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RESEARCH PAPER

Factors impacting the household and recreation participation of older adults living in the community

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Abstract

Purpose: To identify demographic, physical and psychosocial determinants associated with participation in daily activities of community-dwelling older adults. **Methods:** A cross-sectional design of older adults (≥ 70 years) from Victoria, Australia, residing in their homes was drawn from a convenience sample. The outcomes were recent participation in household and recreational activities as measured by the Phone-FITT. Explanatory variables included demographics, physical and mental health functioning (*Short Form-12 version 2, Geriatric Depression Scale 15*). Associations were analyzed through linear regression. **Results:** There were 244 participants (60% female), with a mean age of 77.5 years (SD 5.7). Higher levels of depression and fewer falls (during the previous year) were independently associated with restrictions in household participation ($p < 0.001$, $p < 0.001$). For recreational participation, higher levels of depression were associated with restricted participation ($p < 0.001$). **Conclusion:** Screening for depression should be a key component of health assessments with older adults. Untreated depression may lead to lower participation rates in daily activities potentially resulting in social isolation. Fewer falls and restricted household participation were associated, but no association was observed between falls and recreational participation. Further studies are required to explore this association in more detail.

Keywords

Activities of daily living, depression, older adults, social participation

History

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► Implications for Rehabilitation

- Depression is significantly correlated with the level of participation in daily activities for older adults.
- Health professionals need to screen for depression when working with older adults.

Introduction

Participation in daily activities and social roles has become an important aspect to consider in health settings [1–3]. Participation is defined as “engagement in a life situation” [4] and has been linked to higher levels of life satisfaction [5], and improved health and wellbeing [1,6,7]. Sub-optimal levels of participation in daily activities can lead to long-term negative health sequelae [5] including social isolation [3], depression or anxiety [8], physical or cognitive decline [1], and may ultimately lead to an increased health service burden [1].

The determinants of participation are not yet fully understood. There is evidence indicating that participation in physical activities is linked to the physical and cognitive capacity to perform those activities. One longitudinal study [9] identified that

ageing was associated with a decline in functional and cognitive abilities which in turn negatively impacted on participation [9]. Additionally, emotional problems have been suggested as limiting one’s participation in daily activities [8]. However, a descriptive cross-sectional investigation of 200 older adults living in the community was able to identify determinants of physical capacity (e.g. leg strength, timed walking test, balance) and noted that it was difficult to predict physical activity participation due to the complexity of participation [10].

A factor complicating this picture is that participation has previously been explored as separate components (e.g. social, physical, mental participation) in different studies. For example, studies have examined social participation [11], participation in activities of daily living (bathing, dressing, walking and transferring) [1], physical activity/exercise [12] and leisure [13]. It is possible that factors associated with some forms of participation (e.g. leisure) will not be consistent with factors associated with other forms of participation (e.g. self-care). Further research is required to determine if this is the case.

To address these deficiencies in the evidence base, this study aims to investigate potential factors that impact the participation

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of older adults living in the community with specific consideration of demographic, physical health and mental health variables. The study applies the broadest definition of participation which includes engagement in life situations identified through the duration and frequency in performance of daily activities. With an increased understanding of the factors that can impact participation, health professionals may be able to target these areas with interventions to improve health outcomes.

Methods

Design

A cross-sectional design was used to investigate the demographic, physical and psychological determinants of participation in activities, in a typical sample of older adults, residing in Victoria, Australia ($n=244$). The study was the second phase of a cohort study which had recruited a random selection 12 months earlier ($n=394$) of community dwelling older adults who consented to be re-contacted the following year for further research ($n=368$) [14]. Details of this study have been previously reported [14].

Participants

The original sample of households (parent cohort study) was randomly selected from the Victorian 2006 electronic residential telephone listings following 13 614 contacts of which 554 people agreed to be contacted by researchers. The parent cohort study investigated attitudes of people towards participation in falls prevention strategies [14]. Consenting participants from this original database ($n=368$) were accessed as a convenience sample for recruitment to the current cross-sectional study for telephone interview. People were aged 70 years or older and were living in their own homes. Inclusion criteria required that participants had (1) sufficient English language skills to participate in an oral interview over the phone, (2) no significant cognitive impairment and (3) consented to take part in the study. Cognitive ability was ascertained on the “6 Item Cognitive Impairment Test” where a score of 13 or more (range of 0–28) indicated significant cognitive impairment [15]. The study was approved by the Monash University Human Research Ethics Committee.

