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The Cognitive Profile of Those Who Intend to Exercise but Do Not

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Synopsis

The purpose of this study was to identify the cognitive profile of people who intend to exercise but fail to carry out this intention. A theoretical framework was adopted to study the attitudinal beliefs of these persons about exercise, their evaluation of the associated consequences, and their normative beliefs and motivation to comply with these norms.

Subjects were classified according to the congruence between stated intention and self-reported exercise behavior 2 months later in this way:

positive intention and congruent behavior (CONG +, N = 74).

positive intention and incongruent behavior (INCONG −, N = 45).

negative intention and congruent behavior (CONG −, N = 42).

negative intention and incongruent behavior (N = 2, not analyzed).

MANOVA analysis indicated little difference between the cognitive profiles of inactive and active positive intenders. Relative to the CONG + group, the INCONG − group perceived that regular exercise would be "tiring" ($P < 0.001$) and "time consuming" ($P < 0.001$); they also placed less value on the consequence of "being healthy" ($P < 0.05$). Both groups differed from the CONG − group. As would be expected, those with positive intentions to exercise identified more advantages to being physically active.

It appears that sedentary positive intenders perceived the exercise behavior as physically demanding and had difficulty in reconciling the time demands of an exercise program with their weekly schedules. This observation suggests that these two beliefs should be considered for the promotion of physical activity as well as the investigation of influential social and environmental variables.

In light of limited exercise compliance rates (*1*), improved methods of both stimulating and sustaining regular physical activity are major concerns of professionals promoting physical fitness. Effective programs of fitness promotion must include a careful consideration of cognitive and other characteristics of specific target populations (*2*).

Promotional agencies such as ParticipACTION in Canada have succeeded in creating an awareness of the need for exercise, but all too often this realization has not been translated into action (*3*). It thus seems important to study those persons who express an interest in physical activity but remain inactive. However, there is a dearth of scientific literature on this target group (*4*).

Certain factors previously have been linked with inactivity. Persons who are blue collar workers (*5,6*), smokers (*7*), overweight, lower in motivation (*2,7*), undergoing disruptions in routine such as emotional disturbance (*8*), and lacking necessary social supports (*9*) seem particularly likely to remain inactive or to drop out of an exercise program if recruited. However, few studies have focused on those who express a willingness to participate but actually do not (*4,10*). This group may have quite different traits from dropouts or uninterested sedentary persons, traits with important implications for program planning.

A study (*4*) of 250 adults attempted to establish perceived motivations for physical activity and perceived reasons for inactivity among persons who demonstrated an interest in physical activity but were relatively inactive. As in the larger Canada Fitness Survey (*6*), the main perceived reason for inactivity was "lack of time." Other reasons were fatigue, inadequate facilities, lack of knowledge about fitness, and lack of willpower. Perceived motivations for becoming active included interest in self-improvement, social support and opportunities for socializing, enjoyment of exercise, leadership, initiatives taken by other people, and information which had been provided about fitness and health. Unfortunately, the subjects studied were not strictly categorized as inactive exercise intenders.

Mackeen and coworkers (*10*) recorded intentions to exercise and subsequent behavior of 36 obese but otherwise normal sedentary women after 18 months of enrollment in a voluntary physical conditioning program. Subjects indicated notable discrepancies between positive intentions to exercise and behavior due to time restraints, poor self-discipline or motivation, and loss of commitment or social support.

Other researchers have suggested that many people who intend to be active but remain sedentary lack the self-regulatory skills necessary to break the complex set of barriers to establish exercise habits. Perceived barriers such as "lack of time" may reflect poor motivation rather than genuine primary reasons for inactivity (*2*). However, there is little evidence to confirm this hypothesis, which has been based on a comprehensive theoretical approach concerning analysis of behavior (*11*).

Thus, the purpose of this study was to compare the cognitive profile of persons who intend to exercise but do not with that of persons who fulfill their positive or negative intentions. The theoretical framework for this study was provided by the Fishbein-Ajzen model of behavioral intentions (*12*). Variables studied included belief towards various aspects of physical fitness and corresponding referent norms.

Methods

Subjects. From an employee list of some 2,500 University of Toronto current and retired employees who had returned a brief questionnaire about exercise preferences, we stratified all persons by age (less than 30 years, 30 to 44 years, and 45 years and more) and sex. Thus a total of 240 subjects was selected randomly from the 2,500 respondents.

The questionnaire investigated the willingness to participate in a physical and health education research program and included questions concerning present and past exercise habits, perceived current activity relative to the average Canadian, and perceived barriers to participation in the future program.

