MOTIVATION AND PHYSICAL ACTIVITY BEHAVIORS AMONG OLDER WOMEN: A SELF-DETERMINATION PERSPECTIVE

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Drawing upon Self-Determination Theory, the purpose of our study was to examine the motivational determinants of older women’s dropout and participation in physical activity (PA). Older women who dropped out (n = 242) or remained (n = 332) in an organized PA program completed the Sport Motivation Scale as well as health and PA measures. We found that women who dropped out presented lower levels of self-determined motivations and higher levels of amotivation than persistent women. Cluster analyses revealed three motivational profiles among persistent participants: “High Combined” (high levels of self-determined motivation and introjected regulation as well as moderate levels of external regulation), “High Introjected” (moderate scores of self-determined motivation and high introjected regulation as well as low scores of external regulation), and “Moderate Introjected” (low levels of self-determined motivation, moderate levels of introjected regulation, and low levels of external regulation). Our study adds to our understanding of motivational processes and of older women’s participation in and withdrawal from PA. It revealed that different motivations could drive active older women’s engagement in PA, and it provided support for a person-centered approach in which distinctive combinations of motivations emerged among different groups of active older women. The messages delivered in order to promote PA may account for the multidimensionality of motivation and may be oriented toward different purposes, tapping into different forms of motivation and informing the design of interventions aimed at promoting women’s health.

Physical inactivity is one of the most important risk factors for developing cardiovascular diseases, diabetes, or obesity (World Health Organization, 2003). Moreover, the prevalence of such diseases increases with age, which renders physical activity (PA) necessary among older adults. There is strong evidence that PA can act as a health protective factor among older individuals and that regular participation can decrease the occurrence of diseases, falls, and disability as well as improve independence (Haight, Tager, Sternfeld, Satariano, & Van der Laan, 2005; Mensink, Ziese, & Kok, 1999; Young & Dinan, 2005). In addition, a recent meta-analysis supports the positive contribution of regular PA participation on psychological well-being among older adults (Netz, Wu, Becker, & Tenenbaum, 2005). However, despite these recognized benefits, adults’ activity levels steadily decline with age (Hughes, McDowell, & Brody, 2008). Moreover, fewer older women achieve the recommended levels of PA, compared to men of similar age groups (Berger, Der, Mutrie, & Hannah, 2005; French Minister of Health, Youth Affairs and Sports, 2001; Hughes et al., 2008). Given these gender differences and the fact that the number of people aged 60 years or more will grow worldwide during the next few decades (World Health Organization, 2006), older women represent an important target group for PA promotion. Identifying the factors that influence older women’s engagement in PA is thus essential for tailoring promotion interventions and for designing programs likely to enhance regular participation.

An in-depth understanding of the determinants of older women’s PA involvement requires a focus on their motivations for PA (Deci & Ryan, 1991). According to existing research, older adults are strongly driven by health preventive goals aimed at maintaining health and decreasing health risks (Kolt, Driver, & Giles, 2004; Renner, Spivak, Kwon, & Schwartz, 2007; Wilcox, Tudor-Locke, & Ainsworth, 2002). Other authors have emphasized that higher enjoyment of PA is associated with increased levels of activity...
among this age group (Dacey, Baltzell, & Zaichkowsky, 2008; Kolt et al., 2004; Stiggelbout, Hopman-Rock, & Van Mechelen, 2008). Kolt et al. (2004) also provided evidence of fitness as an important reason for participating in exercise and sport among older adults. In addition, these authors found that women rated medical and social reasons as significantly more important than did their male counterparts (Kolt et al., 2004).

Although existing research has identified older individuals' main reasons for engaging in PA, some questions remain to be answered. Little is known about the reasons associated with dropping out of PA participation among older individuals, and in particular among older women. Research drawing upon Self Determination Theory (SDT; Deci & Ryan, 1985) has found that dropout from an achievement domain can be conceived as a motivational phenomenon (Sarrazin, Vallerand, Guiliet, Pelletier, & Cury, 2002; Vallerand, Fortier, & Guay, 1997). Comparing the motivations of those who drop out to those who persist in PA is necessary to better understand and inform adequate interventions. Furthermore, past studies neglected the multidimensional nature of motivation. For example, older individuals may participate in PA in order to gain social recognition or because they feel pressured to do so by significant others. With introjected regulation, the individual has internalized the external source of pressure—but not completely so that the behavior is not performed by choice, and thus it is not fully accepted. For example, an older individual with an introjected regulation feels that he/she ought to participate in PA, otherwise he/she would feel guilty and anxious. Both external and introjected regulations are considered to be non-self-determined forms of motivations.

