

# Effect of Educational Intervention Based on Theory of Planned Behavior and Reduced Water Pipe smoking among Women above 15 (yrs.) in Bandar Abbas

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**ABSTRACT:** Introduction: Smoking water pipes is becoming increasingly popular among families, youths and teenagers especially women. It is considered as a new challenge to public health. The present study aims to determine the effectiveness of an instructional program based on the theory of planned behavior in cutting down on water pipe smoking among women aged above 15 in Bandar Abbas in 2015. Methodology: In this semi-empirical research, 128 women above 15 years of age who smoked water pipes at least once a day were selected in a multi-stage clustering sampling method. They were divided into two groups: a control and a treatment group. The data were gathered using a reliable and valid questionnaire based on the sub-constructs of the theory of planned behavior as well as the demographic information. The participants filled out the questionnaires before the instructional intervention. The intervention was conducted according to the results of the pre-test for the treatment group within 4 sessions. They were followed up for 2 months after the intervention. Then, the subjects responded to the questionnaires once more. Finally, the collected data were analyzed using independent sample t-test, matched t-test and chi-squared test. The significance level was set at .05. Findings: The results of the present study revealed a significant divergence between the mean scores of the following variables in the two groups: attitude, behavior intention, subjective norms and perceived behavior control ( $p \leq .05$ ). Moreover, the frequency of waterpipe smoking among the female participants of the treatment group was significantly reduced as compared to the control group ( $p \leq .05$ ). Conclusion: The findings of this research indicated that designing an instructional intervention based on the theory of planned behavior can act as an effective strategy in reducing the rate of smoking water pipes among women.

**Key words:** women, water pipe, theory of planned behavior, instruction

## INTRODUCTION

Smoking is an underlying factor of global diseases, disabilities and premature mortality. It is considered as an overwhelming global health-threatening problem in the world (1).

A great number of people perceive water pipe smoking less threatening than smoking cigarettes since they think the tobacco germs are filtered through water (2). Although the water pipe addicts perceive it to be less addictive and life-threatening than cigarettes, scientists believe to the contrary (as their research findings showed the contrast) (3) (4). Smoking a cigarette takes a few minutes. A water pipe, on the other hand, takes hours. Smoking a water pipe for 30-60 minutes is equal to smoking a pack of cigarettes (5). The smoke produced from a water pipe contains more nicotine and carbon monoxide (1). The side effects of smoking water pipes proliferate since tobacco smoke contains more than 4,000 different chemicals most of which are produced once tobacco is burned and is combined with over 40 cancerous materials (6).

The blood nicotine of those smoking water pipes daily is similar to those who smoke 10 cigarettes a day (7). Water pipe smokers, as compared to cigarette smokers, showed to have more hemoglobin carboxyl in their

blood (1). A body of research has shown that water pipe smoking has higher concentrations of carbon monoxide, nicotine, tar and heavy metals (3). The body of research into the disadvantages of water pipes have indicated a correlation of smoking and affliction with oral cancer, lung cancer and malfunctioning respiratory and cardiovascular systems (8), lower fertility and premature mortality (9) as well as a syncope (10).

International reports show that smoking water pipes has turned into a social crisis (11). It is becoming more and more popular due to the wrong belief that it is safe and non-threatening. Public awareness and knowledge of its harms is seriously lacking (5). The high rate of smoking water pipes is also due to its public reception (12), availability in different tastes and the low costs involved (1). Presently, water pipes are seen as a new crisis among the young and is called 'the global smoking epidemic' by global health authorities (13).

Interventions based on the theory of planned behavior have attested to the positive effect of this theory on changing different behaviors.

Joveini et al. investigated the effect of an instructional intervention based on the theory of planned behavior aiming to quit water pipe smoking. They observed a significant divergence of the following mean scores between the two control and treatment groups: attitude, behavioral intention, subjective norms and perceived behavioral control. A significant reduction in waterpipe smoking was also observed in the treatment group as compared to the control group after the intervention (14).

