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Ryan E. Rhodes, Bonnie Fiala, & Gabriella Nasuti

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Ryan E. Rhodes*, Bonnie Fiala, and Gabriella Nasuti

Behavioural Medicine Laboratory, University of Victoria, Victoria, BC Canada

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Abstract

Intention is considered the proximal determinant of behaviour in many popular theories applied to understanding physical activity, yet intention-behaviour discordance is high. Thus, an understanding of constructs that facilitate or inhibit the successful translation of intentions into behaviour is both timely and important. The action control approach of dividing the intention-behaviour relationship into quadrants of successful/unsuccessful intenders has shown utility in the past by demonstrating the magnitude of intention-behaviour discordance and allowing for an outcome variable to test predictors. The purpose of this paper was to evaluate automaticity and cross-behavioural regulation as predictors of exercise action control, in conjunction with other more standard social cognitive predictors of perceived behavioural control and affective and instrumental attitudes. Participants were a random sample of 263 college students who completed predictor measures at time one, followed by exercise behaviour two weeks later. Participants were classified into three intention-behaviour profiles: 1) nonintenders (14.1%; n=31), 2) unsuccessful intenders (35.5%; n=78), and 3) successful intenders (48.6%; n=107). Affective attitude, perceived behavioural control, automaticity, and cross-behavioural regulation were predictors of action control. The results demonstrate that automaticity and cross-behavioural regulation, constructs not typically used in intention-based theories, predict intention-behaviour discordance.

Key Words: Physical Activity, Intention, Theory of Planned Behaviour

The benefits of regular physical activity are difficult to overstate. Achieving at least 150 minutes of moderate to vigorous intensity physical activity per week, preferably in five 30 minute bouts spread across the week, is associated with reduced chances of contracting over 25 chronic conditions (Warburton et al., 2010; Warburton et al., 2007). Indeed, regular physical activity has been considered the single most important prescription that physicians could give to their patients (Blair and Brodney, 1999). Despite this overwhelming evidence and general public knowledge of its benefits, most people do not meet these physical activity guidelines (Colley et al., 2011; Troiano et al., 2008). Clearly, the promotion of physical activity is of paramount importance to improve public health.

As evident from the low prevalence of people engaging in physical activity, motivating individuals to adopt and maintain the behaviour is a major challenge. To guide intervention initiatives and improve their success, it has been suggested that sound behavioural theory is necessary (Rhodes and Nigg, 2011). Almost all theories applied to physical activity include an intention construct in some form (Bandura, 2004; Fishbein et al., 2001; Noar and Zimmerman, 2005). Intention represents the decision to act on a behaviour in its most modest conceptualization (Prochaska and DiClemente, 1982), to the motivation required to act and organizational planning in its most conservative definitions (Bandura, 1998; Rhodes et al., 2006b). Not surprisingly, the intention construct has been placed as the proximal antecedent to behavioural performance in most physical activity theories. Overall, this construct has been validated as the dominant predictor of physical activity in correlational tests of theory of planned behaviour (TPB) (Symons Downs and Hausenblas, 2005b), protection motivation theory (Plotnikoff and Trinh, 2010), and variants of social cognitive theory (Roberts et al., 2010) and self-determination theory (Hagger and Chatzisarantis, 2009). Meta-analyses have placed the

point estimate of the intention-behavior relationship as approximately r = .50 (Armitage and Conner, 2001; Hagger et al., 2002; McEachan et al., 2011; Symons Downs and Hausenblas, 2005b), which situates it within the large effect size range (Cohen, 1992) and larger than any other known correlate of physical activity.

Clearly the intention construct is important, yet the relationship still suggests considerable asymmetry with behaviour. Furthermore, Rhodes and Dickau (in press-a) conducted a meta-analysis of experimental evidence in 11 studies linking physical activity intention and behaviour. The findings demonstrated that a medium change in intention (d = 0.44) subsequently resulted in a trivial change in behaviour (d = 0.17). This change equated to r = .06, which is much lower than passive correlational designs. The results cast considerable doubt that raising intention will result in raises in physical activity behaviour.

Recent research that has separated the intention-behaviour relationship into quadrants provides an explanation for the discordance (Godin et al., 1986b; Sheeran, 2002). Specifically, intention-behaviour relations are asymmetrical. Only three of the four possible quadrants yield ample sample sizes: those who did not intend to be active and subsequently are not active (nonintenders), those who intended to be active yet failed to meet these intentions (unsuccessful intenders) and those who intended to be active and succeeded in following through with their intentions (successful intenders) (Rhodes et al., 2003). The results demonstrate that intention is a pivotal construct but not sufficient to explain behavioural action.