A third type of extrinsic motivation, labeled identified regulation, is considered to be self-determined. Indeed, even if the behavior may still not be considered as motivating in itself (i.e., intrinsic motivation), such regulation is accompanied by a sense of willingness. Individuals perform the activity by choice because it has personal importance for them. For example, older individuals may engage in PA because they consider that it is a good way to maintain their health or to meet people, which represent valuable outcomes for them.

Finally, the lowest level of self-determination proposed by SDT is amotivation, which reflects a lack of intrinsic or extrinsic motivation. Amotivated people do not feel able to perform a behavior or lack perceived control because they think their actions will not be sufficient to achieve a desired outcome. Amotivation refers to the perception of an absence of contingency between one's actions and subsequent outcomes in the environment.

According to Deci and Ryan (1985, 1991), intrinsic motivation constitutes the most self-determined form of motivation, and it reflects situations in which individuals perform activities emanating from a sense of self in order to experience pleasant sensations or emotions, to learn new things, or to develop a sense of accomplishment. In contrast, extrinsic motivation reflects the performance of behaviors for instrumental reasons, that is, the behavior is considered a means for achieving certain desirable outcomes or for avoiding negative ones.

SDT posits theoretical distinctions among three types of extrinsic motivation. External regulation refers to situations in which individuals perform behaviors for rewards, or because they feel constrained or pressured to do so. In other words, the behavior is controlled by external sources. For example, older individuals may participate in PA in order to gain social recognition or because they feel pressured to do so by significant others. With introjected regulation, the individual has internalized the external source of pressure—but not completely so that the behavior is not performed by choice, and thus it is not fully accepted. For example, an older individual with an introjected regulation feels that he/she ought to participate in PA, otherwise he/she would feel guilty and anxious. Both external and introjected regulations are considered to be non-self-determined forms of motivations.

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According to Deci and Ryan (1985, 1991), identified regulation and intrinsic motivation represent increasingly autonomous, self-determined forms of motivation because they refer to behaviors performed by choice. Conversely, introjected regulation, external regulation and amotivation are viewed as increasingly controlling, non-self-determined motivational states because they refer to situations where the individual lacks a sense of autonomy and choice.

SDT and Engagement in Sport and Exercise

SDT has received increasing attention in sport and exercise settings during the last 20 years (Biddle & Mutrie, 2001). A postulate of SDT is that the more self-determined a person,
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the more likely he/she is to experience positive affective, cognitive, and behavioral consequences (Vallerand, 1997). Consequently, self-determined motivation—intrinsic motivation and identified regulation—is expected to be associated with higher levels of participation and persistence, whereas non-self-determined motivation—introjected and external regulations, amotivation—is expected to be associated with lower levels of participation and lead to dropout.

As a whole, existing research has verified the postulates of SDT. Ryan, Frederick, Lepes, Rubio, and Sheldon (1997) indicated that, among adults, motives linked to enjoyment, competence, and social relationships (i.e., self-determined motivation) positively predicted the frequency of PA participation but they were negatively related to dropout. Similarly, other researchers observed that self-determination towards exercise significantly predicted the amount of PA reported (Boiché & Sarrazin, 2007; Dacey et al., 2008; Fortier & Grenier, 1999). In addition, Edmunds et al. (2006) reported that both identified and introjected regulation significantly predicted the amount of PA, above and beyond demographic variables. In the sport context, Sarrazin et al. (2002) found that self-determined motivation was inversely related to dropping out from handball among French adolescents. Pelletier, Fortier, Vallerand, and Brière (2001) further revealed that intrinsic motives and identified regulation predicted persistence in swimming, whereas amotivation and external regulation predicted withdrawal. Unexpectedly, introjected regulation seemed to exert a short-term positive effect on persistence.

As illustrated by the abovementioned studies, SDT has been considered a valuable framework to identify the motivational determinants of dropout versus persistence in sport and exercise settings. However, no known research has yet tested for motivational differences between dropping out and persistence among older women. In line with existing studies, we hypothesized that self-determined motivation would predict persistent participation whereas high levels of external regulation and amotivation would predict withdrawal from PA.