Mehri et al. investigated the effectiveness of an instruction program based on the same theory on motorcyclist clerks' using helmets. They found positive effects of the instructional program on all variables of the pattern (15).

Besharati et al. aimed to evaluate the effect of an instructional intervention based on the theory of planned behavior in opting for the baby delivery type. A significant difference of mean scores was found between the two research groups in terms of the following variables: awareness, result evaluation, attitude, perceived behavioral control, subjective norms and behavior intention. Their performance was significantly different and this attested to the effectiveness of the instructional program (16).

In their research, Barati et al. aimed to investigate the effect of an instruction based on the theory of planned behavior on preventing MDMA (ecstasy) abuse among university students. Significant differences in mean scores were found in terms of these variables: attitude, subjective norms and perceived behavioral control. Similarly, a significant correlation was observed between using an instructional intervention to cut down on the intention of taking ecstasies and ecstasy abuse between the two treatment and control groups (17).

Hatefnia et al. sought to investigate the effect of instructions based on the same theory on working women's conduction of mammography. After the intervention, a significant increase was observed between the mean scores of awareness, attitude, subjective norms, perceived behavioral control, intention and conduction of mammography in the treatment group. These changes were not significant in the control group (18).

The majority of studies in Iran only show the prevalence of smoking water pipes and no research has been conducted to evaluate the factors involved in water pipe smoking and the effect of instructional programs based on the theory of planned behavior among women. Therefore, due to the prevalence of water pipe smoking among women in Hormozgan and the example mothers set for their children as well as the effect of inhaled smoke on neighboring non-smokers, the present research attempts to look into the effect of instructional programs on the pattern of smoking water pipes based on the theory of planned behavior.

## **MATERIALS AND METHODS**

The present applied, interventional research consisted of a pre-test and a post-test. The research population was comprised of women above 15 years of age who smoked water pipes at least once a day. The minimum sample size was 64 in each group (control and treatment). The sample selection method was multi-stage clustering. Initially, the city of Bandar Abbas was divided into four geographical areas. Then from each area, one healthcare center was selected as a cluster. From among the four geographical areas, 2 were randomly selected for selecting the 64 subjects for the treatment group, and from another 2 randomly selected healthcare centers another 64 subjects were selected and allocated to the control group. To select qualified subjects, the researcher would visit a healthcare center in person and examine the existing household files in that center and would then choose one randomly which acted as the outset of sampling from that specific center. The researcher would next visit the house address in the randomly selected file. The questionnaire would then be submitted to the first subject in the sample and be filled out in case the subject was willing to participate. After the first visit, the researcher would go to the houses on the right side of the first house and this way asked the qualified subjects to participate. This trend would continue until the 32 subjects of the cluster were selected and the final 128 subjects (64 in the treatment and 64 in the control group) were specified. For illiterate women, the questions were read out loud and

they answered orally. After this process, the instructional intervention was made and the pretest and posttest were designed. The 64 subjects who had been selected were invited to join the treatment group and pass the instruction course within the following days.

This instruction was provided within 4 sessions each taking 60-90 minutes as a lecture, group discussion, question and answers, role play and handing out a guide book.

To facilitate behavioral belief, brainstorming and projection methods were used. Here, people would state out their beliefs about smoking water pipes. Concerning the construct of outcome evaluation, the positive outcomes of quitting water pipe smoking were discussed. To facilitate normative belief, role play was used and in the case of the motivation to comply, discussions were held around the positive outcomes of quitting water pipe smoking (or the negative effects of water pipe smoking). For controlled beliefs, they discussed the behavioral facilitative factors. In order to balance the perceived power, role models were used to cut down on the rate of water pipe smoking. Within two of the interventions, the posttest was given in the form of questionnaires being filled out by both groups. The aim was to assess the efficacy of the intervention program on women.