Based on the intention-behaviour discrepancy, the focus on predicting action control, specifically the differences between unsuccessful intenders from successful intenders, has begun to receive attention (de Bruijn, 2011; de Bruijn et al., 2009; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). This moves beyond the basic tenets on intention-based theories by

suggesting that constructs are required to facilitate the translation of intentions into behaviour. Previous research using social cognitive constructs from the TPB has shown that perceived behavioural control is the most reliable predictor of this action control relationship (de Bruijn, 2011; de Bruijn et al., 2009; Rhodes et al., 2003; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). This makes theoretical sense, as perceived behavioural control represents one's assessment of ease/difficulty in performing the behaviour. It stands to reason that those individuals with a higher sense of control would be able to translate their positive intentions into behaviour more than those with a lower sense of control. Other TPB constructs, however, have shown less utility when predicting action control. Subjective norm (e.g., perceived social pressure to perform physical activity) has shown no predictive capability to differentiate successful from unsuccessful intenders and affective (e.g., enjoyment) and instrumental (e.g., utility) attitudes have shown mixed results (de Bruijn, 2011; de Bruijn et al., 2009; Godin et al., 1986b; Rhodes et al., 2003; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). Thus, a call for other predictors, outside of typical social cognitive constructs, has been made to understand action control (Rhodes et al., 2008b; Sheeran, 2002).

Two constructs that might add to understanding physical activity action control that are not measured within the TPB are automaticity and cross behavioural regulation. The automaticity construct, often defined as habit, has been controversial in human behaviour models for almost 40 years (Triandis, 1977), but its utility in predicting exercise has some supportive evidence(Gardner et al., in press). Automaticity, in this context, refers to the performance of behaviour without decision or formal thought (Bargh, 1994). Automaticity is thought to develop from decisional/intended behaviours that were once conscious and motivation-based, but now are partially acted upon through environmental cues (Aarts and Dijksterhuis, 2000; Aarts et al.,

1997; Verplanken, 2006; Verplanken and Aarts, 1999; Verplanken and Melkevik, 2008). Thus, automaticity is not random, thoughtless, actions. Based on prior theorizing and research (de Bruijn, 2011; Rhodes et al., 2010), it has been shown that those who can act without conscious deliberation or rumination increase their chances in action control. For example, it is proposed that someone who can act without deliberation via simple cues has a much better chance of action control than a person who has to engage in self-talk, planning, and decision-making to act each time (Verplanken and Melkevik, 2008).

Action control of physical activity may also be determined, in part, by the amount of motivation and commitment one has placed on other leisure-time pursuits. This cross-behavioural regulation serves to thwart action control of physical activity acting as a negative determinant. The basis for this determinant resides in the concept of time displacement (Rhodes and Blanchard, 2011), whereby motivation and planning for other behaviours compete in the behavioural choices made during free time. Specifically, under the limits of free time, investments of time spent on one behaviour may affect the time that can be spent on another behaviour. In this capacity, one behaviour can impede another. Cross-behavioural regulation has been validated in the physical activity domain previously (Gebhardt and Maes, 1998; Gebhardt et al., 1999; Presseau et al., 2010; Rhodes and Blanchard, 2008, in press; Rhodes et al., 2008a; Riediger and Freund, 2004) and it is a central tenet of behavioural economic theory (Vuchinich and Tucker, 1983), but the construct has not been evaluated as a predictor of action control.

Therefore, the purpose of this paper was to evaluate automaticity and cross-behavioural regulation as predictors of exercise action control, in conjunction with other more standard social cognitive predictors of perceived behavioural control and affective and instrumental attitudes. The action control approach of dividing the intention-behaviour relationship into profiles of

nonintenders, unsuccessful intenders, and successful intenders was deemed more appropriate than standard linear methods of analysis because of the natural asymmetry of the relationship and the modest intention-behaviour correspondence in prior research (Rhodes and Dickau, in press-a, b). Exercise in this context can be considered physical activity where the behavioural act itself is primary (e.g., intended behaviour with a clear purpose for its performance). This contrasts incidental physical activity, where movement is a consequence of some other primary reason (e.g., active living). It was hypothesized that individuals would fall into the three distinct intention-behaviour profiles: nonintenders, unsuccessful intenders and successful intenders. It was further hypothesized that perceived behavioural control, automaticity and cross-behavioural regulation would differentiate action control (unsuccessful intenders/successful intenders). It was hypothesized that the attitude constructs would predict intenders from nonintenders, similar to the tenets of TPB, but their capability to predict action control was considered exploratory.

