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Original Article

PATH ANALYSIS OF THE EFFECT OF IRRATIONAL BELIEFS ON THE STRUCTURES OF THE PLANNED BEHAVIOR MODEL IN THE FIELD OF PHYSICAL ACTIVITY

ANÁLISE DO CAMINHO DO EFEITO DAS CRENÇAS IRRACIONAIS NAS ESTRUTURAS DO MODELO DE COMPORTAMENTO PLANEJADO NO CAMPO DA ATIVIDADE FÍSICA

Bita Arabnarmi[1] and **Hesam Ramezanzade**[2]

[1]University of Neyshabur, Neyshabur, Iran.
[2]Damghan University, Damghan, Iran.

RESUMO
O objetivo do presente estudo foi traçar a análise do modelo hipotético das crenças irracionais sobre os construtos do modelo de comportamento planejado, em particular a intenção de atividade física, e também a predição da intenção de atividade física com base nos construtos de crenças irracionais. 320 estudantes do sexo masculino e feminino da província de Semnan foram selecionados aleatoriamente e completaram os questionários de Gordon (2008) e Irrational Beliefs (Ahwaz) 2005. Um modelo de análise de caminho foi utilizado para analisar as relações entre as variáveis e calcular os efeitos estruturais diretos e indiretos. Além disso, a análise de regressão múltipla foi usada para prever construções teóricas de comportamento planejado usando dimensões de crenças irracionais. Os resultados indicaram que o modelo hipotético não está de acordo com os dados deste estudo e o efeito direto das crenças irracionais sobre as normas subjetivas não é significativo. Ao eliminar o efeito das crenças irracionais sobre as normas subjetivas e adicionar o efeito das normas subjetivas sobre o controle comportamental percebido, foi obtido um novo modelo que foi ajustado aos dados. Além disso, os resultados mostram que duas variáveis de demanda por aprovação e evitação de problemas foram preditores significativos da intenção de atividade física. Os resultados deste estudo mostraram que as crenças irracionais, tanto direta quanto indiretamente (por meio de atitudes e controle comportamental percebido), afetam a intenção de atividade física. Portanto, é importante reduzir as crenças irracionais a fim de desenvolver as intenções de atividade física e a própria atividade física.
Palavras-chave: crenças irracionais, modelo de comportamento planejado, atividade física, análise de caminho

ABSTRACT
The aim of the present study was to path analysis of the hypothesized model of the irrational beliefs on the constructs of the planned behavior model, in particular the physical activity intention, and also the prediction of the physical activity intention based on the constructs of irrational beliefs. 320 male and female students of Semnan Province were randomly selected and completed Planned Behavior and Irrational Beliefs (Ahwaz) questionnaires. A path analysis model was used to analyse the relationships between variables and calculate the direct and indirect structural effects. Also, multiple regression analysis was used to predict theoretical constructs of planned behavior using irrational beliefs dimensions. The results indicated that the hypothesized model is not in accordance with the data of this study and direct effect of irrational beliefs on subjective norms is not meaningful. By eliminating the effect of irrational beliefs on subjective norms and adding the effect of subjective norms on perceived behavioral control, a new model was obtained that was fitted with the data. Also, the results show that two variables of Demand for approval and problem avoidance were significant predictors of physical activity intention. The results of this study showed that irrational beliefs, both directly and indirectly (through attitudes and perceived behavioral control), have an effect on the physical activity intention. Therefore, it is important to reduce the irrational beliefs in order to develop the intentions of physical activity and the physical activity itself.
Keywords: irrational beliefs, planned behavior model, physical activity, path analysis

Introduction

Research has revealed that both cognitive and emotional variables contribute to emotional and physical harm[1]. But a psychological variable that has been neglected as a predictor of health outcomes is irrational beliefs that are at the core of the rational-emotional behavior treatment (REBT). Irrational beliefs are desires and goals that become necessary and required preferences[2] and become mandatory, obligatory and definitive goals, which, if not satisfied, lead to turmoil and anxiety[2]. According to Ellis[2], the root of many discomforts and mental and behavioral disorders is in a variety of irrational beliefs of human being. His view includes ten types of unreasonable

thinking as demand of approval, high self-expectation, preparedness for blame, reaction of frustration, emotional irresponsibility, anxious over concern, problem avoidance, dependency, helplessness for change and perfectionism. Ellis[2] states that these beliefs remove the balance of the person and prevent successful encounters with irritating events.