Data collection

The data collections were completed via telephone interviews. Following initial phone contact to gain consent for involvement, an interview time was booked for a researcher to call. An information package was sent to the individuals containing a

selection of answering codes and photos/diagrams pertaining to specific interview sections. Each individual was called at the agreed appointment time (usually within 1 week of initial contact) and the interview took place. Providing the participant met the minimum study inclusion requirements for cognition, the participant was formally recruited to the study and the interview was then completed. The option of completing the interview over two time periods was given to the participant, due to possible participant fatigue.

Seven investigators carried out the interviews over a 6-week period, following an individual training session from the project manager. Six of the interviewers were health professionals, with one person from the hospitality service industry. The interviews took between 40 and 70 min to complete, depending on the length of responses provided by the participants. Data were entered directly into Survey Monkey® at the time of the interview by the investigator.

Measurement tools

The interview consisted of a number of questions and instruments including demographics, health status indicators and current level of participation within specified activities. Demographic data encompassed age, gender, living situation, any hospital admissions over the past 12 months (nights in hospital recorded), any falls experienced over the past 12 months (number recorded), as well as other health factors further elucidated in Table 1. Health status indicators gathered current health diagnoses and self-perceived physical as well as mental health functioning.

Data on the level of participation (the outcome variable) in Household and Recreation subscales were obtained from the Phone-FITT interview [16]. The Phone-FITT is a telephone interview tool which measures “physical activity” and used in this study to describe levels of participation with a temporal component. It has been demonstrated to have high levels of test-retest reliability for the Household subscale (intra-class correlation, ICC: 0.84 (95% CI: 0.73, 0.91)) and Recreation subscale (ICC: 0.88 (95% CI: 0.80, 0.94)) [16]. Evidence of validity was reported for use with older adults and was consistent with other measures of “physical activity” [16].

There are six items in the Household subscale and 11 in the Recreation subscale. Household included light housework, making meals, shopping, heavy housework, home maintenance and caring for others. Recreation included lifting heavy weights to strengthen legs, exercises to strengthen legs, lifting weights to strengthen arms, home exercises, walking, dancing, swimming, bicycling, golf, gardening and “other physical activities”. Items such as leg and arm strengthening exercises are included in the Phone-FITT interview. However, as these are specific components

Table 1. Description of explanatory (independent) variables used for analysis.

Demographic variables	Physical health variables	Mental health variables
Age	Presence of a diagnosed health condition ^a	Self-perceived presence of depression (yes or no)
Gender	Meal preparation (level of independence 1–3, can do – cannot do)	MCS measured on the Short Form-12 v2
Living situation (alone or with others and who)	Shopping (level of independence 1–3, can do – cannot do)	Depression screen, measured on the Geriatric Depression Scale
Falls in past 12 months identified ^b	PCS measured on the Short Form-12 v2	
Nights in hospital due to fall past 12 months		
Nights in hospital past 12 month other reasons		
Emergency department visit last 12 months		
Ambulance called last 12 months		
General practitioner visit due to falls last 12 months		

^aHealth conditions detailed in Table 3 results.

^bFalls defined as “an event resulting in a person coming to rest inadvertently on the ground, floor or other lower level” [36].

of an overall activity (that is strengthening exercises are to assist with being strong enough to carry out an activity, but do not refer to a specific activity, e.g. shopping) they were not individually presented in this article.

To gain an overall participation score, the participant reports the *frequency* (number of times per week the activity is performed) and *duration* (response of one to four time categories: 1 = 1–15 min, 2 = 16–30 min, 3 = 31–60 min and 4 = 1 h or more) for each of the items as performed in a typical week last month. Frequency and duration scores for each item are then summed to generate an individual participation score for each of the Phone-FITT Household and Recreation subscales. The overall score has no absolute value, but can be used over time to indicate a change in participation levels. A zero score indicates a sedentary response or no participation [16].