Method

Participants and Procedure

Two hundred and sixty-three participants were recruited through classes at a university on the west coast of British Columbia, Canada during the 2009 and 2010 semesters. There are approximately 20,000 students at this University in ten different faculties ranging from Fine Arts to Sciences. The study protocol was approved by the institution's Human Research Ethics Review Board, and all participants provided informed consent.

A list of all classes at the university was used to randomly select classes, stratified by faculty and course year (i.e., 1-5), using a random number generator. The instructors of selected classes were contacted and asked if a research assistant could recruit participants from their class. A total of 236 classes were selected. Of these, 107 instructors consented to involvement,

nine declined, and 120 did not respond to the invitation. With instructor approval, recruitment occurred at the start of class. An analysis of the classes where instructors consented to recruitment compared to classes where we did not receive consent showed no differences ($p > .05$) by Faculty (e.g., Science vs. Humanities) or course year (e.g., first year course vs. fourth year course). All students who wished to volunteer for the study were provided with an invitation and a web link to the questionnaire. Participants completed the survey online at their convenience.

Two weeks after the initial questionnaire, the 263 participants were contacted by email or phone (which was provided in the initial questionnaire) and they were asked to complete a one-page follow-up questionnaire (behaviour measure only). Participants completed all items in the online survey. The sample attrition rate was 18% (final $N = 216$) and no significant differences ($p < .05$) were identified between those who responded to the follow-up and those who did not across demographic, ACT, and behaviour variables. A multivariate test of the distribution of missing data was also non-significant (Little, 1988). Thus, these missing data can be considered missing completely at random and were not used in the analyses.

Instruments

For this examination of regular exercise, we used the vigorous intensity recommendations framing it as "at least 20 min per bout, with a minimum of 3 bouts per week over the next two weeks" (Canadian Society for Exercise Physiology, 2011; U.S. Department of Health and Human Services, 2010). Examples of vigorous activities were provided and included: jogging, running, rowing, jumping rope, tennis, fast bicycling, hockey and basketball. Participants were asked to use these parameters when asked about exercise-related questions.

Instrumental attitude was measured using seven-point Likert-type scales ranging from 1 (strongly disagree) to 7 (strongly agree). The item content of this indirect measure of attitude (Ajzen, 2006) was taken from a meta-analysis of behavioural beliefs common to participants (Symons Downs and Hausenblas, 2005a) and specific beliefs that have been previously validated with this population (Scott et al., 2009). These focused on the degree of advocacy that regular exercise can improve appearance, prevent heart disease, reduce chances of getting chronic diseases, improve body image, and improve overall health. Value statements (e.g., in the expectancy value formulation) were not measured because these have not shown utility beyond the predictive capability of expectancy items (Rhodes et al., 2009). The measure displayed adequate reliability ($\alpha = .81$).

Affective attitude was measured in the same response format as instrumental attitude. The item content was created for this study based on a belief elicitation study with this population (Riecken et al., in press) and a previous elicitation study (French et al., 2005). Items instructed the participants to consider the experience of regular exercise and then asked them to answer the degree of advocacy that exercise was boring (reverse scored), enjoyable, pleasant, provided a sense of esteem while doing it, felt awkward while doing it (reverse scored), caused too much physical discomfort (reverse scored), and that it would provide a satisfying experience. The internal consistency was acceptable ($\alpha = .86$).

Perceived Control was measured with three items derived from the controllability construct of the TPB (Ajzen, 2006) and validated in a prior study with this population (Rhodes et al., 2006a). These were scored on the same seven-point response format as the prior items and included “I will have the opportunity to exercise regularly if I wanted to,” “I have control over

exercising regularly if I want to" and "I will have enough breaks of free time to exercise regularly." Internal consistency was α = .87.

Automaticity was measured using the four items targeting this construct in the self-reported habit index (Gardner and Abraham, 2009a; Gardner and Abraham, 2009b; Verplanken and Orbell, 2003) and applied to the exercise domain (Rhodes et al., 2010). These were scored on five-point response scales from 1 (strongly disagree) to 5 (strongly agree) and included regular exercise is something "I do automatically," "I do without having to consciously remember," "I do without thinking of it," and "I start doing before I realize I'm doing it." Reliability for this measure was sound (α = .91).