Many researches have studied the relationship between irrational beliefs and different psychological variables. The relationship between irrational beliefs and emotional disturbances, such as anxiety and depression, has been shown in various studies[3, 4]. In another study, also was depicted cultural divergence in anxieties and irrational beliefs[4]. In some other research, the relationship between irrational beliefs and anger[5] and the relationship between irrational beliefs and emotional instability and incompatible patterns[6] are illustrated. Also, some researchers have shown the relation between irrational beliefs and social skills as well as the ability to express excitement[7, 8]. In addition, Goldfrid and Sobocinski[9] the more they need to be approved by others, they showed more anxiety in stressful situations. In a word, various studies have shown that there is a relationship between mental health and irrational beliefs of individuals[10].

Next research emphasized the relationship between irrational beliefs, physical health and health-oriented behaviors. A recent study has shown that irrational beliefs represent emotional and physical health (energy levels for work) [11]. Papageorgiou et al.[12] regarded the role of irrational beliefs in coronary artery disease. They also discovered a significant relationship between irrational beliefs and inflammatory plasma syndromes. Silverglade et al.[13] reported that irrational beliefs are significantly related to the severity of the disease. Although many studies have examined the relationship between irrational beliefs and physical health, there has not been much research on the relationship between these beliefs and health-based behaviors. Rabalais[14] showed that irrational beliefs are more and more related to more negative health behaviors. Moller and Bothma[15] also showed that irrational beliefs are associated with eating disorders, and these individuals have a more negative self-assessment than controls. Christensen et al.[16] also showed that higher levels of irrational beliefs predicts more self-reported diabetic regimen in people with diabetes. Unfortunately, in researches, exercise behavior such as physical activity (which is one of the most important health-oriented behavior) has not been considered.

Exercise behavior of individuals of a community is, based on many strong theories, under the influence of various factors, so that behavioral change, especially the behavior of exercise, is not simple, and based on the theory of planned behavior[17] it is rooted in attitudes, subjective norms and individual control beliefs, which will ultimately lead to the exercise intention and exercise itself. The theory of planned behavior considers belief-based cognitive-social constructs, such as attitudes (positive or negative evaluations associated with behavioral behavior), subjective norms (Perceived effects that others may employ significantly to perform behavior), perceived behavioral control (control perceptions with respect to the behavior of social behavior), and intentions (which shows how much people tend to work and how much they try to implement behavior) in the occurrence of behaviors such as physical activity[17]. According to this theory, intentions are immediate predictors of behaviors and that attitudes, mental and perceived behavioral control are influential on purpose. Despite the success of the theory of behavioral planned, this theory does not consider all changes in the behavior of physical activity. Although the intention of the exercise is essential in explaining the change in the behavior of the health, its predictive power is limited. When trying to move things to behavior, people face a variety of obstacles[18]. In addition, research has shown that there are other external variables such as personality and belief structures with independent effects on intentions and behaviors that need to be discovered[19, 20]. Ajzen[17] suggests that attitudes and perceived behavioral control include beliefs that a particular health-related behavior will lead to special consequences, and that behavior is under the control of an individual. However, similar to many of the cognitive-social theories, the theory of planned behavior is unclear about the reasons for which these beliefs are followed[21]. It seems that irrational beliefs are one of those external variables that affect the constructs of the theory of planned behavior model,

especially for exercise purposes. Ellis believes that human being is born with an innate intention for irrational beliefs and is reluctant to change his behavior. One of these behaviors can be exercise behavior (physical activity). Armitage and Connor[22] also argue that by studying different exterior variables, alternate models with hypothetical structural connections should be discovered in order to be more applicable to the theory of planned behavior. Also, Ajzen[17] states that the inclusion of additional structures within the framework of the theory of planned behavior seems as long as justified scientific evidence can be presented as it can offer more constructs to predict the behavior of physical activity. Therefore, it seems that irrational beliefs can be considered as an important structure of the theory of planned behavior and needs to be studied due to the close interrelationship among many psychological variables, physical health, and behavioral health and its effects on other model structures, in particular, on the intention.