The data collection instrument was a questionnaire whose reliability and validity were established by Joveini et al. (2012) (27). In the present research, the data were gathered via a questionnaire or interviews with subjects. The former was comprised of two main parts:

In the first part, the questions inquired about age, gender, marital status, educational degree, income, parents' education, spouse's education, accommodation and the frequency of smoking water pipe a day or a week and the smoking background.

The second part included the constructs of the theory of planned behavior, comprised of 10 items pertaining to perceived behavioral control and 3 items pertaining to behavioral intention.

The data were analyzed using SPSS version 19. Independent sample t-test was used to compare the quantitative values between the two groups. Matched t-test was used for the intra-group comparisons (in the pre and post tests). For qualitative analysis, chi-squared test was used. Matched t-test was used to compare the pre-intervention and post-intervention sub-construct scores. The significance level was set at .05.

**Findings**

In this interventional research, 128 subjects participated half of whom belonged to the treatment group and the other half belonged to the control. In both groups, about half of the subjects were married. The education level ranged from illiterate to an associate degree. In both groups, housewives outnumbered the working women (96% in the control group and 92% in the treatment group). Further information is provided in table 1:

Table 1. Frequency distribution of subjects' demographic variables in each group

P-value	df	Test value	Total		Treatment group		Control group		Sub-variable	variable
			%	n.	%	n.	%	n.		
0/275	--	3/818a	85/9	110	87/5	56	84/4	54	married	Marital status
			8/6	11	4/7	3	12/5	8	single	
			0/8	1	1/6	1	0	0	divorcee	
			4/7	6	6/3	4	3/1	2	widow	
			28/1	36	25	16	31/3	20	illiterate	
0/793	4	1/688b	28/9	37	31/3	20	26/6	17	Elementary school	education
			26/6	34	26/6	17	26/6	17	Secondary school	
			15/6	20	15/6	10	15/6	10	diploma	
			0/8	1	1/6	1	0	0	Associate degree	
			1/6	2	3/1	2	0	0	worker	
0/427	--	3/983a	0/8	1	0	0	1/6	1	clerk	occupation
			0/8	1	1/6	1	0	0	teacher	
			2/3	3	3/1	2	1/6	0	freelance	
			94/5	121	92/2	59	96/9	62	housewife	

The mean age of the participants was 38.3 years (SD=14.04). The mean age of beginning to smoke waterpipes was 24.12 years (SD=9.22). The mean smoking background was 14.25 (SD=10.62). Further information is presented in table 2:

Table 2. Frequency distribution of subjects' demographic variables in each group

P-value	Mann-Whitney U value	total SD	Mean	Treatment group		Control group		variable
				SD	Mean	SD	Mean	
0/682	-0/410	14/04	38/37	14/49	38/94	13/67	37/8	age
0/235	-1/186	9/22	24/12	8/49	23/06	9/85	25/17	age of beginning to smoke
0/065	-1/848	10/62	14/25	11/19	15/88	9/83	12/63	Smoking background

The results of comparing sub-construct scores and the rate of water pipe smoking in both groups prior to the intervention:

The mean scores for the sub-constructs of the theory and the rate of smoking waterpipes were compared in each group before and after the intervention. This comparison was done through Mann-Whitney U-test. Significant difference in mean scores was observed in both groups before the intervention for subjective norms and behavioral intention ( $p \leq .001$ ). Further details are presented in table 3:

Table 3. comparison of the sub-construct scores in both groups prior to the intervention

P-Value	Mann-Whitney U value	treatment SD	Mean	control SD	Mean	construct
0/172	-1/366	16/63	15/97	20/19	9/69	Attitude
<0/001*	-5/022	23/46	47/12	30/6	21/70	Subjective norms
0/289	-1/040	43/44	-2/36	21/86	10/36	Perceived behavioral control
0/001*	-3/197	4/08	14/79	4/85	12/25	Behavioral intention

\* Significant difference at  $p \leq .05$

A comparison of the frequency of smoking water pipes between the two groups before the intervention revealed a significant difference per day and per week. In table 4, the descriptive statistics of inter-group smoking frequency are indicated, before the intervention.