Two instruments were selected to measure physical and psychosocial determinants in this study: the *Short Form-12 version 2* (SF-12 v2) [17] and the *Short Geriatric Depression Scale* (GDS15) [18]. The SF-12 v2 investigates 12 domains of physical/mental function and health in a self-rating tool captured on a fixed scale of one to three or one to five. This includes questions around physical function and limitations, pain, emotional health, mood, vitality, mental health and socialisation. The 12 domains are then collated into two subscales known as “component summary scores” and are ordered under the headings of physical health component score (PCS) and mental health component score (MCS). The SF-12 v2 provides an indication of functioning against normative data, but is not a diagnostic tool. Reliability and validity evidence of the SF-12v2 is reported for use with people over 65 years and has been documented in a number of studies involving physical and mental functioning [17,19].

The GDS15 consists of 15 questions that require a “yes or no” answer to screen for depressive symptoms. An example of the questions is: are you basically satisfied with your life? When one of the prescribed bolded answers is recorded, a point is scored and then summed with a total score of 0–4 indicating no depression, 5–10 suggesting mild depression and ≥ 11 suggesting severe depression. Reliability and validity evidence of the GDS15 measuring the possible existence of depression, with older adults was reported in a recent meta-analysis [20].

Statistical analysis

Statistical analysis was completed using STATA version 11.2 [21]. Descriptive statistics were used to profile participation levels of

the sample (Table 2). Univariate linear regression models were first calculated to determine associations between participation (outcome variable) and each explanatory variable as listed in Table 1. Individual variables that reached statistical significance ($p \leq 0.05$) were entered into a multiple regression model to identify independent determinants of participation, e.g. those that remained statistically significant after adjustment of other important determinants (p value of ≤ 0.05).

The individual influence of each determinant was ascertained through a backward stepwise regression to confirm a parsimonious model. This was done through removing the variable with the highest p value from the model, which was repeated until all remaining variables were ≤ 0.05 . Two models were calculated separately; one model for identifying the determinants of household participation and the second for recreation participation. The total scores of the respective subscales were the outcome variable in each model. A p value of 0.05 was used for variable entry or removal into the multiple regression models.

To examine model fit for observed data, the explained variance (R^2) was calculated, where the higher the percentage indicated better fit of the model to the observed data relating to participation [22]. The assumptions for the analyses followed the principles of linear regression, where associations are approximately linear, the prediction error is unrelated to prediction value, there is normal distribution of the residuals above the fitted line, and that the residuals are independent of each other. Assumptions were assessed by plotting normal probability and standardised residuals versus predicted values.

Diagnostics for collinearity among explanatory variables was completed using pair-wise correlations and variance inflationary factors [23]. Normal distribution of data was tested using the Shapiro–Wilk test [24]. If data did not reach normality, the “ladder of powers” (STATA) was applied to determine and complete the appropriate transformation of the variables to achieve distribution normality for analysis [25].

Results

Participants

From the potential 368 participants, 105 declined to participate, 18 people were excluded based on the cognitive screen, one withdrew partway through the study and 244 completed the interview (66%). The age of participants ranged from 70 to 91 years (mean 77.5, SD 5.7) with gender distribution of female 60%. Living situation was described as 49% lived alone, 43% with

Table 2. Duration of participation in specified activities.

Activity ^a (Phone-FITT)	Duration (% of $n = 244$)					Mean (SD)
	Not performed	1 = 1–15 min	2 = 16–30 min	3 = 31–60 min	4 > 1 h	
Light housework ^b	7.38	7.37	27.46	27.05	30.74	2.66 (1.20)
Meals preparation ^b	1.64	11.89	25.00	40.57	20.90	2.67 (0.99)
Shopping ^b	2.05	2.46	8.61	13.52	73.36	3.54 (0.90)
Heavy housework ^b	33.20	16.39	18.85	11.89	19.67	1.68 (1.52)
Home maintenance ^b	59.84	2.86	6.15	8.61	22.54	1.31 (1.72)
Caring for others ^b	90.57	4.92	0.41	0.82	3.28	0.21 (0.79)
Walking ^c	33.20	5.32	29.10	21.72	10.66	1.71 (1.40)
Dancing ^c	96.31	0.41	1.23	0	2.05	0.11 (0.61)
Swimming ^c	92.21	0.82	0.82	2.46	3.69	0.25 (0.89)
Biking ^c	90.57	2.87	3.69	2.46	0.41	0.19 (0.65)
Golf ^c	94.26	0	0	0	5.74	0.23 (0.93)
Gardening ^c	25.41	4.92	22.54	20.49	26.64	2.18 (1.52)

^aActivity is defined as all activities performed in a day including activities of daily living, work (paid, voluntary, education), active and passive leisure including social participation [37].