Cross-behavioural regulation was measured by items used in prior research on sedentary cognitions (Rhodes and Blanchard, 2008; Rhodes et al., 2008a; Rhodes and Dean, 2009). These focused specifically on screen viewing (TV and movie watching and video games) based on its high prevalence (Canadian Fitness and Lifestyle Research Institute, 1996). Participants were instructed to consider screen viewing as "television, computer/internet, movies, video games and other activities that place them in front of a screen." The items were scored on five-point response scales from 1 (strongly disagree) to 5 (strongly agree) and included "On days with limited leisure-time, I will make screen viewing a priority," "If I am tired during my leisure-time, I will probably engage in screen viewing," and "If the opportunity to watch TV or other screen viewing activities presents itself, I typically will do it." Internal consistency for this measure was adequate (α = .81).

Intention was assessed by a single open-ended item asking respondents for their intention to engage in vigorous exercise ___ times per week over the next two weeks (Courneya, 1994). In turn, the two-week follow-up questionnaire assessed *exercise behaviour* using the Godin

Leisure-Time Exercise Questionnaire (GLTEQ) (Godin et al., 1986a; Godin and Shephard, 1985). The GLTEQ contains three open-ended questions regarding the frequency of mild (e.g., easy walking), moderate (e.g. fast walking) and vigorous (e.g. jogging) exercise during free time. The duration was adapted from 15 min to greater to or equal to 20 minutes per session based on current public health guidelines and the framing of the study.

Analysis

Descriptives and correlations of the constructs were calculated, followed by discriminant function analysis and follow-up univariate *F*-tests and Tukey post-hoc tests of the constructs as predictors of the intention behaviour profiles similar to prior work (Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). Considering a medium effect size, an alpha of .01, and a power of .80, we needed 210 participants to perform the analyses (Faul et al., 2009). Effect sizes were used to aid in the interpretation of the results (Cohen, 1992).

Results

The mean age of participants was 24.02 years (*SD* = 8.81); 69.4% were female, and the mean year of studies was 2.71 (SD = 1.17) for the final sample (N = 216). These descriptives generalize well to the University populace (Tony Eder, e-mail communication, June 11, 2008), suggesting basic representation. Table 1 details the means and correlations of the constructs. Significant medium sized correlations were identified for instrumental and affective attitudes, affective attitude and perceived behavioural control and affective attitude and automaticity. Significant small sized correlations were identified for instrumental attitude and perceived behavioural control, instrumental attitude and cross-behavioural regulation (inverse), affective attitude and cross-behavioural regulation (inverse), perceived behavioural control and

automaticity, and automaticity and cross-behavioural regulation. All constructs correlated significantly with the outcome variables of intention and exercise behaviour.

For the creation of the intention-behaviour profiles, participants were dichotomized as 1) less than three bouts of exercise and 2) three or more bouts of exercise on both the intention and the behaviour measures and subsequently categorized in the four possible quadrants of: 1) nonintenders (14.1%; n=31), 2) nonintenders who resulted in regular exercise (1.8%; n=4), 3) unsuccessful intenders (35.5%; n=78), and 4) successful intenders (48.6%; n=107). Given the small sample size of the nonintenders who resulted in regular exercise group, it was not utilized for subsequent analyses. This approach has been validated in prior research (de Bruijn, 2011; Rhodes et al., 2003).

The discriminant analysis identified one discriminant function that significantly distinguished among the three groups [canonical $r = .64$, $\chi^2 = (10) = 121.45$, $p < .01$] and correctly classified 63.4% of cases. All constructs had sizeable correlations with the discriminant function (see Table 2). Specifically, large and significant effects were found for affective attitude [$F_{(2,213)} = 39.85$, $p < .01$, $\eta^2 = .27$], and perceived behavioural control [$F_{(2,213)} = 30.54$, $p < .01$, $\eta^2 = .22$]. These constructs were identified as predictors of both intention and action control in follow-up tests ($p < .01$). A large overall effect for instrumental attitude was also identified [$F_{(2,213)} = 22.44$, $p < .01$, $\eta^2 = .17$], yet post-hoc tests revealed that it only predicted intenders from nonintenders ($p < .01$) and not action control. A significant and large effect was found for automaticity [$F_{(2,213)} = 16.06$, $p < .01$, $\eta^2 = .13$], and post-hoc tests identified this effect only for action control ($p < .01$) but not intention. Finally, cross-behavioural regulation had a significant and medium-sized effect $F_{(2,213)} = 4.99$, $p < .01$, $\eta^2 = .05$], yet this effect was inverse to the other

constructs and post-hocs identified that it predicted only action control ($p < .01$) and not intention.

