectly in relation to travel costs and journey times, but there is evidence that the environment can impact negatively on incentives for walking and cycling because of traffic and lack of safety (Sallis et al. 2006; Gauvin et al. 2012).

Health is clearly important for older people and a decline in PA as people age may reflect a decline in health more than anything else. However, health-related issues can also be a key motivator for participation (as also highlighted in Arkenford 2006). Ill-health prevention, health and mobility maintenance, health problems and scares, doctor referrals and influence were all cited as factors motivating participation. Individual interviewees also said that they wished to maintain their health in order to remain independent. Issues around weight were also reasons to engage in activity. Mental health and well-being are additional considerations and the research identified enjoyment and pleasure as important motivators for participation. Such effects may also be linked to evidence that activity can help psychological functioning (Slingerland et al. 2007; Young and Dinan 2005).

The research also highlights the motivational importance of social interaction for older women. This social dimension to participation in recreational PA suggests that incorporating activity with some other social event can encourage participation. As noted in Arkenford (2006), the social aspect is likely to be particularly important for retired people who are not interacting through work. Such motivations could be incorporated into a strategy to counter the barriers to participation faced by older women and men. However, dedicated programmes for older people also need to avoid negative and ageist stereotyping. There is a wider need for promotion of activity in older age. Interestingly, in the aftermath of the London 2012 Olympics, sport has been given a high profile in the UK. Whether this will have any impact on the participation of older women and older people in general remains to be seen.

The findings of this research enhance understanding of the complex relationship between paid work and PA among older women. In so doing, they contribute to wider policy debates concerned with the promotion of active ageing and the extension of working lives. In particular, the time constraints that are imposed by employment have implications for policy and practice. Since these will extend further into older age as the SPA is increased, the role of workplace interventions will become increasingly important. For interventions directed to older, retired women, demand for social interaction and wider, access issues around transport and pricing need to be factored in. The two-way relationship between health and PA also needs consideration. These recommendations

should be considered alongside the limitations of the research, which include the broad definition of participation in leisure-time PA and the omission of potential confounders in the quantitative component. More detailed data on PA participation are required to develop this analysis. The qualitative component is limited by the small-scale nature of the study and although the quantitative analysis provides national level context, we cannot make generalizations on the basis of the qualitative findings. While some general patterns have emerged, the diversity of the qualitative findings also indicates individualization of experience. Future research would benefit from a larger sample incorporating stronger representation of different socio-economic and ethnic groups and development of an embedded life-course perspective.

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