Therefore, the purpose of this study is to examine the direct and indirect effects of irrational beliefs on the physical activity intention. The other goal of this research is to predict the purpose of the exercise based on the constructs of irrational beliefs.

Methods

Sample

The present research is a descriptive-correlational study that was carried out in a field experiment. The statistical population of the study was all undergraduate students (18-22 years old) in Semnan Province 320 students (140 boys and 180 girls) were selected by multistage cluster sampling.

Procedures

To evaluate irrational beliefs, AHVAZ IBQ-40 was used. This questionnaire is one of the most widely used tools for measuring irrational beliefs in the world. The original version contains 100 questions consisting of 10 factors and each factor measures an irrational way of thinking. Jones[23] reported the internal consistency of the 10 factors of the test between 0.45 and 0.72, the test-retest test coefficient was 0.92 and the simultaneous validity of it was 0.61. The short form of this test in Iran was designed by Motamedin et al.[24]. By examining 356 male and female students and after analysing responses, they removed 60 items from 100 test subjects and created a quadratic structure. In their research, the validity of the extracted factors was calculated and verified by means of factor and convergent validity and their reliability using Cronbach's alpha and duplication. These four factors include helplessness to change, demand for approval, problem avoidance and emotional irresponsibility. They used Cronbach's alpha coefficient and split half to test the internal consistency of the factors and internal consistency. The Cronbach's alpha coefficient was 0.75. Also, Cronbach's alpha coefficient for helplessness factors was 0.8, demand for approval from others 0.81, avoidance of problem 0.73 and emotional irresponsiveness was 0.75. Also, the reliability of the split half method for the whole test was 0.76 and for the factors was 0.82, 0.84, 0.74 and 0.72, respectively. In this research, the reliability of Cronbach's alpha for the whole test was 0.74 and for the factors was 0.79, 0.71, 0.81 and 0.77, respectively. To score this questionnaire, we use the five-point LIKERT scale, which is "completely disagree" to "fully agree."

The Gordon questionnaire (2008) was used to measure theoretical constructs of planned behavior in the field of exercise (attitudes, mental norms, perceived behavioral control and exercise intention) [25]. The questionnaire consists of 41 questions, which are based on the LIKERT grade of 7 values from "I totally agree" to "completely disagree." The content validity and factor validity of the questionnaire were confirmed by the researchers. In this research, since the original version (in English) was used for this questionnaire, before using it, the process of translating and

validating English tools into Persian was used by Banville et al.[26]. In this method, the cultural appropriateness of the instrument and its psychometrics are emphasized. The method was as follows: 1. The English tool was translated into Persian by a researcher and with the help of experts in this field. 2. The Persian translation tool was reinstated by two fluent English speakers (without access to the original questionnaire). 3- The two forms were compared and compared with the original questionnaire, so that any differences could be identified and, finally, the Persian version of the tools was prepared. In addition, to determine the structural validity, a confirmatory factor analysis was used based on structural equation modelling. The results of the first and second order factor analysis showed that the questionnaire had acceptable construct validity (insignificant Chi-square, Chi-square to degree of freedom less than 3, GFIP, NFIP and CIF-statistics from 0.9 and RRSR less than 0.05). Cronbach's alpha coefficient was used to evaluate the reliability of the questionnaire. In this study, Cronbach's alpha coefficient for the whole questionnaire was 0.77 and for attitude, subjective norms, and perceived behavioral control factors were 0.83, 0.75 and 0.71, respectively. This questionnaire will mark the 41st question on physical activity intention next month. People need to select an option from option 1 (meaning a one-time exercise in the next month) to option 30 (meaning 30 times exercise in the next month).