Comment

Intention is considered the proximal determinant of behaviour in many of popular theories applied to understanding physical activity, yet intention-behaviour discordance is high and experimental evidence is poor (Rhodes and Dickau, in press-a). Thus, an understanding of constructs that facilitate or inhibit the successful translation of intentions into physical activity behaviour is both timely and important. The action control approach of dividing the intention-behaviour relationship into quadrants of successful/unsuccessful intenders has shown utility in the past by demonstrating the magnitude of intention-behaviour discordance and allowing for an outcome variable to test predictors. Standard social cognitive predictors have shown mixed utility. The purpose of this paper was to evaluate automaticity and cross-behavioural regulation as predictors of exercise action control, in conjunction with other more standard social cognitive predictors of perceived behavioural control and affective and instrumental attitudes.

As hypothesized, the intention-behaviour profile was comprised of nonintenders, unsuccessful intenders and successful intenders. Less than 2% of participants were classified as nonintenders who were subsequently exercising. Similar to all prior work applying this division, the results underscore that intention is a necessary, but not sufficient, construct for behavioural engagement and demonstrate the extreme asymmetry of the intention-behaviour relationship. Our results yielded an r = .52 for intention-behaviour which is practically identical to meta-analyses (McEachan et al., 2011; Symons Downs and Hausenblas, 2005b). Furthermore, 84% of the sample was in the action control profiles of the framework (i.e., intenders) with over 35% of the sample comprised of unsuccessful intenders. This is important to note because the

prospective design of only two-weeks still demonstrates the large discordance in action control. In most cases, a short prospective design is often considered a methodological weakness, but the short time-frame is a very conservative test of intention-behaviour discordance.

Our main hypotheses about the predictive capabilities of the social cognitive, automaticity, and cross-behavioural regulation constructs were also supported. It was hypothesized that attitudes, as well as perceived behavioural control would predict intention (nonintenders vs. unsuccessful and successful intenders). This hypothesis was supported, similar to prior research with related constructs (de Bruijn, 2011; Godin et al., 1986b; Rhodes et al., 2003; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). All of these constructs had a large effect size. Thus, the intention to exercise regularly is predicated by the expected instrumental and affective experience of exercise, and the control that one has to exercise. This supports the tenets of the theory of planned behaviour (Ajzen, 1991) and prior meta-analyses.

Importantly, perceived behavioural control and affective attitude also predicted action control (unsuccessful intenders vs. successful intenders) with large effect sizes. This supports the notion that affective expectations and control over exercise affect both the initial intention to exercise and the translation of intention into actual behaviour. Prior research has supported this finding (de Bruijn, 2011; de Bruijn et al., 2009; Rhodes et al., 2003; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b). Instrumental attitude was not a predictor of action control which suggests it may affect the initial intention but it does not determine the translation of that intention into action. This finding replicates most other studies showing null effects (de Bruijn, 2011; Godin et al., 1986b; Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b).

Finally, it was hypothesized that automaticity and cross-behavioural regulation would also contribute to the prediction of action control. This hypothesis was supported. The effects of

these constructs are also noteworthy because they did not predict intention, only action control. Thus, these constructs may represent important potential influences on action control after the intention has been made. The findings are interesting because both automaticity and cross-behavioural regulation represent constructs that are not typical in popular intention-based models to exercise behaviour. The results support the theorizing that discordance between intention and exercise is less likely to occur when exercise is automatic (i.e., intentions are being translated into behaviour via habituated action) and that motivation for other behaviours, such as screen viewing, may lower the translation of exercise intentions.