^bHousehold subscale.

^cRecreation subscale.

a partner or spouse, and the remainder with another family member. Thirty-eight percent of participants reported having between 1 and 12 falls in the previous 12-month period, with eight participants reporting a hospitalisation for a fall in the previous year (between 1 and 14 nights hospital stay duration) and 24% were admitted for other reasons (details not obtained).

Participation

The most frequently performed household activities over a typical week were light housework (93%), meal preparation (98%) and shopping (98%), with 33% of respondents not engaging in heavy household tasks. The most frequent recreation activities were gardening (75%) and walking (67%). The frequency of activities performed varied greatly depending on what the activity was with the most common ones displayed in Figure 1. All people participated in some form of household activities, whereas approximately 13% of people did not participate in any recreational activities. Participation levels reported in household (mean (SD)): female: 36.50 (12.7), male: 35.63 (15.8), and recreation: female: 16.03 (10.7), male: 17.6 (12.4) (0 indicates no participation). Eight percent of the total sample ($n=18$) exhibited a degree of depression scoring five or more on the GDS15.

Residual testing for normality, homogeneity, linearity and influence found that the variables fitted within the 95% y -line ($-2, 2$) and had normal distribution for household participation but not for recreation. A square-root transformation was performed to create normality of the recreation participation data for analysis. The test for homogeneity (both subscales) showed reasonable distribution on the scatter plot and the testing for linearity revealed no outliers confirming the use of these models and the assumptions to be true.

Univariate regression analysis identified five variables that were significantly associated with household participation. A higher level of participation was associated with a lower age ($p=0.024$), and a higher number of falls experienced in the last 12 months ($p<0.001$). Restricted participation was associated with more assistance required with meal preparation ($p=0.012$), more assistance required with shopping ($p=0.043$) and a higher level of depression ($p=0.003$). Analysis of the Recreation subscale data identified three variables that were associated. A higher level of participation was associated with those living with others ($p=0.012$), a higher PCS ($p=0.003$) and restricted participation with a higher level of depression score ($p<0.001$) (Table 3). No significant multi-collinearity between the explanatory variables was identified.

Multiple regressions using a backward stepwise selection of the significant determinants revealed two factors that were significantly associated with household participation and one with recreation. For household, restricted participation was associated with a higher level of depression (regression coefficient (95% CI), p value: -1.57 ($-2.42, -0.72$) $p<0.001$) and a higher participation level with a higher number of falls over the previous 12 months (3.43 ($2.06, 4.80$) $p<0.001$). For recreation, restricted participation was associated with higher depressive symptoms as measured on the GDS15 [-0.27 ($-0.37, -0.18$) $p<0.001$]. These results accounted for 13% of the variance (R^2) for the household participation variable and 12% (R^2) of the variance for the recreation participation variable.

Discussion

This study identified that older adults with higher levels of depression had lower levels of participation in household and recreation activities while older adults who had fallen over during the past 12 months reported higher levels of participation in household activities. The depression finding may be consistent

with results from a population-based prospective cohort study of older adults ($n=2578$) in America, where an increase in depression was found to be related to functional decline [26]. A 12-year longitudinal study ($n=710$) of depression and functional capacity in community dwelling older adults in Japan also suggested that depression was a reliable predictor of functional decline [27]; however, the outcomes used in these studies reflected physical capacity rather than overall participation. If one assumes that there is a causal link between physical capacity and participation, then the results are consistent with these studies. Similarly, a link between depression and level of activity is often seen in clinical settings [8,28], although there is not sufficient empirical evidence to identify the order of causality (e.g. if higher levels of depression cause lower levels of participation or vice versa).

The direction of the association between recent falls and participation in household activities was counter-intuitive. Previous research has demonstrated that falling can precipitate the development of a fear of falling which can lead to avoidance of participation in activities [29,30]. However, the finding of this study would indicate that the opposite may be true. Fear of falling was not measured, so only speculation can be made, on the role that this potential mediating factor may have played. It is also possible that if older adults are more active within their day, then they have a greater opportunity to fall [31]. The increased risk of falling is likely to reflect the additional exposure to environmental risk factors [31]; however, that study was based on the residential care setting and, therefore, may not be applicable to community settings. The reason why this determinant was associated with household activities and not recreation activities was not clear and requires further investigation.