Statistical analysis

In order to assess the relationship between research variables, Pearson correlation coefficient and for the prediction of theoretical constructs of planned behavior using irrational beliefs dimensions, multiple linear regression analysis were applied by using SPSS software version 22. Also, in order to map the relationships between variables in the form of path analysis model and calculate the direct and indirect structural effects, the LISREL software version 8/8 was used.

Results

Table 1 shows the correlation matrix among the research variables. As can be observed, the relationship between the physical activity intention and all three structures of attitude, subjective norms and perceived behavioral control are meaningful and positive. In addition, there is a negative relationship between irrational beliefs and attitudes and perceived behavioral control structures. Most noticeably, there was a significant negative correlation between physical activity intention and irrational beliefs.

Table 1. Correlation matrix of research variables

	1	2	3	4	5
Attitudes	1				
Normative Norms	0.054	1			
Perceived Behavioral Control	0.220*	0.329*	1		
physical activity Intention	0.356*	0.308*	0.447*	1	
Irrational Beliefs	- 0.269*	- 0.151	- 0.435*	- 0.413*	1
Mean	3.47	2.51	2.46	11.37	2.67
Standard Deviation	1.15	0.98	1.008	5.99	0.69

Source: authors

Figure 1 illustrates the path pattern of research variables. In Figure 1, the direct non-standard effect of exogenous variable (irrational beliefs) on the constructs of the planned behavioral model (attitudes, subjective norms and perceived behavioral control) and the physical activity intentions and the direct non-standard effect of endogenous variables (attitudes, subjective norms and perceived behavioral control) on the physical activity intention have been shown. As

can be seen, the direct of irrational beliefs on attitudes, perceived behavioral control and physical activity intention is significant. Also, the direct effect of attitude, subjective norms and perceived behavioral control on physical activity intention is significant. But, the direct effect of irrational beliefs on subjective norms is not significant.

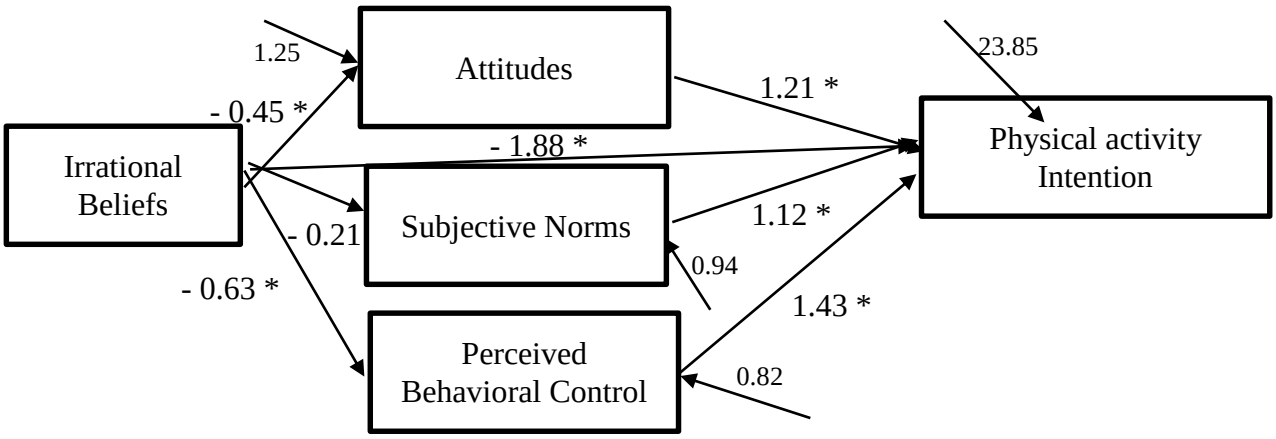

Figure 1. The pattern of the path model of the effect of irrational beliefs on the structures of the planned behavior model (an asterisk symbols (*) indicates that the t-statistic is significant)
Source: authors

Table 2 shows the fitting indices of the path model. As shown significant indices, such as ratio of Chi-square to df, Non-Normal Fit Index (NNFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA), are far from optimal value and confirm that research data does not fit well with the model.

