The Contributions of Perceived Competence, Enjoyment, and Fear of Harm to Movement Confidence in Older Adults

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ABSTRACT

*The Movement Confidence Model proposes that perceptions of competence, enjoyment and fear of harm contribute to movement confidence. Participants (*N *= 54), male (*n *= 26) and female (*n *= 27), (aged from 50 to 65 years) completed a Movement Confidence Scale. Hierarchical regression revealed that perceived competence contributed to movement confidence. The contributions of enjoyment and fear of harm were marginal. In women perceived competence only contributed to movement confidence. Fear of harm and enjoyment did not contribute. For men all factors perceived competence, fear of harm and, enjoyment were important. Particular physical activities were linked to these gender differences. Future validation of the model to account for gender differences in perceived competence, enjoyment, fear of harm, and movement confidence, will assist its applicability in developing exercise programmes for older adults.*

Introduction

Movement confidence is a concept derived from mainstream psychology applied specifically by researchers interested in movement experiences in the physical domain. It is defined as the interaction between a person's perceptions of confidence in relation to task demands and expected sensory experiences (Weiss & Raedeke, 2004, p. 10). Griffin and Keogh

(1982) argued that movement confidence (MC) extends beyond competence to include perceived competence (PC) and the evaluation an individual makes of sensory experiences directly related to movement. It is the interaction between (PC), perceptions of enjoyment (ENJ), and fear of harm (FH) associated with the task that contributes to MC. In turn MC influences participation choice, performance, and persistence in specific motor tasks. Thus MC is measured via the model MC = PC + (ENJ – FH).

Griffin and Keogh, view their model as unique in relation to other motivational theories (Bandura, 1977; Harter, 1981). First, it addresses the individual's confidence in performing tasks (MC) *combined* with expected sensations (ENJ and FH). Second, all three components, MC, PC, ENJ and FH relate *specifically to engagement in physical activity.* Weiss & Raedeke (2004) therefore view this theory as sound with a strong potential for practical application to exercise across the lifespan.

The model has received partial support with North American children (Crawford & Griffin, 1986; Griffin & Crawford, 1989), college students (Griffin, Keogh, & Maybee, 1984), novice divers (Crocker & Leclerc, 1992) and with Australian children (Rose, Larkin, Cantell, & Martin, 2000). Griffin and Crawford (1989) argue separate cognitive evaluations of MC are performed for each task "but in varying degrees according to task and context" (p. 28). Feltz & Chase (1998, p. 75) however suggest there is little evidence supporting that ENJ and FH make up unique components not accounted for in other models of self-confidence pointing to lack of research using the original inventory.

Validation of the model across different populations, to date, is made difficult by researchers using varying approaches and adapting the model to suit their aims. Griffin, Keogh, & Maybee (1984) found that across tasks PC was the dominant influence with ENJ and FH accounting only for 10% of the variance in explaining MC, however they used a formula combining ENJ and FH to measure the contribution of sensations in movement. O'Brien Cousins (1997) studied older women's recollections of physical activity but employed only the questions relating to their MC. Others such as Crawford and Griffin (1986) have provided evidence of the stability of 3 factors (PC, ENJ, & FH) as influencing MC. However, they found that PC, ENJ, and FH combined in different weightings to

MC suggesting that all 3 factors were important and that these differed according to the type of physical activity. Crocker and Leclerc (1992) tested the original model with novice divers, examining the relative contributions of PC, ENJ, and FH separately, to find that only FH significantly predicted MC. Therefore in the interests of applying the model to encouraging engagement in physical activity there is need to examine the contributions of ENJ, and FH, as well as PC separately, in their relative contributions to MC. We argue an important extension of the model can be made in the context of older adults.

Although researchers are now focusing on cognitions of older adults' motivation and adherence to exercise (see Standage & Duda, 2004), the role of MC and, particularly the contribution of sensory components (FH) and (ENJ) largely have been ignored. In aging declining fitness, flexibility, and increased health problems, may mean that enjoyment and fear contribute more significantly to confidence to engage in exercise (Weise-Bjornstal, 2004). Further, gender socialization across the lifespan affects perceptions of enjoyment (Gill, 2004) and anxiety (Whaley & Ebbeck, 1997) towards physical activity and this is likely to result in PC, ENJ, and FH being perceived differently by older males and females. In reference to late adulthood Gill (2004) states "Males and females develop confidence through radically different experiences and opportunities" (p. 266). Coakley (2003) also emphasises that experiences in exercise contexts create different meanings for different people; power and performance being associated with masculinity, pleasure and participation with femininity.

In applying the original movement confidence model in late adulthood we examined the relative contributions of each of the original inventory components PC, ENJ, and FH to MC across a set of physical activities. Our subsequent aim was to examine these relative contributions in the context of older men and women.

Method

Participants

Volunteers (*N* = 54) from a population of academic and support staff within a large state university, male (*n* = 26) and female (*n* = 28), aged between 50 and 65 years (*m* = 57.9), participated in the study after responding to a circulated flier.

