

Checking the determinants of physical activity based on the theory of planned behavior in the housewives

Fatemeh Saber, Hossein Shanazi, Gholamreza Sharifirad¹, Akbar Hasanzadeh²

Department of Education and Health Promotion, ²Department of Statistic and Epidemiology, School of Health, Isfahan University of Medical Sciences, Isfahan, ¹Department of Public Health, School of Health, Qom University of Medical Sciences, Qom, Iran

ABSTRACT

Background: Sedentary life has been recognized as a serious problem in today's Iranian society. Promoting the lifestyle with increased physical activity and prevention of cardiovascular disease (CVD) is imperative. The purpose of this study was identifying the determinants of physical activity in the housewives of Nain city in 2012 based on the theory of planned behavior. **Materials and Methods:** In this cross-sectional study, 120 housewives were selected by simple random sampling method. Data collection tool was a questionnaire designed based on a standardized and fabricated questionnaire and consisted of four parts. The questionnaire included awareness variables, theory of structures, planned behavior, and physical activity. Data analysis was performed using the SPSS software version 18 and associated statistical tests. **Findings:** The 120 housewives under study had a mean age of 34.58 ± 6.86 years. The mean scores of awareness, attitude, motivation to perform, subjective norms, and perceived behavioral control variables were 74.1 ± 18.5 , 82.6 ± 12.1 , 59.4 ± 21.7 , 63.2 ± 21.2 , and 48.1 ± 12.9 respectively. There was a significant relationship between the motivation for physical activity among women and knowledge ($P = 0.02$) attitude ($P = 0.04$) subjective norms ($P = 0.002$) perceived behavioral control ($P = 0.001$), and physical activity ($P = 0.04$). **Conclusions:** It seems that the housewives, despite being aware of and having a positive attitude on the benefits of physical activity, had a poor lifestyle. Perhaps further studies can help in finding the causes of this issue and the barriers to physical activity such as the conditions and plan for greater measures for improving physical activity, in order to promote women's health which has a significant role in family and community health.

Key words: Housewives, physical activity, theory of planned behavior

Address for correspondence: Prof. Gholamreza Sharifirad, Department of Public Health, School of Health, Qom University of Medical Sciences Qom, Iran. Email: Sharifirad_gh@yahoo.com

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INTRODUCTION

Physical activity is considered as a priority area of public health. Adequate and regular physical activity is the main factor for protection and promotion of health in the entire lifespan of humans.^[1] Many scientific studies have reported results proving that regular exercise is the best way to prevent and treat the effects of aging with favorable effects on blood health. Regular exercise is the best way to control blood sugar level. Exercise is also associated with reducing the level of anxiety and depression, increasing the confidence, is effective in improving psychological level, and has many protective benefits on hypertension, type II diabetes, osteoporosis,

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colon cancer, and obesity.^[2] Therefore, promotion of physical activity is one of the most important and effective strategies to reduce the risk of some of the non-communicable diseases.^[3] The minimum physical activity requirement to maintain and promote health in adults is for 30 min with moderate intensity and for 5 days per week.^[4] Given that women make up about half of the world's population, their health could be a guarantee for public health.^[5] Physical activity can help to improve women's health and prevent diseases and major disorders in women.^[6] Despite numerous recommendations, especially to women, they do not participate in physical activity by increasing the age and their activity level is reduced physical activity as its level with increasing the age and their activity is reduced. Only 14-16% of women 45-74 years have desirable physical activity. Physical inactivity or sedentary women may be a function of individual, psychological, and social factors, the understanding of which helps the healthcare providers to design and implement appropriate and strong interventions. In order to promote physical activity behavior, according to the presence of problems in the creation and maintenance of physical activity behavior and the complexity of this behavior, it is necessary to use the theories and models of behavior in the field.^[7] Because the effective theories and models on behavior are the main factors, their relationship should be identified.^[8] One of the most effective models of education and health promotion is the theory of planned behavior. Its performance has been demonstrated in explaining and predicting various health behaviors. Several studies^[9-11] have reported that the theory of planned behavior is effective in assessing the physical activity and planning control interventions for its promotion. In this theory, the most important determinant of individual behavior is the individual motivation, which is influenced by three constructs: Attitude, norms, and perceived behavioral control.^[12] The theory of planned behavior has been used widely for items in health behaviors such as diet, using contraceptive pills, exercise, participating in health screening programs, and road safety. This theory is able to explain, on average, about 40% of the association between motivation and health behavior. As a result, there is a claim that it has a potential capacity to develop behavioral change interventions.^[13] Thus, understanding the level of physical activity of housewives at the city level and identifying its determinants based on the features and climatic conditions, especially in this region, can help in planning and implementation of educational programs in accordance with the conditions, and creates possibilities for encouraging them to do regular physical activity and helps in taking timely interventions to improve their physical activities. Therefore, in this study, we tried to investigate the determinants in physical activity of housewives in the city of Nain based on the structures of planned behavior theory.