Table 4. An intergroup comparison of the frequency of smoking water pipes before the intervention

P-Value	Mann-Whitney U test	Treatment SD	Mean	control SD	Mean	construct
0/006*	-2/742	2/20	3/31	1/58	2/36	Frequency of smoking per day
0/009*	-2/606	15/52	23/16	11/14	16/63	Frequency of smoking per week

\* Significant difference at  $p \leq .05$

An inter-group comparison was made between the model sub-construct scores before and after the intervention. This comparison was made using Mann-Whitney U test. The test results revealed significant differences between the scores of these variables before and after the intervention in both groups: attitude, subjective norms, perceived behavioral control and behavioral intention ( $p \leq .001$ ). The test results are indicated in table 5:

Table 5. An intergroup comparison of mean differences of model sub-constructs before and after intervention

P-Value	Mann-Whitney U test	Treatment SD	Mean	control SD	Mean	construct
<0/001*	-6/866	26/15	41/09	15/18	7/91	attitude
<0/001*	-5/857	21/54	25/73	11/05	5/75	Subjective norms
<0/001*	-5/506	27/09	32/17	18/56	9/59	Perceived behavioral control
<0/001*	-5/331	3/31	3/70	1/94	0/94	Behavioral intention

\* Significant difference at  $p \leq .05$

An intergroup comparison of the mean differences of the frequency of smoking water pipes the day before and after the intervention showed a significant difference. In the treatment group, the frequency of smoking water pipes a day was reduced more than the control group  $p \leq .001$ . Similarly, an intergroup comparison of the mean differences of the frequency of smoking water pipes per week before and after the intervention showed a significant difference. The frequency of smoking water pipes a day was reduced more in the treatment group than the control group  $p \leq .001$ . The relevant results are presented in table 6:

Table 6. An intergroup comparison of the frequency of smoking water pipes before and after the intervention

P-Value	Mann-Whitney U test	Treatment SD	Mean	control SD	Mean	construct
<0/001*	-7/316	1/79	1/96	0/51	0/03	Frequency of smoking per day
<0/001*	-7/702	12/06	13/50	3/55	0/36	Frequency of smoking per week

\* Significant difference at  $p \leq .05$

## DISCUSSION AND CONCLUSION

As previously mentioned, the aim of the present research was to investigate the effect of instructional programs on water pipe smoking pattern based on the theory of planned behavior. According to this theory, attitude

is the first variable affecting people's intention of showing or not showing a certain behavior. Attitudes show one's general feeling about the (un)desirability of many things. One's attitudes might change as a function of adaptability of one's belief system (19). A significant divergence of attitude mean scores in the treatment group as compared to the control group after the intervention proves the positive effect of instruction on subjects. As a result of the instructional sessions, this finding is naturally expected. The results of the present study are similar to those obtained by Sohrabi et al., Joveini et al., Mehri et al., and Besharati et al.. The raised attitude score in the treatment group is similar to that found by Barati et al. Hatefnia et al., and Besharati et al. that all prove the positive effect of instruction on raising the attitude score in the treatment group. However, contrary to these results, those reported by Tabatabaee et al. concerning the physical activity of Kerman healthcare organization staff revealed no significant intergroup difference in the mean scores of the theory sub-constructs before and after the intervention. The findings indicated that the 6-week instructional program rooted in the theory of planned behavior had no significant difference with the instructional intervention based on a lecture (20). Mention can be made of the effective role played by the correct use of instructional theories, models and methods in instructional interventions which can be used in various healthcare issues particularly in screening behaviors. It can be due to the diverging instructional content as well as the idiosyncrasies of the target group including age, cultural, economic and contextual differences of the above-mentioned body of research. In the present study, the increased attitude score in the control group can be correlated with the role of mass media and healthcare messages publicized city-wide. It can be inferred that an instruction based on the theory of planned behavior is more effective in changing the treatment group's attitude towards non-systematic instructions.