Procedures for data collection. A package that contained a letter explaining the purpose of the study and a more specific behavioral questionnaire for investigating beliefs, attitudes, and intentions was sent, by internal mail, to each of the 240 subjects. A reminder was mailed to each subject 3 days later. The 190 subjects who returned a completed questionnaire within 10 days of the first mailing were kept as study subjects. Two months later, they were sent a brief questionnaire for measuring behavior. Again, a reminder was systematically mailed to the 190 participants. The

number of respondents was 172. This analysis is limited to the 163 subjects who answered all questions. To check whether the 27 subjects who completed the initial questionnaire but did not return the followup questionnaire differed in attitudes, subjective norms, or intentions from subjects who completed all questionnaires, the group means were compared; no significant differences were found.

Variables measured. The first step consisted of identifying the perceived advantages and disadvantages of exercising and the referents (individuals or groups) who might approve or disapprove of exercising. This identification provided information about salient beliefs for members of the population under investigation. Subsequently, the subjects' attributes were measured following the methodology suggested by Ajzen and Fishbein (*13*).

Measurement of beliefs (b) and values (e). Beliefs (b) and the corresponding evaluation of their value (e) were covered by 14 items, all evaluated on a 7-point scale (−3 to +3). For example, with one scale, subjects were asked to rate agreement with the proposition: "I think that participating in active sports or vigorous physical activities long enough to get sweaty at least twice a week in my leisure time during the next 2 months would help me look younger." The corresponding value (e) item evaluated "looking younger" on a good-bad scale. Tests of internal consistency showed values of 0.71 for b and 0.74 for e.

Measurement of normative beliefs (NB) and motivation to comply (MC). Normative beliefs (NB) were measured by rating agreement with five propositions, such as, "I think that participating in active sports or vigorous physical activities long enough to get sweaty at least twice a week in my leisure time during the next 2 months is something my physician believes I should do." Motivation to comply (MC) was evaluated by agreement with five propositions, such as, "I would like to participate in active sports or vigorous physical activities the way my physician thinks I should." For all items, a 7-point scale was used (+3 to −3). Tests of internal consistency showed values of 0.67 for NB and 0.72 for MC.

Intention. The intentional (I) component was measured on a 7-point likely (+3) to unlikely (−3) scale by the question: "I intend to participate in active sports or vigorous physical activities long enough to get sweaty at least twice a week in my leisure time during the next 2 months." Individuals with an intention score of 1, 2, or 3 were classified as high intenders. The others were classified low intenders. In a previous study, Godin and Shephard (*14*) showed a 2-week test-retest of this type of question that had a reliability coefficient of 0.73 for an adult population.

Behavior. Behavior was measured according to the validity studies of Godin and Shephard (*15*) and Godin and colleagues (*16*). Two months after beginning the study, subjects were asked if "they participated in active sports or vigorous physical activities long enough to get sweaty at least twice a week during their leisure time within the past 2 months." Those persons answering "yes" were classified as active, whereas those answering "no" were considered as inactive. This classification was adapted to respect the Ajzen and Fishbein (*17*) definition of "correspondence" between the intentional and the behavioral entities. In the physical activity sector, this approach of defining both entities in terms of action, target, context, and time elements has been supported by Godin and Shephard (*18*).

Statistical analysis. Subjects were divided into four groups on the basis of stated intentions and behavior: (*a*) positive intention to exercise and congruent behavior (CONG +, $N = 74$), (*b*) positive intention to exercise and incongruent behavior (INCONG −, $N = 45$), (*c*) negative intention to exercise and congruent behavior (CONG −, $N = 42$), and (*d*) negative intention to exercise and incongruent behavior (INCONG +, $N = 2$). Data on the group defined in (*d*) were not analyzed because only two subjects fit the criterion. Thus the total number of subjects was 161.

Multivariate analyses of variance (MANOVA) with the Hotelling T test as criteria compared values for b, e, NB, and MC, among the three groups. Then one-way analyses of variance (ANOVA) were determined for each subcomponent of b, e, NB, and MC. Finally, pairwise comparisons of each significant variable were performed with the assistance of the Scheffe test at 0.05 level of significance.

Results

Overall characteristics. The average age of both men and women in the study population was 39.

Table 1. Average of attitudinal beliefs for positive exercise intenders (Active, Cong −; Inactive, Incong −) and inactive negative intenders (Cong −)

Beliefs[1]	Groups[2] Incong − N = 42	Cong + N = 74	Cong − N = 45
"To exercise would . . ."			
Help me look younger	0.81	0.76	[3] −0.11
Help me fill my recreation time	0.69	0.96	[3] −0.51
Help me control my body weight	1.76	1.91	1.11
Be healthy	2.61	2.61	2.27
Help me to live longer	1.21	1.27	0.87
Relieve tension	1.86	2.14	1.53
Be tiring	0.79	[3] −0.19	1.20
Help me to be more energetic	2.26	2.42	[3] 1.42
Improve my physical appearance	1.66	1.84	0.84
Help me to feel good	2.24	2.54	[3] 1.33
Help me to meet people	0.21	0.51	0.02
Be time consuming	1.38	[3] 0.70	1.73
Improve my thinking ability	1.07	1.34	[3] 0.17
Help to be physically fit	2.40	2.31	2.25

[1] Possible scores ranged from +3 to −3.
[2] Hotelling T test (F = 2.70, df 28 and 284, $P < 0.001$).
[3] $P < 0.05$. Pairwise comparisons (Scheffe's test) relate the Incong − group to the 2 other groups.