MATERIALS AND METHODS

This was a descriptive cross-sectional study performed to review and understand the factors influencing the physical activity behavior of the housewives in the city of Nain in 2012. One hundred and twenty housewives were selected by simple

random sampling method using the existing health records in the health centers of the city. Inclusion criteria were women of age 20-45 years, residing in the city of Nain, and being literate. Exclusion criteria were unwillingness to participate in the research and disability diseases. The questionnaire used in this study consisted of four parts. They are described below.

A. Demographic and background questions

They included five questions to assess age, economic situation, number of children, education, and history of joining the sport club.

B. Questions related to awareness and constructs of planned behavior theory

For collecting the data, the researcher-made questionnaire based on the guidelines and existing standard tools was used, and included awareness (10 questions), attitude to the behavior (5 questions), subjective norms (4 questions), motivated behavior (5 questions), and perceived behavioral control (6 questions). In order to assess the scores of different aspects of the proposed approach, a 5-point Likert scale was used for questions on attitude, motives, and perceived behavioral control. A 4-point Likert scale was used for questions about norms. Since there was no standard questionnaire in this regard for the theory of planned behavior, the questionnaire was designed by using two design guides. As per the methods of Francis *et al.*^[14] and Ajzen,^[15] the evaluation and verification of the contents of the designed and structured questionnaires were examined by using the comments of 15 teachers and minor changes were made. A preliminary study was conducted on 15 housewives in order to check the reliability of the questionnaires. The reliability of the questionnaire was confirmed by using the Cronbach's alpha test, with the exception of the questions in the awareness part as follows.

Attitude

This consisted of five questions (alpha coefficient = 0.84). The scoring method was a 5-point Likert scoring type for responses from "strongly agree" to "strongly disagree." The responses to the questions of attitude were given a score from zero to four, i.e., the option of strongly disagree gained zero and the option of strongly agree gained four.

Subjective norms

This consisted of five questions (alpha coefficient = 0.83). The scoring method was a 4-point Likert scoring type for responses from "always" to "never." The range of scores for the responses to subjective norms questions was from zero to three, i.e., the option of never gained zero and the option of always gained four.

Perceived behavioral control

This included six questions (alpha coefficient = 0.74). The scoring method was a 5-point Likert scoring type for responses from "strongly agree" to "strongly disagree." The range of scores for responses to questions on perceived behavioral

control was from zero to four, i.e., the option of strongly disagree was given zero and the option of strongly agree was given four.

Motivated behavior

This consisted of five questions (alpha coefficient = 0.89). The scoring method was a 5-point Likert scoring type for responses from “most likely” to “less likely.” The range of scores for the responses to questions on motivated behavior was from zero to four, i.e. the option of less likely gained zero and the option of most likely gained four.