Motivational Profiles

A second purpose of the present study was to characterize persistent older women with regard to their motivational profiles. All types of motivation are considered to be present within an individual to different degrees (Deci & Ryan, 1991; Vallerand, 1997). Certain authors even advance that individuals can report both self-determined and non-self-determined forms of motivation for a given domain (Fairchild, Horst, Finney, & Barron, 2005; Ryan, Plant, & O’Malley, 1995). Hence, Vallerand (1997) has called for an investigation of how they could combine to form distinct motivational profiles. This person-centered approach (Ratelle et al., 2007) allows for the identification of homogeneous groups of individuals who share similar motivational characteristics, providing insights into the complexity of motivation (Pelletier & Sarrazin, 2007). Examining which motivational profiles emerge represents a research avenue in itself for SDT.

Such an approach has already been carried out in academic and sport settings, and it has confirmed the existence of different motivational profiles in students (Boiché et al., 2008; Ntoumanis, 2002; Ratelle et al., 2007) and in athletes (Vlachopoulos, Karageorghis, & Terry, 2000). However, to date, no known research has identified the motivational profiles of older individuals involved in PA. The tenets of SDT lead the authors initially to expect two patterns, depending on whether the individuals were primarily self-determined or controlled toward the given context. In this vein, the above-mentioned series of studies revealed: (a) a self-determined profile, characterized by high levels of intrinsic motivation and identified regulation, moderate levels of introjected regulation, and low levels of both external regulation and amotivation and (b) a non-self-determined profile, showing low levels of intrinsic motivation, identified regulation, and introjected regulation as well as relatively high levels of external regulation and amotivation.

Those studies also indicated two less expected motivational profiles: (c) a moderate profile with average scores for each motivational construct and (d) a combined profile, with relatively high levels of both self-determined and non-self-determined forms of motivations but low levels of amotivation. These studies also emphasized a significant link between the observed motivational profiles and a variety of outcomes. For example, a self-determined profile was found to be related to higher motor task persistence and better physical education performance compared to a moderate or non-self-determined profile (Boiché et al., 2008). Furthermore, Ratelle et al. (2007) found that a combined profile was related to positive educational persistence and achievement.

The Present Study

Drawing upon SDT, we focused on the motivational characteristics of older women who drop out and those who persist in PA. Our first goal was to identify the motivational differences between dropout and persistent older women. In line with existing studies (Boiché & Sarrazin, 2007; Pelletier et al., 2001; Sarrazin et al., 2002), we hypothesized that women who have ceased their participation in PA would present lower levels of self-determined motivation (i.e., intrinsic motivation and identified regulation as well as introjected regulation) and higher levels of non-self-determined motivation (i.e., external regulation and amotivation) than persistent older women.

Our second aim was to further explore the motivational profiles that are naturally emerging among physically active older women (i.e., those profiles that maintained their PA participation). Given the differences in terms of populations and activities between previous studies and the current study, it seems difficult to formulate a priori hypotheses.
on the number and nature of the motivational profiles that would emerge. In addition, the present study controlled for age and health status, which could potentially confound the different profiles. Indeed, Renner et al. (2007) emphasized age-related differences in the reasons for engaging in PA. Moreover, perceiving oneself as being healthy or unhealthy could result in particular reasons for being persistent, such as engaging because of medical advice or because one feels that he/she has to do so to prevent continued medical complications. Finally, consistent with existing research having shown that outcomes differ as a function of profiles, we explored whether different motivational profiles would be associated with different levels of PA participation.

METHOD

Participants and Procedure

A random sample of older women enrolled in a PA organized program run by the French Federation of Physical Education and Voluntary Gymnastics (FFPEVG) was recruited for the purpose of the study. This program, which is conducted throughout France, offers different activities such as gymnastics, team sports, dance, stretching, and fitness. The FFPEVG randomly selected 1,000 female participants 55 years of age or older from their database, and at the beginning of the regular season, a questionnaire was mailed to them. This questionnaire asked about their motivations for PA, their level of participation, their health, and if they were still engaged in the PA program and in the activities proposed. The total response rate was 58%. The final sample included 332 persistent older women (mean age = 70.88, SD = 6.43, range = 60–88 years) and 242 women who had ceased their participation (mean age = 71.65, SD = 6.13, range = 58–87 years). Overall, the participants were fully retired for an average period of 11 years (SD = 6.31, range = 2 months–32 years). Prior to retirement, 4% were farmers, 9% were merchants, 10% were employees, 13% were senior managerial staff, 30% were middle managers, and 34% were not employed. The majority (52%) had a partner (i.e., were married, lived as wife, or were in a long-term relationship with a partner), and 56% were living in an urban area. No statistically significant differences between dropout and persistent women were found in terms of marital status, zone of residence, age, and prior occupational status.