In terms of practical import, these findings suggest that interventions targeting instrumental attitude may not be sufficient to produce behaviour change through action control. The low utility of interventions aimed at this construct has been duly noted before (Rhodes and Pfaeffli, 2010). By contrast, these results suggest that interventions targeting affective attitude and perceived behavioural control need to produce larger changes in these constructs than what is required to change intentions. These constructs appear to need about double the change on their metrics from what is required to change intention. Intervening on automaticity may pose a challenge because it is thought to occur with behaviours that are practiced (Bargh, 1994). While prior exercise experience may be an intractable determinate, interventions that focus on the affective component of exercise and involve exercise routine repetition (time, acts, location and other characteristics) may help in habit formation (Lally et al., 2009). There is also emerging evidence that automaticity can be intervened upon by changing environmental cues and that these changes increase physical activity (Moore and Charvat, 2012). Another intervention with potential utility to automaticity formation may be planning via implementation intentions (Gollwitzer, 1999). Implementation intentions, the act of setting plans about where, when, how,

and what behaviours will be performed, are proposed to partially act as mini mental links between the behaviour and environmental cues (Gollwitzer, 1999; Gollwitzer and Sheeran, 2006). At present, automaticity has limited application as an endpoint with implementation intention research, so future research is needed to test this conjecture. Finally, interventions aimed at cross-behavioural regulation could focus on increasing the knowledge base about the detriments of prolonged sedentary behaviour and lowering ease/ability and scheduling/planning of these behaviours. Early research in these sedentary reduction behaviours has shown success, suggesting that larger initiatives are warranted (DeMattia et al., 2006).

These results should be considered within the context of the limits of the study. First, the random sample of undergraduate students featured in the study is clearly important for health promotion, but future research should extend this test to other samples of the population. Further, the results from our student sample obtained in Western Canada may not generalize to the demographics of undergraduate students. Still, there is extant evidence that the intention-behaviour profiles featured in this study are very similar to time-frames as long as six-months prospective and with broader population samples (Rhodes and Plotnikoff, 2006; Rhodes et al., 2008b) and that intention-behavior relationships are invariant to demographics such as age, ethnicity, and gender (Rhodes and Dickau, in press-b) so the generalizability may be robust. Second, the self-reported measurement of exercise behaviour is likely to contain error (Prince et al., 2008). While it is unclear how this error would systematically bias these results, replication with direct assessment of exercise seems prudent.

In summary, this study showed the asymmetry in the intention-behaviour relationship over a two-week prospective time-frame among a random sample of university students and demonstrated that almost half of the participants who intended to exercise regularly at baseline

failed to meet those intentions. Affective attitude, perceived behavioural control, automaticity and cross-behavioural regulation predicted successful vs. unsuccessful intenders but instrumental attitude did not. The results highlight the importance of understanding action control and highlight additional variables that may be needed to close the intention-behaviour gap.

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Table 1.
Correlations among the constructs used to predict the intention-behaviour profiles

	2 (AA)	3 (PBC)	4 (AU)	5 (CBR)	6 (INT)	7 (BEH)	M	SD	Range
1. Instrumental attitude	.42*	.26*	.06	-.18*	.54*	.22*	4.46	1.03	2 - 7
2. Affective attitude		.35*	.41*	-.28*	.64*	.49*	4.00	0.75	2 - 7
3. Perceived behavioural control			.26*	.00	.52*	.34*	5.89	1.69	1 - 7
4. Automaticity				-.25*	.37*	.37*	3.29	0.84	2 - 5
5. Cross-behavioural regulation					-.24*	-.19*	3.26	0.93	1 - 5
6. Intention						.52*	3.81	1.62	0 - 7
7. Vigorous Exercise Behaviour							2.56	1.93	0 - 7

*=$p < .01$

Table 2.

Prediction of the intention-behaviour profiles with the proposed constructs.

Hocs	Correlation with Discriminant Function	Intention-Behavior Profiles			$F_{2,213}$	η^2	Post
		nonintenders	unsuccessful intenders	successful intenders			
Instrumental attitude	.53	3.48 (0.84)	4.53 (0.87)	4.70 (0.95)	22.44*	.17	NI<UI,SI
Affective attitude NI<UI<SI	.73	3.22 (1.00)	3.91 (0.58)	4.34 (0.53)	39.85*	.27	
Perceived behavioural control NI<UI<SI	.64	4.11 (1.69)	5.75 (1.66)	6.48 (1.29)	30.54*	.22	
Automaticity	.44	2.76 (0.79)	3.10 (0.77)	3.58 (0.81)	16.06*	.13	NI,UI<SI
Cross-behavioural SI<UI,NI regulation	-.23	3.47 (0.96)	3.41 (0.93)	3.04 (0.87)	4.99*	.05	

Note: *=p<.01. Tukey Post hoc tests performed at p < .01.