C. International physical activity questionnaire

Questions related to performance (physical activity in the previous 7 days) and scoring the behavior part (performance) of physical activity were based on the standard International Physical Activity Questionnaire and questionnaire of international protocol. According to this guideline, the total intensity of physical activity performed by a person due to the median energy in the last 7 days was placed in one of the three groups: Light, medium, and heavy.^[16] Activities with duration of less than 10 min were not considered in the calculation. The combination of moderate intense physical activity or hiking for at least 5 days with at least 600 MET-min/week was considered moderate. In the case of the total used energy for an intense physical activity reaching 1500 MET-min/week for at least 3 days in the last 7 days or 3000 MET-min/week over the last 7 days to perform a combination of moderate or severe activity, or hiking, the intensity of physical activity was considered to be severe. If there was no report in the questionnaire about any of the activities based on the above conditions, the intensity of the activity was classified as low intensity or light.^[16] Data collection was performed by making phone calls to the participants or referring them directly to the health center. On completion of the questionnaires and for ease of comparison, the scores of all parts of the questionnaire were calculated based on 100.

After completing the questionnaires, the obtained data were entered into the SPSS software version 18. The following tests were used for statistical analysis of data. Statistical tests for the determination of the mean and the standard deviation of awareness and structures of the planned behavior theory, Pearson correlation test in order to determine the relationship between motivation for physical activity and awareness and the structures of the planned behavior theory, and the Spearman test to determine the relationship between motivation for physical relationship between intention for physical. It should be noted that before conducting the study, informed consent was obtained from the participants. All morals were considered at all stages of research. All procedures were performed with the permission of Isfahan University of Medical Sciences and offering the referral to the Nain health network.

FINDINGS

The selected group was checked in terms of underlying factors such as age, education, number of children, economic

status, and history of joining the sport club [Table 1]. The age range of participants in the study was 20–45 years, with a mean of 31.58 and a standard deviation (SD) of 6.86 years. The following mean scores were obtained: 74.1 ± 18.5 for awareness, 82.6 ± 12.1 for attitude, 59.4 ± 21.7 for motivation to perform, 63.2 ± 21.2 for subjective norms, and 48.1 ± 12.9 for perceived behavioral control [Table 2]. The results showed a significant relationship between the motivation for physical activity among the women and awareness ($P = 0.02, r = 0.21$), attitude ($P = 0.04, r = 0.19$), subjective norms ($P = 0.002, r = 0.28$), perceived behavioral control ($P = 0.001, r = 0.3$), and physical activity ($P = 0.04, r = 0.16$) [Table 3].

Table 1: Distribution of absolute and relative frequency of demographic variables in the selected group

| Demographic variables | Number | Percentage |
|---------------------------------|--------|------------|
| Number of children | | |
| 0 | 18 | 15 |
| 1 | 45 | 37.5 |
| 2 | 44 | 36.7 |
| 3 and more | 13 | 10.8 |
| Education level | | |
| Elementary-secondary | 51 | 42.5 |
| High school-diploma | 40 | 33.3 |
| Associate degree-BA | 26 | 21.7 |
| MA | 3 | 2.5 |
| Economic status | | |
| Good | 20 | 16.7 |
| Average | 90 | 75 |
| Weak | 10 | 8.3 |
| History of joining a sport club | | |
| Yes | 94 | 78.3 |
| No | 26 | 21.7 |

Table 2: The mean (0-100) scores of awareness and structures model of the theory of planned behavior about housewives’ physical activity

| Variable | Mean | SD |
|------------------------------|------|-------|
| Awareness | 74.1 | 18.44 |
| Attitude | 82.6 | 12.1 |
| Behavioral motivation | 59.4 | 21.7 |
| Subjective norms | 63.2 | 21.2 |
| Perceived behavioral control | 48.7 | 12.9 |

SD = Standard deviation

Table 3: Evaluation of the association of motivation with awareness and other structures of the theory of planned behavior on physical activity

| Variable | Motivation | |
|------------------------------|------------|-------|
| | P | r |
| Awareness | 0.02 | 0.19 |
| Attitude | 0.04 | 0.15 |
| Subjective norms | 0.002 | 0.17 |
| Perceived behavioral control | 0.001 | 0.006 |
| Physical activity | 0.04 | 0.16 |