Measures

Motivation for PA. The French version of the Sport Motivation Scale (SMS; Brière, Vallerand, Blais, & Pelletier, 1995) was used to assess older women’s reasons for participating in the PA program, adapted to specifically address motivation for this program. This scale measures seven types of motivation (four items each). Three subscales assessed intrinsic motivation to experience stimulation (e.g., “For the excitement I feel when I am really involved in the activity”), to learn (e.g., “For the pleasure that I feel while learning training techniques that I have never tried before”), and to accomplish things (e.g., “For the pleasure that I feel while executing certain difficult movements”). Scores for each subscale were combined to form a single intrinsic motivation score (Vallerand & Ratelle, 2002). Three subscales assessed extrinsic motivation: identified regulation (e.g., “Because, in my opinion, it is one of the best ways to meet people”), introjected regulation (e.g., “Because it is absolutely necessary to do physical activity if one wants to be in shape”), external regulation (e.g., “Because it allows me to be well regarded by people that I know”), and amotivation (e.g., “It is not clear to me anymore”). Participants indicated, on a 7-point scale ranging from 1 (not at all) to 7 (exactly), the extent to which each of the items corresponded to their own reasons for engaging in this PA program. Cronbach’s alphas were .92, .71, .78, .80, and .68 for intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation, respectively. Past research has confirmed the validity and reliability of the SMS (e.g., Pelletier et al., 1995; Pelletier & Sarrazin, 2007; Pelletier, Vallerand, & Sarrazin, 2007). In particular, support was provided for the self-determination continuum with stronger positive correlations between adjacent factors (e.g., between intrinsic motivation and identified regulation). Similarly, weaker correlations were found between more distal factors (e.g., between intrinsic motivation and amotivation) (Brière et al., 1995; Gillet, Vallerand, & Rosnet, 2009; Pelletier et al., 1995).

Health. A substantial body of research considers that the subjective evaluation of health is a legitimate and useful indicator of overall health status and provides a valid and reliable health assessment (for a review, see Jylha, 2009; Kaplan & Baron-Epel, 2003). Subjective health serves as a summary of various objective aspects of health including biomedical, disease-oriented, and functional-related factors (Kaplan & Baron-Epel, 2003). A single-item measure of subjective health has proven to be a powerful and consistent predictor of mortality and morbidity (Benyamini, Leventhal, & Leventhal, 1999; DeSalvo, Bloser, Reynolds, He, & Muntner, 2006; McFadden et al., 2009) because it may act as a proxy for other covariates that are known to predict health and may show sensitivity to preclinical disease not captured by disease or risk factor measures (DeSalvo et al., 2006; Idler & Benyamini, 1997). Thus, congruent with existing research (Benyamini et al., 1999; DeSalvo et al. 2006; McFadden et al., 2009), subjective health was assessed by a single item: “As a whole, how do you rate your current health?” with a Likert-type response scale ranging from 1 (poor) to 6 (excellent). Higher scores indicate better perceived health.

PA. In line with existing scales (Renner et al., 2007), participants were asked to report their frequency of participation in FFPEVG’s PA programs on average during a
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week as well as the duration for each session. The product of frequency and duration was computed, and then the results of these products were added to give an indicator of total PA participation per week in minutes. This average PA participation indicator was considered independently from the respective type of activity practiced.