Subjective norms are correlated with one's perception of social pressures. Such pressures force one to do or not to do certain things (21). This latter issue needs to be considered when an individual intends to show a certain behavior. It is done once he perceives others who care about him expect him to show a certain behavior. These other people include the spouse, friends, and so on. Broadly speaking, subjective norms refer to the effect of social environment on one's behavioral intention (21). In the present research, the difference of subjective norm mean scores after the intervention was higher in the treatment group than the control. It can be concluded that the instructions provided in this study managed to raise women's subjective norms. The findings reported by Joveini et al. (14), Mehri et al. (15), Besharati et al. (16), Barati et al. (17) and Hatefnia et al. (18) are similar to this research. All these findings attest to the fact that using this theory raised subjective norms of these subjects. In their investigation of the correlation of the theory of planned behavior and the physical activity of Kerman healthcare organization staff, Tabatabaee et al. reported a non-significant mean score of subjective norms among the subjects. This is not similar to the finding of the present research. It can be due to the differing instructional materials and the features of the target group such as age, cultural, economic and contextual status. There might be a need to combine the theory of planned behavior with other healthcare instructional patterns in the case of complicated healthcare issues (20).

In the current research, the increased subjective norm score in the control group can be a function of the same equal age group and the example set by friends or family. It can be inferred that an instruction based on the above-mentioned theory is more effective in increasing the subjective norms of the target group as compared to other non-systematic instructions.

Perceived behavioral control is defined as one's perception of the difficulty level of a certain behavior (22)(23). It can be also maintained that the perceived behavioral control refers to the degree to which one feels showing or not showing a certain behavior is under conscious control (24)(25). In the present research, the difference of mean scores for perceived behavioral control was higher in the treatment group than the control. The instructional intervention seems to have worked in this case. The relevant findings of Joveini et al. (14), Mehri et al. (15), Behsarati et al. (16), Barati et al. (17), and Hatefnia et al. (18) which showed an increased perceived behavioral control are similar to the present research. However, Tabatabaee et al. who investigated the correlation of the theory of planned behavior and the physical activity of Kerman healthcare organization staff, reported that no statistically significant difference was found between perceived behavioral control score of the subjects. This finding was divergent from that of other researchers. This divergence could be a function of different instructional materials and the characteristics of the target group such as their age, cultural, economic and contextual differences (20). An increase in the perceived behavioral control score in the control group can be correlated with the role mass media plays. It can be argued that an instruction based on the theory of planned behavior is more effective in increasing the perceived behavioral control in the target group than other instructional methods.

A primary factor in the theory of planned behavior is an individual's intention of showing a certain behavior. Intentions are the best predictor of behaviors (26, 27, 28). The stronger one's intention of doing something, the more success one can expect (21-25). In the present research, the mean difference of the behavioral intention after the intervention was higher in the treatment group than the control. Similarly, in studies conducted by Joveini et al.

(14), Mehri et al. (15), Besharati et al. (16), Barati et al. (17), Hatefnia et al. (18), the behavioral intention score was increased significantly in the treatment group after intervention. However, in their research entitled as "the effect of an instruction based on the theory of planned behavior on the physical activity of Kerman healthcare organization staff, Tabatabaee et al. found no statistically significant effect of instruction on the treatment group after the intervention. Their finding was not in line with that of the present research. The reason could be traced back to the effective role of health education patterns and models in instruction. A correct use of these patterns can pave the way for such interventions (20).

In the current research, the increase in the behavioral intention score can be a function of mass media and healthcare messages and mottos. We can infer that an instruction based on the theory of planned behavior is more effective than other instructional methods in the behavioral intention of the treatment group.

The goal of healthcare education in healthcare science is to change healthcare behaviors. A behavior is an activity observed by an individual (29). In the present study, the frequency of smoking water pipes per day and per week was significantly reduced after the instructional intervention in the treatment group as compared to the control. This attests to the effect of the theory of planned behavior on reducing water pipe smoking. The findings obtained by Joveini et al. (14), Mehri et al. (15), Besharati et al. (16), Barati et al. (17) and Hatefnia et al. (18) also approve this finding.