Table 2. Fitness indices of the predictive model in path analysis

Indices	Chi-square	df	Chi-square/df	NFI	NNFI (TLI)	GFI	AGFI	CFI	RMSEA
Observed Values	16.3 P = 0.001	3	5.4	0.83	0.7	0.96	0.8	0.91	0.166
Optimal Values			Less than 3	More than 0.9	More than 0.9	More than 0.9	More than 0.9	More than 0.9	Less than 0.08

Source: authors

The study of path coefficients (as shown in Fig. 1) and the calculation of the value of t showed that the direct effect of irrational beliefs on subjective norms is not meaningful (t <2). Table 1 also shows that there is a meaningful relationship between perceived behavioral control and subjective norms.
By eliminating the effect of irrational beliefs on subjective norms and also adding the effect of subjective norms on perceived behavioral control, a new model was obtained. This new model was fitted with the data (table 3).

Table 3. Fitness indices of the fitted predictive model in path analysis

Indices	Chi-square	df	Chi-square/df	NFI	NNFI (TLI)	GFI	AGFI	CFI	RMSEA
Observed Values	2.31 P = 0.312	2	1.115	0.92	0.99	0.99	0.96	1	0.031
Optimal Values			Less than 3	More than 0.9	More than 0.9	More than 0.9	More than 0.9	More than 0.9	Less than 0.08

Source: authors

Figure 2 shows a new hypothesis model fitted with research data. As can be seen, the direct effect of exogenous variables (irrational beliefs and subjective norms) on the physical activity

intention is significant. Also, based on t statistic, the effect of total irrational beliefs on the physical activity intention (-3.5) and the indirect effect of irrational beliefs on the physical activity intention (-1.62) were also significant. Therefore, 53.71% of the total effect was related to the direct effect of irrational beliefs on the physical activity intention and 46.28% related to the indirect effect of rational beliefs on the physical activity intention.

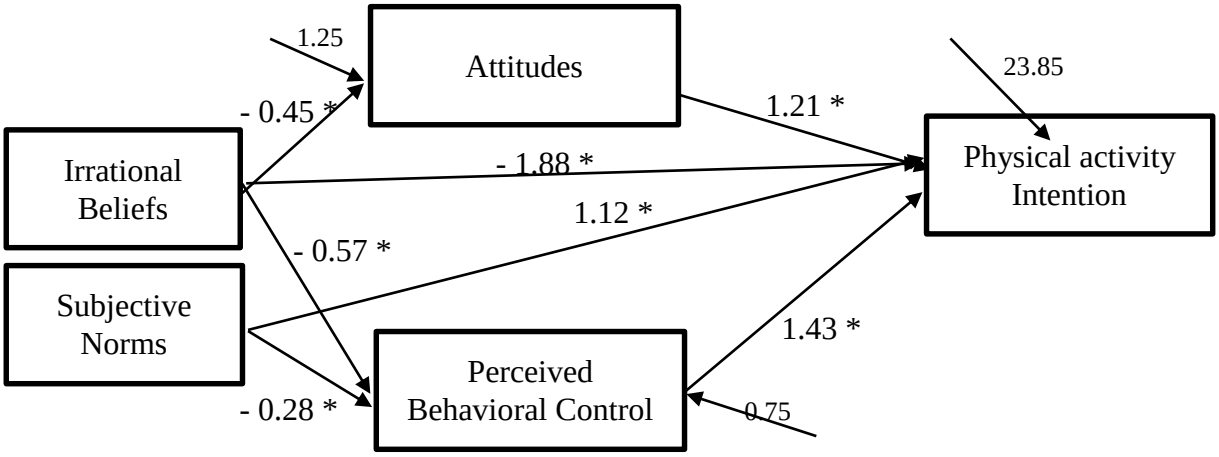

Figure 2. The path model of the fitted hypothesized model with research data ((an asterisk symbols (*) indicates that the t-statistic is significant)
Source: authors

After calculating the standard coefficient of irrational beliefs about the physical activity intention (-0.22) and its division into correlation coefficient between these two variables (0.413), it can be deduced that 53.26% of the relationship between the two variables of "irrational beliefs" and "physical activity intention "refers to structural effects and the remainder to non-structural. Irrational beliefs had a direct and negative structural effect on attitude (-0.45) and perceived behavioral control (-0.57).