RESULTS

Motivational Differences

Means and standard deviations for dropout and persistent women as well as statistical tests examining mean differences are presented in Table 1. The first hypothesis was tested using a discriminant function analysis (DFA). Thus, the five motivational variables were included as predictors of group membership (dropout vs. persistence). Globally, DFA showed that the two groups were distinguished significantly, Wilk’s Lambda = .89, χ²(5, N = 574) = 64.65, p < .001, with a canonical correlation of .32. Overall, 65% of the sample was correctly classified. Results revealed that intrinsic motivation, identified regulation, introjected regulation, and amotivation substantially contributed to differentiating the two groups. In addition, the differences across dropout and persistent women were tested using a multivariate analysis of covariance (MANCOVA) with the five motivational constructs as dependent variables and with age and health as covariates. The main group effect was significant, Wilk’s Lambda = .90, F(5, 566) = 11.41, p < .001. Univariate analyses of covariance (ANCOVA), with age and health included as covariates, revealed that persistent women presented higher levels of intrinsic motivation, identified regulation, and introjected regulation as well as lower level of amotivation than dropout women (see Table 1). No significant differences were found between the two groups for external regulation.

Cluster Analysis

A cluster analysis was conducted in order to explore the motivational profiles emerging in the persistent sample. Consistent with Edmunds et al. (2006), given that participants in the persistent group were still engaged in at least some form of PA, amotivation was not considered in the analysis. The purpose of this kind of analysis is to derive a classification scheme for grouping individuals into clusters so that individuals within clusters are similar in some respects and unlike those from other clusters (Aldenderfer & Blashfield, 1994). This analysis was conducted using the procedure recommended by Hair, Anderson, Tatham, and Black (1998). All the prerequisites to cluster analysis underlined by Hair et al. (1998) were respected within our sample. First, all the variables included in the analysis shared the same metrics. Second, given that no case with a distance from the mean greater than three times the value of the standard deviation was found, no outliers had to be excluded. Finally, given that no Pearson correlation coefficient was higher than .90, there was no problem of multicollinearity (see Table 2). This claim was confirmed by additional analyses showing that all variance inflation factors were inferior to 3 and thus to the cutoff value of 5.

After these criteria were met, a hierarchical cluster analysis was performed, using Ward’s method with squared Euclidean distance as similarity measure. The agglomeration schedule coefficient and the dendogram were used to determine the number of clusters. A fairly large increase in the coefficient between two adjacent sets indicates that clusters with quite dissimilar members are being combined, whereas a small increase of the coefficient indicates that homogeneous clusters are being merged.

The agglomeration schedule showed that there was a very large increase in the coefficient when moving from a three-cluster to a two-cluster solution (118%), suggesting a three-cluster solution to be suitable among this group. Descriptive statistics for the three groups are presented in Table 3. The first cluster was labeled “High

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Table 1

Means and Standard Deviations for the Dropout and the Persistent Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dropout</th>
<th>Persistent</th>
<th>F</th>
<th>n²</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n = 242</td>
<td>n = 332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>3.66</td>
<td>4.08</td>
<td>9.22*</td>
<td>.01</td>
</tr>
<tr>
<td>Identified regulation</td>
<td>3.62</td>
<td>4.15</td>
<td>17.74**</td>
<td>.03</td>
</tr>
<tr>
<td>Clojured action</td>
<td>4.08</td>
<td>4.77</td>
<td>29.53**</td>
<td>.05</td>
</tr>
<tr>
<td>External regulation</td>
<td>1.65</td>
<td>1.82</td>
<td>3.27</td>
<td>–</td>
</tr>
<tr>
<td>Amotivation</td>
<td>2.28</td>
<td>1.86</td>
<td>11.61**</td>
<td>.02</td>
</tr>
<tr>
<td>Age</td>
<td>71.65</td>
<td>6.13</td>
<td>2.05</td>
<td>–</td>
</tr>
<tr>
<td>Subjective health</td>
<td>4.03</td>
<td>4.33</td>
<td>19.23**</td>
<td>.03</td>
</tr>
</tbody>
</table>

* p < .01. ** p < .001.