DISCUSSION

Determining the amount of physical activity of the housewives and identifying its determinants can help in planning and implementation of educational programs to encourage women to exercise and also helps in taking timely interventions to correct it. The theory of planned behavior has been used widely for health behaviors including physical activity.^[10] This study was conducted with the objective of finding the determinants of physical activity of the housewives based on the theory of planned behavior. The findings revealed that the mean score of subjective norms in the housewives was moderate. Tabatabaei *et al.*'s study result is consistent with these findings.^[9] They showed a significant positive correlation with physical activity behavior through motivation ($P = 0.002$). In addition to the study of Omondi *et al.*,^[17] the results of previous studies based on the theory of planned behavior are in agreement with the existence of the relationship between the social norms and motivation to perform physical activity. These cases are consistent with the results of this part of the present study. Although in this study, the relationship between subjective norms and motivated behavior was found to be significant, the data from a review of literature regarding the planned behavior suggested that the subjective norms have been consistently weaker predictors compared to the attitudes and behavioral control.^[18,19] For example, the findings from a study conducted by Bozionelos about the prediction of exercise behavior based on the theory of planned behavior showed that subjective norms construct had no significant relationship with motivation to exercise. This thread proved that there was a weaker relationship between the subjective norms and behavioral motivation compared with other related structures. These results are inconsistent with the findings of this study.^[20] Inconsistency of the obtained results of the investigations on the structure of subjective norms could be attributed to the behavior based on individual, social, and cultural characteristics of the subjects. In this regard, Fishbein and Ajzen reported in 2004 that the relative importance of subjective norms, attitudes, and perceived behavioral control for the prediction of motives and their intentions could be varied, ranging from a behavior to other behaviors and from a community to other communities. The results of this study reveal that the subjective norms acted as the influencing factor on physical activity. This result could indicate that the women are more influenced by their surroundings for adopting healthy behaviors. Therefore, employing family members, close friends, and other important persons of women in their intervention programs can be effective. Motivation to perform the behavior of physical activity in women is affected not only by subjective norms but also by their attitude, including positive and negative beliefs, compared with the behavior and evaluation of the results ($P = 0.04$) including positive and negative beliefs, related with the behavior and evaluation of the results.^[21] The results showed great attitude and positive evaluation about physical activity. This is consistent with the findings of similar studies performed in this regard.^[4,9,10,22] However, this positive attitude has not been enough in

increasing the physical activity among them. Hazavehei *et al.* referred to this point that attitude alone cannot guarantee the performance. In fact, despite the correlation between attitudes and behavior, according to the theories, behavior can be influenced by different factors such as motivation and subjective norms. Thus, it confirmed the appropriate usage of models and theories in changing the behavioral problems.^[22] The findings revealed that women have had moderate control for physical activity. Tabatabaei's study result is also consistent with these findings.^[9] Since the perceived behavioral control depends on the presence or absence of a facilitator or the presence of obstacles to perform a behavior, this result obtained in the studied population implies that due to the obstacles the women did not have complete control on exercising. In particular, the studies have shown that one of the determinants of physical activity is the obstacles, which the individual is facing to perform these behaviors, and the abilities to overcome the barriers to physical activity have a significant positive relationship with increased physical activity.^[23] Physical activity is associated with the availability of a place to exercise, sports equipment, and a vehicle to go to practice or exercise.^[24] The people, when they are excited for health behaviors (e.g., physical activity) and even in dealing people, when they are far for health behaviors (e.g. physical activity) and even in dealing with the challenges, they did it to have the sense of control over the behavior.^[25] As the present study was performed in only one city, some of these barriers could be related to the lack of a suitable place for women's sports, sports equipment, and a vehicle to go to perform training or exercise program. Another part of these barriers was concerned with the location (desert city) of the city. The conflicting results obtained in other areas or other climatic conditions could be because the design of the training programs in accordance with the features, conditions, and society requirements can be effective in promoting the physical activity. The results showed that the perceived behavioral control had a significant direct relationship with the activity of housewives ($P = 0.05$). People with regular physical activities have more control over their behavior and related barriers.^[26] Behavioral motivation compared to other model structures had a better power of determination ($P = 0.04$). The prediction of behavioral motivation was consistent with the findings of Sutton's study, which proved that the motivation of an individual to perform a certain behavior could be the first and best predictor of his/her behavior.^[27] The results of the present study also indicated the same. The results showed moderate motivation of the women for physical activity, which was consistent with the study result of Tabatabaei *et al.*^[9] Therefore, adopting learning approaches of influencing motives can be effective in reaching the optimal level of physical activity for women. Regarding physical activity, the results indicated that 76.7% of the participating housewives did not have enough exercise. In this regard, Saeidi noted in his study that more than 70% of women in Isfahan did not have enough exercise. In another study, he showed that more than two-thirds of housewives had no physical activity at their leisure time.^[28] The only explanations for this inactivity could be the wrong lifestyle,