Table 2. Average of evaluation of consequences of exercise for positive exercise intenders (Active, Cong +; Inactive, Incong −) and inactive negative intenders (Cong −)

Consequences[1]	Groups[2] Incong − N = 42	Cong + N = 74	Cong − N = 45
"I value . . ."			
Looking younger	2.02	1.86	1.67
Filling my recreation time	1.56	1.59	0.96
Controlling my body weight	2.53	2.58	[3] 2.09
Being healthy	2.60	[3] 2.97	2.87
Living longer	2.32	2.22	1.86
Relieving tension	2.76	2.74	2.22
Being tired	−2.34	−2.45	−2.04
Being more energetic	2.54	2.74	2.28
Improving my physical appearance	2.49	2.42	1.98
Feeling good	2.63	2.89	2.58
Meeting people	1.78	1.95	1.44
Undertaking activities that are time consuming	0.34	0.39	−0.16
Improving my thinking ability	2.54	2.69	2.20
Being physically fit	2.83	2.89	[3] 2.40

[1] Possible scores ranged from +3 to −3.
[2] Hotelling T test (F = 1.63, df 28 and 278, $P < 0.05$)
[3] $P < 0.05$. Pairwise comparisons (Scheffe's test) relate the Incong − group to the 2 other groups.

The mean intention score for the entire group was 1.19 (implying an above-average intention to exercise). A total of 119 reported a positive intention to exercise compared with 42 who reported a negative intention. The mean intention scores for the INCONG − were 2.05, CONG + 2.64, and CONG − −1.98 (possible scores ranged from +3 to −3). At the end of the study, 74 subjects answered positively to being active over the 2-month period, whereas 87 did not report being active at least twice a week over the 2-month period. Of these 87 persons, 31 answered, "not at all"; 12, "about once a month"; 12, "about 2 to 3 times a month"; and 8, "about once a week."

Beliefs. The INCONG − group differed significantly from the CONG + group (table 1) on two items: "would be tiring" ($F_{2, 158} = 8.29$, $P < 0.001$) and "would be time consuming" ($F_{2, 158} = 8.57$, $P < 0.001$), the INCONG − group agreeing more strongly with both statements. However, the INCONG − scores were significantly higher than those for the CONG − groups with respect to the items: "would help me look younger" ($F_{2, 158} = 4.58$, $P < 0.001$), "would help me fill my recreation time" ($F_{2, 158} = 10.89$, $P < 0.001$), "would help me to be more energetic" ($F_{2, 158} = 13.47$, $P < 0.001$), "would help me to feel good" ($F_{2, 158} = 12.51$, $P < 0.001$), and "would improve my thinking ability" ($F_{2, 158} = 9.56$, $P < 0.001$).

Evaluation of consequences. The INCONG − group placed significantly less value than the CONG + group (table 2) on the item, "being healthy" ($F_{2, 155} = 3.49$, $P < 0.05$); however, INCONG - subjects also placed significantly more value than the CONG − group upon the items "controlling my body weight" ($F_{2, 155} = 4.70$, $P < 0.01$) and "being physically fit" ($F_{2, 155} = 6.13$, $P < 0.005$).

Normative beliefs. No significant pairwise differences between groups were found (table 3).

Motivation to comply. Subjects of the INCONG − group differed significantly from subjects of the CONG − group, showing a greater motiviation to comply with the directives of their physician ($F_{2, 155} = 3.35$, $P < 0.05$) (table 4.).

Discussion

The overall findings identified surprisingly little difference between cognitive profiles of inactive and active positive intenders, the three significant differences reflecting perceptions of the time and

the energy required for exercise and the value placed on health. Most of the differences were between those with positive and negative intentions. As might be expected, those with positive intentions identified more advantages to being physically active than those with negative intentions. Both positive intender groups had high scores for beliefs and evaluations of consequences concerning the control of body weight, the maintenance of health, prolongation of life, relief of tension, increase of energy, and improvement of physical appearance, mood state, and thinking ability. This observation is congruent with earlier findings. Teraslinna and associates (*19*) noted that individuals willing to participate in an exercise program were attracted by potential improvements of health, physical fitness, and mental working capacity. Sidney and Shephard (*20*) also found health and fitness to be the prime attractions of their program.