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Table 2

Correlation Matrix (I = 332)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic motivation</td>
<td>–</td>
<td>.71**</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2. Identified regulation</td>
<td>.61**</td>
<td>.45**</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>3. Introjected regulation</td>
<td>.43**</td>
<td>.23**</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>4. External regulation</td>
<td>.17**</td>
<td>.15**</td>
<td>.22**</td>
<td>.10</td>
</tr>
<tr>
<td>5. Physical activity</td>
<td>.10</td>
<td>.15</td>
<td>.22</td>
<td>.10</td>
</tr>
</tbody>
</table>

**p < .01.
Table 3
Descriptive Statistics for the Three Clusters

<table>
<thead>
<tr>
<th></th>
<th>High Combined</th>
<th></th>
<th>High Introjected</th>
<th></th>
<th>Moderate Introjected</th>
<th></th>
<th>F</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 45 (13%)</td>
<td></td>
<td>n = 158 (48%)</td>
<td></td>
<td>n = 129 (39%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>5.41a</td>
<td>.78</td>
<td>4.60b</td>
<td>.74</td>
<td>2.97c</td>
<td>.90</td>
<td>215.35***</td>
<td>.55</td>
</tr>
<tr>
<td>Identified regulation</td>
<td>5.60a</td>
<td>.80</td>
<td>4.71b</td>
<td>.93</td>
<td>2.97c</td>
<td>.90</td>
<td>194.93***</td>
<td>.54</td>
</tr>
<tr>
<td>Introjected regulation</td>
<td>5.65a</td>
<td>.82</td>
<td>5.32a</td>
<td>.89</td>
<td>3.78b</td>
<td>1.15</td>
<td>103.72***</td>
<td>.38</td>
</tr>
<tr>
<td>External regulation</td>
<td>4.29a</td>
<td>1.00</td>
<td>1.51b</td>
<td>.62</td>
<td>1.33b</td>
<td>.64</td>
<td>325.65***</td>
<td>.66</td>
</tr>
<tr>
<td>Physical activity</td>
<td>221.6a</td>
<td>146.2</td>
<td>190.7a,b</td>
<td>107.4</td>
<td>166.2a</td>
<td>.81</td>
<td>5.10**</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. Means with different subscripts across rows were significantly different in Scheffé post hoc tests.

* p < .05, ** p < .01, *** p < .001.

Fig. 1. Older women motivational profiles.

Combined motivation” (HC) and represented 13% of the sample (n = 45). Women in this cluster showed high levels of self-determined forms of motivation—intrinsic motivation and identified regulation—and introjected regulation as well as moderate levels of external regulation. The second cluster was labeled “High Introjected motivation” (HI) and represented 48% of the sample (n = 158). Women in this cluster had moderate levels of intrinsic motivation and identified regulation, high levels of introjected regulation, and a low level of external regulation. The third cluster was labeled “Moderate Introjected motivation” (MI) and represented 39% of the sample (n = 129). Women in this cluster had low levels of intrinsic motivation and identified regulation, average levels of introjected regulation, and low levels of external regulation (see Figure 1).

A MANCOVA including age and health as covariates was conducted on the four motivational constructs as a function of group membership to test whether motivation scores differed across the clusters. Results revealed a significant effect of cluster membership on motivation, Wilk’s Lambda = .13, F(8, 648) = 143.88, p < .001. Follow-up ANCOVAs with age and health included as covariates revealed that each motivational construct differed as a function of profile (see Table 3). Scheffé post hoc tests further revealed that the profiles differed significantly from one another on nearly all motivational subscales, except for introjected regulation between HC and HI and for external regulation between HI and MI (see Table 3). As a whole, these results provided support for the distinctiveness of the three motivational profiles.

Motivational Profiles and Confounded Variables

A multivariate analysis of variance was conducted to determine whether the profiles were confounded by variables such as age and subjective health. There was a significant effect of cluster membership, Wilk’s Lambda = .94, F(6, 654) = 3.11, p < .01. Follow-up analyses of variance revealed a difference among the three profiles only for age (see Table 3). Scheffé post hoc test showed that participants in the HC group were older than those in the HI group (p < .05). No significant differences were found among the three groups for subjective health (see Table 3).

Motivational Profiles and PA Participation

A one-way ANCOVA controlling for age and health revealed that the level of PA participation in minutes per week differed as a function of motivational profile (see Table 3). Scheffé post hoc tests further revealed that the members of the HC group showed higher levels of participation compared to those from the MI group (p < .01), whereas they were not distinct from those of the HI group. The HI and MI groups did not differ in terms of PA participation (see Table 3).