Measures

Movement Confidence Scale (MCS). Griffin and Crawford (1989) report intraclass alpha coefficients across a range of tasks are 0.90 (PC), 0.93 (ENJ), and 0.91 (FH) and test-retest correlations of 0.88, 0.79, and 0.85 respectively for their MC scale. O'Brien Cousins (1997) provides evidence of validity and reliability of the scale when employing a series of challenging tasks with older adults. These are (a) 20 curl-ups (CU), (b) 10 modified push-ups (PU), (c) 50 minute aqua-fit exercises (AF), (d) power walking for 30 minutes (PW), (e) slow sitting stretch to touch the toes (SS), (f) ride a bicycle for 30 minutes on a level surface (BR). They represent a wide range of physical abilities: land and aquatic ability, aerobic fitness, (hip) flexibility, endurance, balance, and arm, trunk, and leg strength (O'Brien Cousins, 1997). We added to these (g) 30 minutes moderate paced swimming in a swimming pool (MPS), and (h) jogging for 30 minutes on a level surface (JG). For each of these activities MC, PC, ENJ, and FH were scored on a 1 (low) to 4 (high) Likert scale, (with FH reversed scored) (see Appendix 1).

Procedure

The primary researcher administered the questionnaires on an individual basis, emphasising that the procedure was not a test, that all responses were anonymous, and that they were free to withdraw at any time (average completion time, 21 minutes). All procedures were approved by the University Ethics Committee.

Results

Reliability Estimates

In support of other researchers, our MCS had good overall reliability (Cronbach's *alpha* = 0.916) and had high internal consistency for each sub component; For MC, *alpha* = 0.782; PC, *alpha* = 0.843; FH, *alpha*

= 0.845 and ENJ was the least reliable, *alpha* = 0.628. We also calculated the averaged intraclass correlations for the model components for each activity. These ranged from 0.80 – 0.85 except for AF (*alpha* = 0.69) and PW (*alpha* = 0.59) The low intraclass correlation might be accounted for by high MC scores for PW and low PC in AF which would weaken inter item correlations in these two tasks.

Mean Scores for MCS Scale

Overall the sample demonstrated a high level of confidence in the MCS activities scoring well above the scale midpoint (*mean item score* 2.92). Repeated measures ANOVA with post-hoc analysis based on Bonferroni adjustment (0.05/8 = $p < 0.006$) to compare activities for each sub-component and Univariate F tests for gender comparisons ($p < 0.05$), showed the sample was most confident in PW ($M = 3.74$) and, least confident in jogging ($M = 2.17$). Women were less confident in BR and PU than men ($p < 0.05$). The sample showed moderate PC ($M = 2.61$); and PC was highest for PW ($M = 3.49$) and low for AF and JG ($M = 2.09$ and $M = 2.30$). Women perceived less PC for PU than men ($p < 0.05$). This older adult sample perceived little FH ($M = 3.19$); and this was lowest for AF and PW ($M = 1.34$ and $M = 1.36$) and highest for JG ($M = 2.62$) with no gender differences in FH. There were moderate levels of ENJ ($M = 2.50$); highest for PW ($M = 3.51$) and lowest for CU and JG ($M = 1.96$ and $M = 1.98$) and no gender differences in ENJ across activities. In summary PW stood out as an 'ideal' activity in which MC, PC, and ENJ were high, while FH was low for both genders.

Regression Analyses

In support of previous researchers, hierarchical regression analysis showed the model was a good fit, accounting for 65.7% of the total variance in MC [$R = 0.82$; *Adjusted Rsq* = 0.66; F (1, 49) = 34.13, $p < 0.05$] (see Table 1 for results of all regression analyses). PC was the salient predictor accounting for 61.1% (*Beta* = 0.53, $p < 0.001$). ENJ accounted for a small percentage of the total variance (4.7%, *Beta* = 0.29, $p < 0.01$). FH was not a significant contributor (2.8%; *Beta* = 0.12, $p > 0.05$).

Table 1: Regression Analysis Showing Contribution of Each MCS Component to Women's and Men's Movement Confidence in Each Activity

Activity	Gender	PC Beta	ENJ Beta	FH Beta	F(3,23)	Adj R2
Curl ups	Female	.87***	0.04	-0.11	15.45***	0.63
	Male	.51*	0.17	0.06	5.43**	0.35
Push ups	Female	.55*	0.01	0.29	9.30***	0.49
	Male	.48**	0.08	.38*	8.92***	0.49
Aqua fit	Female	.60**	0.23	0.02	8.20**	0.45
	Male	0.22	0.34	0.22	4.09*	0.27
Power walk	Female	0.28	0.34	.46*	5.94**	0.36
	Male	0.26	0.31	-0.09	2.49	0.15
Stretch	Female	.94***	-0.07	-0.07	20.08***	0.69
	Male	0.34	0.35	0.12	5.35**	0.34
Bike ride	Female	0.19	0.43	0.04	4.27*	0.27
	Male	0.16	.60**	0.17	14.89***	0.63
Swimming	Female	.63**	0.19	0.04	13.17***	0.58
	Male	0.14	.71**	-0.01	13.58**	0.60
Jogging	Female	-0.13	.89**	0.07	14.06***	0.60
	Male	-0.01	.53*	0.25	5.51**	0.35