The perception of INCONG − group that regular exercise "would be tiring" agrees with the observations of Bandura (*21*) that people who decide to initiate a health program (positive intention) become aware of the effort required to integrate the new behavior into their lifestyle. This realization is particularly true for health-oriented exercise, which can impose significant time or exertion demand (*22*), or both. This observation is in agreement with the Fitness Ontario study (*4*) in which "fatigue" was a reason invoked by inactive persons to explain their sedentary behavior. It thus appears that the promotion of physical activity should at least stress the fact the one does not necessarily need to suffer and become exhausted from health-oriented exercise behavior, thus counteracting the belief that exercising is too physically demanding.

In the case of physical activity, another difficulty commonly expressed is "lack of time" (*2*). In this regard, it is interesting to note that the INCONG − group also indicated physical activity as "time consuming" relative to those with positive intentions and behavior. The perception of "lack of time" or "time restraints" also confirms observations made by others (*4,6,10,23*). Indeed, in the studies of Fitness Ontario (*4*) and Mackeen and coworkers (*10*), the incongruence between intention and behavior was strongly linked to perceived lack of time. However, this observation does not necessarily confirm the view that "lack of time" can be equated with a lack of interest, intention, or commitment (*2*), since the subjects of our INCONG − group had expressed both interest and commitment in a strongly positive intention to exercise. Indeed, a very low correlation was found between intention and this specific belief for the INCONG − group (r = -0.05).

An alternative hypothesis is that members of this group have difficulty in reconciling the time demands of an exercise program with a poorly organized weekly schedule. If the latter hypothesis proves correct, guidance in time management should be given a high priority in promoting physical activity among the sedentary who have expressed an intention to exercise. Also, perceived lack of time and expressed anticipation could also be indicators that sedentary intenders may be confronted with more social and environmental constraints that those who are active. Further research, however, is needed to elucidate these variables.

Table 3. Average of normative beliefs about exercise for positive exercise intenders (Active, Cong +; Inactive, Incong −), and inactive negative intenders (Cong −)

	Groups[2,3]		
Normative beliefs[1]	*Incong − N = 42*	*Cong − N = 74*	*Cong − N = 45*
Significant others believe I should exercise:			
Physician	1.14	1.16	0.43
Close friends	0.71	1.15	0.20
Most members of family	1.05	1.19	0.49
Society as a whole	0.98	1.11	1.78
Physical educators	2.14	2.22	2.16

[1] Possible scores ranged from +3 to −3.
[2] No pairwise comparisons revealed significant differences between the Incong − group and the 2 other groups.
[3] Hotelling T test ($F = 2.35$, df 10 and 296, $P < 0.01$).

Table 4. Average of motivation to comply with exercise program for positive exercise intenders (Active, Cong +; Inactive, Incong −), and inactive negative intenders (Cong −)

	Groups[2]		
Motivation to comply[1]	*Incong − N = 42*	*Cong + N = 74*	*Cong − N = 45*
Exercising the way significant others think I should:			
Physician	1.40	0.94	[3]0.52
Close friends	0.15	0.39	−0.02
Most members of family	0.71	0.35	0.47
Society as a whole	0.12	0.06	−0.04
Physical educator	1.05	1.16	0.31

[1] Possible scores ranged from +3 to −3.
[2] Hotelling T test ($F = 1.99$, df 10 and 296, $P < 0.05$).
[3] $P < 0.005$; pairwise comparisons (Scheffe's test) related the Incong − group to the Cong − group.

The INCONG – group placed less value on the consequence of "being healthy," in agreement with previous observations that people regard the improvement of health as a major reason for initiating an exercise program (*9,20*). Nevertheless, the practical significance of this observation is limited, since the mean scores for INCONG – and CONG – groups are very high. Research has indicated also that, although both active and inactive persons view exercise as a positive health behavior, those who strongly value exercise, who believe they have control over their health outcome, and who expect personal health benefits from exercise are the most likely to engage in a considerable amount of exercise (*2*). Perhaps the perception of control over health outcome is a key variable not included in our research that should be investigated further in terms of factors governing the translation of intentions into overt behavior.

In conclusion, application of the Fishbein model of behavior has not identified a predominant cognitive profile of those who intend to exercise but fail to give expression to their intent. Other cognitive variables should be considered; for instance, there is a need to correlate the major perceived obstacle of "lack of time" with measures of available time and competency in time management. Similarly, it would be of interest, as proposed by Dishman and colleagues (*2*), to determine how beliefs concerning perceived exertion influence future activity. Furthermore, other social and environmental factors should be explored. As these variables become further defined, we may anticipate more successful fitness promotion programs for persons who are not active but wish to be.

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