Another possible explanation for the reported positive correlation of falls and the participation level in household activities is that participants exhibited “vigorous activity” and, therefore, had an increased risk of falling [32]. The recent cross-sectional study on physical activity and falls in community-dwelling older adults ($n=506$) in Portugal identified that being *sufficiently active* reduces both falls and related injuries [32]. These authors defined being sufficiently active as participating in exercise or activities that include a sufficient challenge to balance that enables an effective prevention of falls [33]. Shopping and walking were the most popular activities in this study, but may not stimulate the required challenge to balance in order to prevent falls but this could depend on the environment and performance method (this was not recorded). For example, rocky terrain or Nordic walking would present a challenge to balance as would intense digging and planting. It is important to note that shopping was included in the measure of household participation and may, therefore, influence the study results as people access the community to shop with the concurrent potential to fall in the different environment. Another factor may be the “person-environment fit” of the person to hazards and barriers in the community, rather than solely the environmental barriers in their home (e.g. narrow aisles in a shop when using a walking frame) [15].

Six of the 12 questions in the SF-12 v2 explored the impact of emotional and mental health on participation both inside and outside the home, incorporating involvement in socialisation activities. It was surprising that the additional psychosocial determinants as measured by the MCS of this scale were not significantly associated with participation as research indicates that emotional status can restrict involvement in life situations [34]. This may be a reflection on the items identified in the SF-12v2 that measured emotional status but may not have been specific enough when looking at participation. Another potential reason for this finding is that the GDS15 consists of 15 items that