DISCUSSION

Older women constitute an important target group for PA promotion, given the recognized benefits of regular

Λ and represented 48% of the sample (n = 158). Women in this cluster showed high levels of participation compared to those from the MI group (p < .01), whereas they were not distinct from those of the HI group. The HI and MI groups did not differ in terms of PA participation (see Table 3). A multivariate analysis of variance was conducted to determine whether the profiles were confounded by variables such as age and subjective health. There was a significant effect of cluster membership, Wilk’s Lambda = .94, F(6, 654) = 3.11, p < .01. Follow-up analyses of variance revealed a difference among the three profiles only for age (see Table 3). Scheffé post hoc test showed that participants in the HC group were older than those in the HI group (p < .05). No significant differences were found among the three groups for subjective health (see Table 3). As a whole, these results provided support for the distinctiveness of the three motivational profiles.

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A multivariate analysis of variance was conducted to determine whether the profiles were confounded by variables such as age and subjective health. There was a significant effect of cluster membership, Wilk’s Lambda = .94, F(6, 654) = 3.11, p < .01. Follow-up analyses of variance revealed a difference among the three profiles only for age (see Table 3). Scheffé post hoc test showed that participants in the HC group were older than those in the HI group (p < .05). No significant differences were found among the three groups for subjective health (see Table 3). As a whole, these results provided support for the distinctiveness of the three motivational profiles.

Motivational Profiles and PA Participation

A one-way ANCOVA controlling for age and health revealed that the level of PA participation in minutes per week differed as a function of motivational profile (see Table 3). Scheffé post hoc tests further revealed that the members of the HC group showed higher levels of participation compared to those from the MI group (p < .01), whereas they were not distinct from those of the HI group. The HI and MI groups did not differ in terms of PA participation (see Table 3).
Motivation and Physical Activity

Motivational Differences

A first purpose of the present study was to identify the motivational differences between older women who drop out from a PA program and those who remain involved. In line with existing research (Boiché & Sarrazin, 2007; Pelletier et al., 2001; Ryan et al., 1997; Sarrazin et al., 2002), it was hypothesized that dropouts would present lower levels of self-determined motivations—that is, intrinsic motivation and identified regulation—and introjected regulation but higher levels of external regulation and amotivation than persistent older women. With the exception of external motivation, the results confirmed this hypothesis, and they are consistent with existing research on sport and exercise (Edmunds et al., 2006; Pelletier et al., 2001; Sarrazin et al., 2002). Our research represents the first known study to identify motivational differences among dropout and persistent older women, and it extends previous research by providing greater precision in delineating those differences. Those who dropped out, compared to those who persisted, attributed lower personal importance to the activity, felt less personally pressured to do the activity, and could not express their reasons for participation. Our study emphasizes the need for a multidimensional approach to motivation. The results revealed that although significant differences emerged between the two groups on the majority of regulations, individual effect sizes were quite small. This pattern could be interpreted to mean that withdrawal, rather than being related to a large motivational difference on a single dimension, may be associated with small but significant and additive motivational deficits on several types of regulation.

Motivational Profiles

A second purpose of our study was to discover how various motivations as delineated by SDT combined into different, naturally emerging profiles among the physically active women and using a person-centered approach (Vallerand, 1997). Our study contributes to the advancement of the theory by investigating an original population in terms of age and type of activity compared to the handful of studies published on motivational profiles within SDT (Boiché et al., 2008; Ratelle et al., 2007; Vlachopoulos et al., 2000). Three profiles were identified. The first cluster, labeled HC, was composed of women who engaged for a variety of reasons: the pleasure derived from PA; a means to achieve desirable outcomes (such as health or social relationships); a means to relieve guilt if they were not active; and, to a lesser extent, expected rewards or recognition. The second cluster, labeled HI, was composed of women engaging mainly because they felt that they ought to participate, but also at a moderate level, because of the pleasure inherent to the activity and its perceived value. It is worth noting that this second cluster represented the largest group of older women in our sample. Finally, women in the third cluster, labeled MI, engaged mainly because they felt they ought to do so, but with low scores for the motives linked to pleasure, personal value, and the search for rewards. Interestingly, participants in the HC group were older than those in the HI group. Perhaps these older women were involved in structured PA programs for a longer time, and thus they might have observed the benefits of their practice, which may have reinforced their identified regulations. Also, if they are physically accustomed to those activities, they may now experience more pleasure than pain during the activity, which could explain their higher levels of intrinsic motivation than women in the HI group.