The multiple determination coefficient for structural equations also showed that about 9.6% of the variation of the physical activity intention is explained by this pattern. The analysis of the path of the hypothetical model constructs showed that this hypothetical model (with the elimination of the direct effect of irrational beliefs on abstract norms) was a meta-model and according to the fitting indices presented in Table 3 and the t statistic (larger 2) is fitted with the data of this study.

In addition to path analysis, in order to predict the variable of the physical activity intention (an important construct of the planned behavioral model) based on the irrational beliefs (helplessness against change, the demand of approval from others, problem avoidance and emotional irresponsibility), multiple regression analysis was used. Before the assumption of normality of residuals (Kolmogorov-Smirnov test), the assumption of homoscedasticity of the residuals, the assumption of uncorrelated independent variables (Durbin-Watson test), the assumption of the multiple collinearity and assumption of the lack of unvitiated outliers (box plot) and multivariate outliers (Mahalanobiz test) were reviewed and confirmed. Table 4 summarizes the regression model and analysis of the variance of the physical activity intention on irrational beliefs (helplessness for change, demand for approval, problem avoidance and emotional irresponsibility).

Table 4. Summary of regression model and analysis of variance of physical activity intention on irrational belief structures

Model	SS	df	MS	F	sig	R	R^2
Regression	629.72	4	157.432	4.832 *	0.001	0.334	0.112
Residual	5016.98	154	32.578				

Source: authors

Table 5 shows that the regression model of the physical activity intention on the constructs of irrational beliefs is significant ($p<0.05$) and the multiple determination coefficient shows that about 8% of the variance related to the physical activity intention, are explained by structures Irrational beliefs. Table 5 shows the statistical coefficients of each irrational belief structure.

Table 5. Regression statistical coefficients of physical activity intention on the constructs of irrational beliefs

Index Variables	Regression Coefficient	Standard Error	t	sig
Helplessness for change	- 0.807	1.324	- 0.609	0.543
Demand for approval	2.352	1.11	2.119	0.036
Problem avoidance	- 1.678	0.81	- 2.071	0.0379
Emotional irresponsibility	- 0.370	1.293	- 0.286	0.775

Source: authors

According to Table 4, two variables of demand for approval and problem avoidance can predict changes in the physical activity intention.

Discussion

The purpose of this study was to analyse the path of the hypothesized model of the effect of irrational beliefs on the constructs of the planned behavior model, in particular the physical activity intention (Figure 1). The results revealed that the three main structures of the original TPB included attitude, subjective norms and perceived behavioral control, had positive impacts on physical activity intention. The results also show that by eliminating the effect of irrational beliefs on subjective norms and adding the effect of subjective norms on perceived behavioral control, a revised model was adjusted with the data of this study and the direct effect of irrational beliefs on the physical activity intention, attitudes and perceived behavioral control was significant. As a result, irrational beliefs, both directly and indirectly (through attitudes and perceived behavioral control), had an effect on the physical activity intention.

The direct effect of irrational beliefs on the attitude is very important because, according to Hagger et al.[27], attitudes are one of the most important concepts in social psychology and have a noticeable position in many applied social psychosocial fields such as physical activity in which motivational and voluntary behavior is remarkable. On the other hand, important models such as logic model and planned behavior model suggest that attitudes are one of the important predictors of intention and behavior. The theory of planned behavior is the most reliable predictor used in the field of activity. Based on this theory, the position of individuals is important from the point of view of attitudes toward activity, its social effects and its related control factors, and suggests that adopting an attitude-behavior approach may help broaden our understanding of decision making in physical activity[28]. Belief-based studies by Hagger et al.[29] have shown people that beliefs in young people affect attitudes and confirm that a set of belief-based evaluations of physical activity and its expected outcomes, are the basis of attitudes. Since attitudes are often considered multi-dimensional (emotional, cognitive, and functional), it seems that irrational beliefs have a great effect on at least the emotional dimension of attitude. Smith et al.[30] confirmed the relationship between emotional excitement and irrational beliefs. He showed that people with irrational beliefs