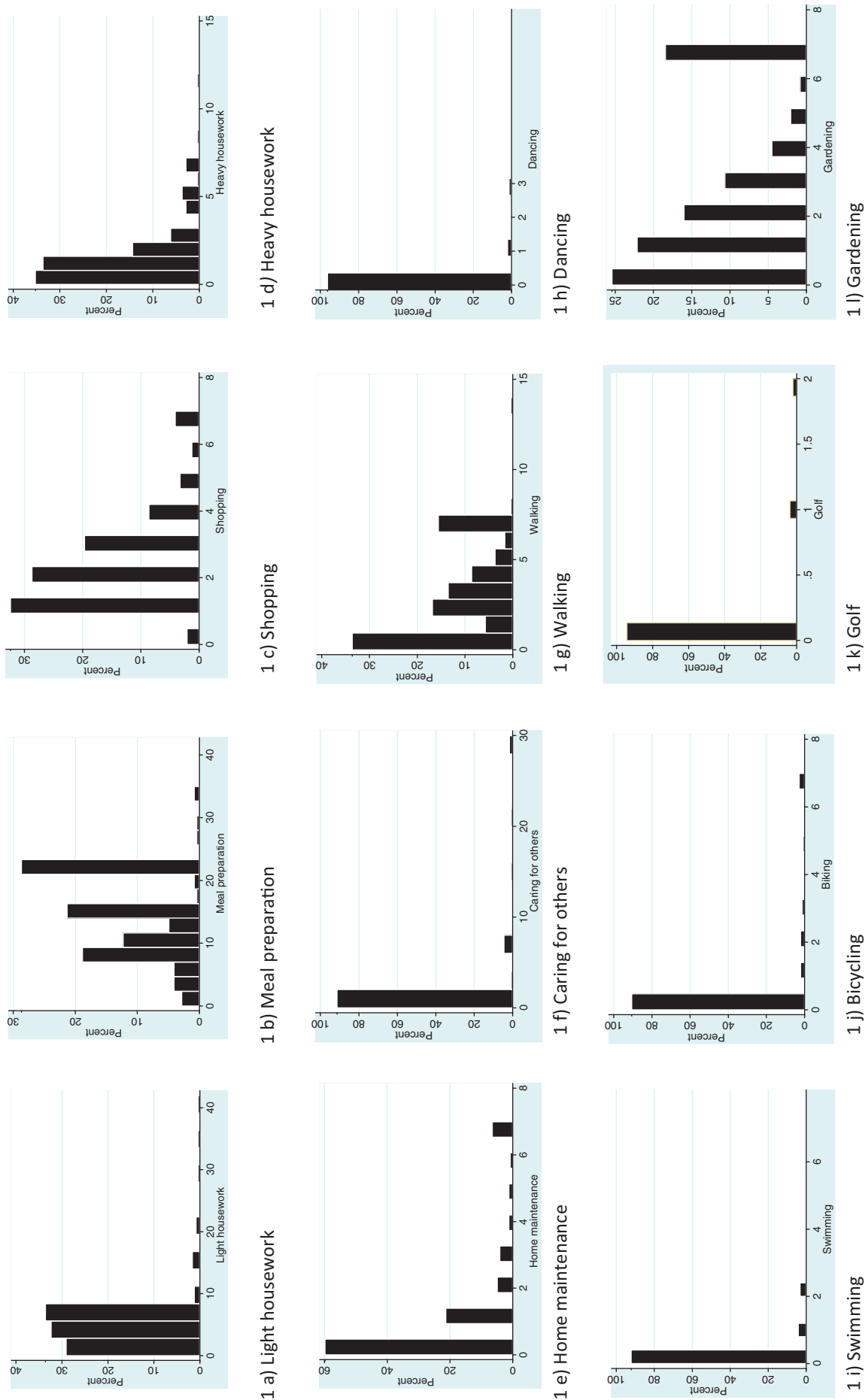


Figure 1. Frequency of participation in each activity (times in a typical week).

Table 3. Results for regression of participation (household/recreation with explanatory variables).

Explanatory variables	Household <i>Phone-FITT</i>			Recreation <i>Phone-FITT</i> (sqrt)		
	Coefficient	95% CI	p Value	Coefficient	95% CI	p Value
Age	-0.35	-0.66, -0.05	0.024 ^a	-0.03	-0.07, 0.00	0.070
Gender	-0.87	-4.47, 2.74	0.636	0.19	-0.21, 0.60	0.350
Congestive heart failure	-5.73	-15.09, 3.59	0.227	-1.02	-2.07, 0.03	0.056
Heart disease – other	0.88	-3.01, 4.77	0.657	0.19	-0.24, 0.63	0.379
Stroke	-1.82	-8.41, 4.76	0.586	-0.28	-1.02, 0.46	0.453
Cancer	-0.36	-4.54, 3.82	0.864	-0.25	-0.72, 0.22	0.300
Osteoporosis	2.56	-1.66, 6.77	0.233	-0.04	-0.52, 0.43	0.863
Depression	1.95	-2.97, 6.87	0.436	-0.45	-1.10, 0.10	0.110
Arthritis	0.69	-2.90, 4.28	0.705	0.22	-0.19, 0.62	0.290
Diabetes	1.38	-3.35, 6.12	0.565	-0.12	-0.65, 0.41	0.652
Lung disease	-2.07	-6.93, 2.79	0.403	-0.26	-0.81, 0.28	0.345
Parkinson's disease	-0.02	-0.31, 0.27	0.889	0.02	-0.02, 0.05	0.314
Inner ear issues	-0.11	-5.49, 5.27	0.969	-0.23	-0.83, 0.37	0.452
Cataracts	-1.07	-5.32, 3.18	0.620	-0.26	-0.74, 0.22	0.282
Visual impairment	0.65	-3.36, 4.66	0.750	-0.25	-0.70, 0.20	0.283
Joint replacement	-0.65	-5.20, 3.90	0.779	0.18	-0.33, 0.69	0.494
Broken bone (<12 months)	1.20	-3.24, 5.64	0.594	-0.13	-0.63, 0.37	0.600
New health condition in last 12 months	-1.64	-5.78, 2.50	0.437	-0.35	-0.81, 0.12	0.143
Living situation	1.96	-0.77, 4.70	0.159	0.39	0.09, 0.70	0.012 ^a
Meal preparation without assistance	-5.86	-10.39, -1.32	0.012 ^a	0.04	-0.48, 0.55	0.893
Shopping without assistance	-4.00	-7.89, -0.12	0.043 ^a	-0.05	-0.49, 0.39	0.814
Falls past 12 months	3.12	1.84, 4.59	<0.001 ^a	0.04	-0.12, 0.20	0.626
Nights in hospital due to fall – past 12 months	0.18	-1.03, 1.38	0.772	0.06	-0.08, 0.20	0.408
Admitted for other reasons – past 12 months	-1.10	-5.20, 3.00	0.598	-0.44	-0.90, 0.02	0.059
Emergency department visit – past 12 months	-5.05	-11.23, 1.12	0.108	0.12	-0.58, 0.82	0.736
Ambulance called – past 12 months	0.34	-27.30, 27.99	0.980	1.14	-1.97, 4.24	0.472
GP visit due to fall – past 12 months	1.64	-2.16, 5.43	0.396	0.04	-0.39, 0.46	0.867
PCS: SF-12 v2 ^b	0.08	-0.13, 0.30	0.448	0.04	0.01, 0.06	0.003 ^a
MCS: SF-12 v2 ^b	0.18	-0.07, 0.42	0.157	0.02	0.00, 0.05	0.078
Depression: GDS15 ^c	-1.37	-2.26, -0.48	0.003 ^a	-0.27	-0.37, -0.18	<0.001 ^a