Note: * denotes p < .05; ** denotes p. < .01; *** denotes p. < .001

However, separate analyses across all activities for women [R = 0.89; *Adjusted Rsq* = 0.77; F (3, 23) = 30.31, $p < 0.001$] showed that PC was the only significant predictor of MC (77.2%, 0.710, $p < 0.001$) and ENJ and FH were not significant contributors. For men [R = 0.771; *Adjusted Rsq* = 0.54; F (3, 22) =10.75, $p < 0.001$] all components PC (41.4%; *Beta* = 0.37, $p < 0.001$), FH (9.7%; *Beta* = 0.31, $p < 0.05$), and ENJ (8.4%; *Beta* = 0.34, $p < 0.05$) were important.

It was interesting therefore to examine each activity for men and women. Table 1 shows the regression analyses for each activity across gender. For women PC predicted their MC in all activities (average *Beta* = 0.57, $p < 0.05$) except JG, PW and BR. ENJ was the predictor of women's confidence in JG (*Beta* = 0.89, $p < 0.01$), and FH predicted women's MC for PW (*Beta* = 0.46, $p < 0.05$). For BR the model was weak [*Adjusted Rsq* = 0.27; F (3, 23) = 4.27, $p > 0.05$]; none of the components explained women's MC.

For men, PC was a salient predictor in two equations only; PU (*Beta* = 0.48, $p < 0.01$) and CU (*Beta* = 0.51, $p < 0.05$). ENJ was the salient predictor in three of the activities, MPS (*Beta* = 0.71, $p < 0.01$), BR (*Beta* = 0.60, $p < 0.01$) and JG (*Beta* = 0.53, $p < 0.05$). Otherwise, for SS [*Adjusted Rsq* = 0.34; F (3, 22) = 2.49, $p > 0.05$], AF [*Adjusted Rsq* = 0.27; F (3, 22) = 4.09, $p > 0.05$] and particularly PW, [*Adjusted Rsq* = 0.15; F (3, 22) = 2.49, $p > 0.05$], none of the components predicted MC.

Discussion

Our analyses highlighted the importance of examining gender and task specificity in older adults' movement confidence. For the women the findings were consistent with those of Griffin and Keogh (1982). That is, PC was the most important contributor to confidence across most tasks. However for men ENJ also was a salient contributor for some tasks and the Griffin and Keogh's model that included PC was generally weaker for men. The findings suggest gender differences in cognitions underlying affective experiences in physical activities for older adults.

Lack of enjoyment is a key determinant in confidence to engage in jogging for women. However FH predicted MC in power walking for women. This is curious and might suggest the need to include both physical and social definitions of harm. For example the environmental risk of walking by oneself might qualify the traditional definition of FH related to unpleasant movement sensations per se (Crawford & Griffin, 1986; Pollock et al., 1991). In the design of questionnaires researchers need to be more specific in order to tap the multiplicity of contexts in which the activity takes place. For men, PC did not emerge as a major predictor of MC. Rather, PC, FH and ENJ all contributed in varying ways. Specifically in our findings ENJ predicted men's confidence in three outdoor activities. For men where factors such as ENJ and FH are not present (e.g., AF, PW, and SS) the model did not account for men's MC suggesting that an interaction of the components or other variables might be at play.

Considering previous research (Harter, 1999; Marsh & Jackson, 1986) indicating gender differences in physical self-perceptions, we argue for development of a more subtle lens (Griffin & Crawford, 1990) to assess the effects of such differences in predicting movement confidence in specific tasks. This would help in the careful design, promotion, and implementation of meaningful activity programs for older men and women that aim at increasing competence, enhancing enjoyment, and minimizing fear of harm. Griffin and Crawford (1989) also acknowledge that in addition to PC, ENJ, and FH, there are social, environmental and task related factors (e.g., leadership style, social support, physical environment, and task difficulty) that also influence MC. Gill (2004) calls for "multiple methods and consideration of gender and cultural relations in physical activity researched interventions for older adults to apply to all our sport and exercise psychology research" (p. 497). Integrated methodology that includes qualitative and quantitative analysis (with larger samples) that explores more intricately men's and women's perceptions of confidence and identifying the key determinants would support this quest.

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Appendix 1: *Sample items from the Movement Confidence Scale (MCS) including respective items for MC, PC, ENJ and, FH.*

POWER WALKING FOR 30 MINUTES ON A LEVEL SURFACE

How sure are you that you could power walk for 30 minutes?

(4)	(3)	(2)	(1)
very sure	pretty sure	not very sure	I know that I couldn't

How skilled are you in this activity?

(1)	(2)	(3)	(4)
Not skilled at all	Not very skilled	Pretty skilled	Very skilled

Is this activity enjoyable for you?

(1)	(2)	(3)	(4)
Not at all enjoyable	Not very enjoyable	Somewhat enjoyable	Very enjoyable

Is this activity risky or potentially harmful for you?

(4)	(3)	(2)	(1)
Not at all	Not very	somewhat	Very