are more emotionally distressed in stressful situations than those who have less irrational beliefs. Also, in Smith et al.[30], the demand for high approval from others was linked to the fear of negative evaluation. On the other hand, some other studies have indicated that irrational beliefs can also be related to the cognitive dimension of attitudes. For example, Narimani and Samadifard[31] showed that there is a negative relationship between irrational beliefs, cognitive fusion and social health of individuals. In addition, it has recently been shown that cognitive bias is an irrational belief that influences individuals' decisions by affecting their behavioral beliefs and attitudes[32]. In a recent study, the role of cognitive-behavioral techniques to reduce irrational beliefs and increase concentration in young tennis players has been demonstrated[33]. It is possible that the cognitive dimension of the attitude under the influence of this negative relationship would lose its function as a predicator of the physical activity intention, in particular, if irrational beliefs have a different effect on the emotional and cognitive dimension of attitudes. In this case, they should be considered separately in the model so that their effects are applied independently to the intentions. This requires more research.

On the other hand, irrational beliefs have a direct effect on perceived behavioral control based on the hypothesized model fitted with this research. It seems that there is a degree of overlap between perceived behavioral control (the important structure of the theory of planned behavior) and self-efficacy. Both structures are related to control, and the difference between them is that self-efficacy is based on factors within the individual, but perceived behavioral control is based on factors beyond the individual[34]. Although Hagger and Chatsazaranthes[35] have provided cognitive and empirical evidence in support of this distinction in the field of physical activity, in many cases self-efficacy means individuals judging from their capabilities in the implementation of a set of actions to achieve the goal which includes both internal and external factors. There are several different sources from which self-efficacy information can be obtained[35]. Three of the factors that are most relevant to physical activity are performance accomplishments, vicarious experiences, and social and verbal Persuasion[36]. Performance accomplishments are based on the individual's past results, vicarious experiences are based on comparing their results with others and persuasive information includes verbal persuasion (from their own or others). Probably, the construct of "demand for approval", one of the most important constituents of irrational beliefs, is to be closely related to verbal and social persuasion. People who expect to be approved by others seem to have no positive self-esteem about their performance. These people, when not approved by others, lose their belief in doing the right thing, and this means low self-efficacy and perceived behavioral control. In the present study, there was a significant positive relationship between irrational beliefs and perceived behavioral control. The hypothesized model also showed a direct negative significant negative effect on irrational beliefs on perceived behavioral control. Along with this study, Ozer and Akgum[37] showed that there is a negative relationship between the irrational beliefs and academic self-esteem of students. In addition to the "demand for approval" construct, other constructs of irrational beliefs called "Problem avoidance" can also be related to autoimmunity. The belief that instead of dealing with a behavior (such as exercise behavior), it can be effective on self-efficacy and perceived behavioral control. As discussed earlier, performance enhancements are one of the factors that increase self-efficacy. If one is to avoid doing things, such performance gains will never exist. In other research, it's better to study the relationship between irrational beliefs with self-efficacy and perceived behavioral control separately.

Contrary to the hypothetical model of this study, irrational beliefs had no effect on subjective norms. Subjective norms are the important of others' expectations and the degree to which a person wants to live up to those expectations. This result show that the effect of social environment expectations on individual behavior is very strong and independent of individual beliefs. This means that people, regardless of their level of irrational beliefs, tend to meet environmental expectations. One of the reasons that can be mentioned in this regard is that in terms of consequentialism (being consequential of not), irrational beliefs and social norms are in conflict

with each other. In irrational beliefs, the result is important and all its constructs depend on the result of the action performed, but in social norms, the execution of the action that is expected by others is important and achievement of the result is secondary[38]. Although the response to the expectations of others (subjective norms) is expected to decrease as irrational beliefs increase, this relationship is weak for the reason given (correlation results between the two variables also confirm this result. A weak association between irrational beliefs and social interaction has been shown in another study[39]. Of course, these results need to be re-examined in competitive sports where subjective norms are highly anxious. Recent research has shown that irrational beliefs mediate the relationship between cognitive evaluation and emotional states and play an important role in controlling anxiety[40].