^aStatistically significant result (<0.05).^bShort Form-12 version 2®.^cShort Geriatric Depression Scale.

screen for depression, whereas the MCS mainly addressed emotional impact and socialisation issues with only one question on depression. This may suggest that a scale with increased sensitivity is required for screening of depressive symptoms, rather than using general quality of life measures that are measuring mental health more broadly.

The explained variation for the models of household and recreation participation obtained in this study suggests a moderate fit. While depression explains a degree of the variance in both participation subscales, other determinants not measured in this study may account for the remaining unexplained variation. It is possible that the degree to which people want to perform the household and recreation activities measured may be directly related to levels of participation in these activities. This should be the focus of future research.

No demographic factors were identified as being statistically significant determinants of participation; however, in the univariate regression models, living status was identified to have a significant association with participation for recreation activities. This suggests that living situation may be confounded by one of the other variables. Almost half of the participants lived alone with participation scores (mean (SD)) for household: 33.7 (10.7) and recreation: 3.9 (1.6) compared with those living with others, household: 38.5 (16.3) and recreation: 4.1 (1.5). Documentation of any services received was not recorded, which may have impacted on participation levels by supporting the person to participate or through taking over the activity negating the need to perform it.

The results from this study highlight the need to consider screening for depression when working with older people to

identify and address potential depressive symptoms that may hinder participation in life activities. However, it is unknown if depression causes decreased participation or the lack of participation in activities causes depression. Furthermore, it could also be noted that a circular relationship exists between the two variables, where they both contribute to each other. However, studies have identified that participating in activities that are valued by the participant is a protective factor for mental health [8] and are, therefore, important to consider within intervention programmes [35].

Limitations and future research

There were a number of limitations identified within this study. Recruitment was a convenience sample from a previously random selection for a cohort study with participants who agreed to take part in research regarding falls. This may have biased the sample to those who had an interest or motivation to be involved in the project. The numbers of participants reduced from study one to this cross-sectional study with no specific reasons collected as to why.

The criterion for speaking English over the phone may have contributed to bias as it was not possible to include people with English as a second language, the very deaf, or those unable to endure conversing on the telephone for up to an hour due to resource limitations.

Another potential limitation with the falls result relates to the question for recording falls over the past 12 months. This required a retrospective self-report from each participant and may have been impeded by recall bias requiring accurate memory of all incidences of falls over the previous 12 months.

Participation in activities that hold a degree of meaning to the individual is an additional area that has been attributed to health and well-being in older adults [2,3]. However, the topic of meaningful activities was not explicitly addressed within this study as the information gathered regarding activities was determined by the tool used. The pre-selected activities chosen for inclusion in the Phone-FITT tool [16] were chiefly derived from previous research relating to the intensity of physical involvement required. This may have limited the data gathered regarding the extent of participation in meaningful activities that people did perform and needs to be further investigated.

Future research is required to examine the barriers and enablers for returning to or improving participation and investigating the impact of volition with the aim of improving overall health and wellbeing in this population. Research is also required to ascertain if participation in activities with other populations (e.g. post-discharge) varies from this community-dwelling sample of people in order to discover what effective strategies increase participation in other vulnerable populations.

Conclusion

This cross-sectional study with older adults demonstrated that an association exists between depression and the level of participation in daily activities. The types of activities in which people participate vary and must be taken into consideration when providing health-care interventions aimed at increasing participation. The findings indicate that health professionals need to screen for depression when addressing levels of participation with this population.

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Declaration of interest

Terry Haines is the director of Hospital Falls Prevention Solutions Pty Ltd, a company that trains hospital staff in methods to prevent in-hospital falls. He has provided expert witness testimony on this subject to Minter Ellison Law Firm, and has received payment for speaking on this subject at conferences. The other authors report no declarations of interest.

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