Our study is the first known project to identify active older women’s motivational profiles and to emphasize the specificity of such profiles. Indeed, the clusters identified were somewhat different from those recruited in previous studies conducted with sport participants (Vlachopoulos et al., 2000) or physical education students (Boiché et al., 2008). More particularly, no self-determined or non-self-determined profiles emerged.

Our study also tested whether the motivational profiles would be related to different levels of PA participation. Although the effect size was quite small, the members of the HC group reported higher levels of PA compared to women in the MI group. This means that a motivational profile characterized by high levels of satisfaction experienced with regard to the activity, the anticipation that it would help to reach important goals, and feelings of guilt as well as moderate levels of external pressure was associated with higher levels of PA participation than a profile with moderate feelings of guilt and low motives linked to pleasure, personal value, and the search for rewards. However, the mean values observed for PA suggest that, even if they were less involved than members of the HC group, members of the MI group seem to report an adequate amount of PA participation.

Practical Implications

A better understanding of the factors that influence PA participation among older women is critical for developing adapted interventions aimed at promoting PA involvement among this population. One important step is to identify the reasons associated with dropout from PA or that...
characterize older women’s participation in PA. One of the main implications of our study is that interventions must account for the complexity and multidimensionality of motivation. Some studies have emphasized that certain messages on risk perceptions and health-related outcomes expectancies might effectively promote PA behaviour among older adults (Renner et al., 2007). According to our study, communication focusing only on health-related risks could be effective in promoting one type of motivation, presumably identified regulation, but it is likely to be ineffective for developing other kinds of motivation. Thus, it seems that the messages delivered in order to promote PA should account for the multidimensionality of motivation. They may be oriented toward different purposes, in addition to health-related concerns, such as the opportunity to experience pleasure and satisfaction or the advantages of PA programs to meet people—tapping into different forms of motivation. Indeed, because health benefits of PA participation may not be observable on short delays, the positive experience associated with intrinsic motivation as well as the internal pressure of introjected regulation appear to be important ingredients to keep on track and should be valued in promoting PA for the long run.

Limitations and Perspectives

Certain limitations of the present study must be acknowledged. First, the characteristics of our sample must be underlined, and they raise doubt about the possibility of generalization of certain results. The study was limited to women so that our results may not generalize to men. Investigations conducted on motivational profiles present among both men and women may shed light on the reasons for the differences of PA involvement observed. Moreover, we focused on older women engaged in an organized PA program. The motivations could be different for older individuals involved in unstructured PA. Our results should be replicated among samples of older individuals engaged in various forms and styles of PA. Because SDT was used in numerous studies among North American, European, and Asian samples and yielded convergent results in terms of motivation outcomes, we are confident that the links between motivation and behaviors are likely to be similar in samples from other cultures.

The second aspect that limits our study is related to its quasi-experimental design, which prevents us from making any causal inference about the relationships between motivational profiles and PA participation. Although there were significant differences in PA between the HC and MI groups, there is no indication as to which of the motivations (or their combinations) comprising the clusters contributed to the relationship with PA. Although women may have a variety of reasons for participating in PA, it is possible that not all components contribute to involvement and that only some reasons could be responsible for their participation. Furthermore, it is likely that some reasons may lead to initiation whereas other reasons may play a role in PA persistence. Future research is needed to tease these apart.

The third limitation resides in the assessment of PA participation. Indeed, relying on self-reported measures presents the problems of memory or overestimation bias, even if there is evidence for a rather satisfactory validity of self-reports measures (Miller, Freedson, & Kline, 1994). A possible way to improve PA measures in an organized setting is to rely on the staff report of frequency and time of participation for each participant. Additionally, it could be useful to collect data on the concerned program as well as any other type of PA participation elsewhere, albeit organized or not. Indeed, the ultimate purpose of this line of research is to understand the psychological antecedents of a physically active lifestyle as a whole.

Conclusions

Given the benefits of regular PA for a large range of outcomes among older individuals, understanding the factors that influence the quantity and maintenance of PA participation is critical for developing interventions to promote higher levels of involvement, especially for older women. Using SDT, our study provided an original perspective on older women motivation for PA. First, it highlighted the motivational differences between dropout and persistent older women. Second, it revealed that different motivations could drive active older women’s engagement in PA, and it provided support for a person-centered approach in which distinctive combinations of motivations emerged among different groups of active older women. Thus, as a whole, our study paves the way for future research designed to better understand the why of older women’s PA participation.

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