fast progress of civilization, and industrialization of life. In the past, women used more of their physical strength for doing the household tasks. Nowadays, they are not only active, but also on the other hand, non-active behaviors have become very common among them, such as watching TV, etc., which have taken the place of entertainments such as sports, playing with kids, and so on. They also teach these habits to their children. Women have different roles like being a daughter, mother, wife, employee, boss, friend, neighbor, and so on. Having been assigned to each of these tasks can create stress. Thus, the women often prefer to concentrate on the careers, education, housekeeping, and childcare, and these have been of higher priority in their lives compared to being physically active. In addition to the above factors, as the study was performed at the level of only one city, lack of facilities and sports venues should also be taken into account. On the other hand, the area is located in a desert with extremely hot or cold weather and there has been inadequate area for performing physical activity. In addition to the variables of the proposed model, experiences and personal characteristics act as external factors (awareness, levels of education, age, economic situation, and membership of sports clubs) that can explain and predict directly and indirectly the physical activity behavior in women. In this study, given the high level of awareness among women, there was no significant relationship between consciousness and physical activity. This is consistent with the study result of Tafakor *et al.*^[29] It appears that the problem of inactivity in this group was due to lack of converting the awareness to performance. Programs to promote physical activity in the community should focus on this section. In the present study, there was no significant relationship between educational level and income, and the amount of physical activity. However, Humphreys and Ruseski's^[30] and Brown and Roberts's^[31] studies have reported income and education as the two impact indicators of participation in physical activities and the time to participate in these activities. The results of the present study are in agreement with the results of Gharly Pour *et al.*'s^[32] study. The difference might be due to the fact that the impact of education and income has been influenced by the role of other factors in the present study, such as doing family-related tasks, as the barriers to physical activity and has reduced the levels of physical activity among women. In the studies of Momenan *et al.*^[33] and Didarloo *et al.*,^[34] education was mentioned and considered as a strong predictor of physical activity behavior. This difference can be attributed to the difference in the study population (diverse population of Momenan *et al.*'s study^[33] regarding age, gender, and occupation). On the other hand, the study of Didarloo *et al.*^[34] was performed on a population with diabetes. In the present study, it was found that there was no significant relationship between women's participation in physical activity and age. This result is consistent with the results of Costanzo *et al.*'s study which indicated that age was not a prognostic factor of physical activity.^[35] According to the results of some other studies, health-related behaviors such as physical activities are formed in childhood, and after going through puberty and

with aging, there will not be a significant change in them.^[36] This factor confirms the findings of this study due to the age range of patients in this study. Although the study findings increased our insight of the factors in physical activity behavior, based on the proposed model, it was associated with some limitations. First, cross-sectional method was used in this study to describe the relationship between the variables. The essential feature of a cross-sectional study is that the data are collected in one period and this limits the ability to determine the causal relationships between the variables. Second, in this study, the data were self-reported; therefore, they may not reflect the actual performance of the participants.

CONCLUSIONS

Overall, the present study revealed the relative importance and the structural relationships of the proposed model on the behavioral motivation and physical activity behaviors. Therefore, it is necessary to take into consideration this relationship for designing educational interventions to promote physical activity in women. For example, in order to increase motivation to perform physical activity or reduce sedentary lifestyle among women, the healthcare providers should focus on perceived behavioral control at first and then consider the structures of subjective norms, attitude, and psychological and social factors influencing behavior to increase the women's perceived behavioral control. In order to perform physical activity, they should use the strategies to overcome barriers for proper physical activity. Thus, the improvement of perceived behavioral control with educational interventions helps the women to adopt the self-care behaviors, especially physical activity.

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