In addition, in the fitted model of this study, the effect of subjective norms on perceived behavioral control was negative and significant. This means that perceived behavioral control decreases as the expectations of others and the degree to which one wants to meet them decrease. This shows that the individual's perception of her control over her behavior (here physical activity) is in contrast to the expectations of others. Anxiety is likely to increase as other's expectations increase. It has been stated that with increasing anxiety, it is difficult for many people to maintain real or perceived control[41]. Pereira, Barros and Mendonca[42] observed a significant negative relationship between perceived control and anxiety in primary school children in physical activity.

Among other results of this study were a direct effect of irrational beliefs on the physical activity intention. Also, multiple regression analysis showed that the predictive model of physical activity intention based on irrational belief constructs is meaningful and two variables of demand for approval and avoiding problem are significant predictors for the physical activity intention. Since, based on theories of reasoned action and planned behavior, intentions are the predictor of behaviors, their increase will probably lead to increased behavior? Of course, various studies have shown that the intention-behavior relationship in the planned behavior model has not yet been fully modeled [43]. Luzinquaw et al.[18] showed that the exercise intention has a limited predictive power, and when we try to pass intentions into behavior, people encounter with various barriers such as sensory factors, forgetfulness, temptation, or opposite habits.

This weak relationship between intent and behavior makes the probability of mediating variables, such as irrational beliefs more probable. Although examining the mediating role of irrational beliefs in relation to the intention-behavior requires a separate research, the results of this study are implicitly referred to this matter. According to the results of this study, people with high irrational beliefs had little physical activity intention (negative meaningful relationship). In line with this study, Ramezanzade and Arabnarmi[44] showed that irrational beliefs are associated with not engaging in physical activity and that two variables of helplessness in the face of change and problem avoidance play an important role in this relationship. People whose exercise are subject to others' approval, or their avoidance is due to intrinsic factors associated with exercise (such as fatigue, sweating, time allocation, muscle aches, etc.), try to avoid it, and do not intend to do so even if they decide to exercise after providing some conditions. The importance of the negative effect of irrational beliefs on the physical activity intention is the same. For the realization of such goals, it seems that the irrational beliefs of individuals should be identified and reduced. Although the intent-behavioral intermediaries are not low, and there are many intermediary researches such as personality traits[20], the existence of other competitive goals[45], geographic region, race, gender, and income[46], self-efficacy[47], task[19] but based on the results of this study, consideration of irrational beliefs in the transmission of intent-behavior can be very important.

Conclusion

The results of this study showed that irrational beliefs indirectly (with effect on attitudes and perceived behavioral control) and directly (effect on the physical activity intention) can affect

exercise behavior. Also, according to the results of this study, "demand for approval from" and "problem avoidance" are two very important predictors of physical activity intention. Therefore, it is suggested that strategies based on Ellis's rational-emotional-behavioral theory[48], such as the strategy of cognitive-behavioral group therapy, are recommended to develop the students' physical activity intention and exercise itself, especially in students with high irrational belief to reduce students' unreasonable beliefs. The impact of these strategies has not been the subject of this study, but various studies have shown that the use of these strategies can be effective in reducing irrational beliefs.

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ORCID number:
Bita Arabnarmi: https://orcid.org/0000-0002-2618-6013
Hesam Ramezanzade: https://orcid.org/0000-0002-7643-8899

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Correspondence address: Hesam Ramezanzade, Department of Sport Scince, School of Humanities, Damghan University, Damghan, h.ramezanzade@du.ac.ir