In an investigation of the effect of an instruction enlightened by the theory of planned behavior on the physical activity of Kerman healthcare organization staff, Tabatabaee et al. reported a non-significant effect of a lecture-based instruction. This could be due to the fact that behavior changing patterns do not work for every behavior type or target group. A correct use of healthcare models in instructions can form the basis of intervention and raise the efficacy of instructions (20).

Broadly speaking, the use of the theory of planned behavior in instructions to cut down on water pipe smoking has proved to be effective. It has led to an increased attitude, subjective norms, perceived behavioral control, behavioral intention and behavior in experiments. On the whole, it can be concluded that providing an instruction enlightened by this theory can positively contribute to the behavior changing attempts. Instructional programs have led to subjects' heightened attitude, subjective norms, perceived behavioral control, behavioral intention and behavior. Since instruction is the key element of medical healthcare, authorities are advised to devise instructional programs based on healthcare models and patterns.

We were faced with a number of limitations in this research which could have affected the **Findings:**

This research was conducted among women and its findings are not generalizable to the male population. It was conducted in a single county and, therefore, its findings cannot be compared to another. Conduction of this research was accompanied by certain limitations of questionnaires as the data collection instrument. For instance, a questionnaire cannot measure the whole ideas and beliefs of the testers. No coherent body of research existed around this topic. The majority of people smoke water pipes without their family knowing. Therefore, they are mostly reluctant to take part in such research. This is considered as another limitation of this study particularly in the instruction phase. Many of the participants did not trust the research team and since they considered water pipe smoking as a crime, they would not easily provide reliable information. In the second phase of questionnaire completion, in some cases the subjects were not present at home and several visits had to be paid until they could be contacted.

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## REFERENCES

- Dehdari Tahereh, J.A., Joveyni Hamid, Students' perspectives in Tehran University of Medical Sciences about factors affecting smoking hookah. *Razi Journal of Medical Sciences* Apr-May 2012. 19(95): p. 17-24.
- Jawad, M., et al., To what extent should waterpipe tobacco smoking become a public health priority? *Addiction*, 2013. 108(11): p. 1873-84.
- Martinasek, M.P., R.J. McDermott, and L. Martini, Waterpipe (hookah) tobacco smoking among youth. *Curr Probl Pediatr Adolesc Health Care*, 2011. 41(2): p. 34-57.
- Heinz, A.J., et al., A comprehensive examination of hookah smoking in college students: use patterns and contexts, social norms and attitudes, harm perception, psychological correlates and co-occurring substance use. *Addict Behav*, 2013. 38(11): p. 2751-60.
- Bhat, M., Hookah hazards. 2007.
- Kuper, H., H.O. Adami, and P. Boffetta, Tobacco use, cancer causation and public health impact. *J Intern Med*, 2002. 25:(6)p. 455-66.
- Gatrad, R., A. Gatrad, and A. Sheikh, Hookah smoking. *BMJ: British Medical Journal*, 2007. 335(7609): p. 20.
- Shaikh, R.B., et al., The acute effects of Waterpipe smoking on the cardiovascular and respiratory systems. *J Prev Med Hyg*, 2(3)49-008 :p. 101-7.

- Wu, F., et al., A prospective study of tobacco smoking and mortality in Bangladesh. *PLoS One*, 2013. 8(3): p. 11.
- Karaca, Y., et al., Syncope associated with water pipe smoking. *BMJ Case Rep*, 2013. 19(10): p. 2013-009526.
- Maziak, W., et al., Beliefs and attitudes related to narghile (waterpipe) smoking among university students in Syria. *Annals of Epidemiology*, 2004. 14(9): p. 646-654.
- Braun, R.E., et al., Hookah use among college students from a Midwest University. *Journal of community health*, 2012. 37(2): p. 294-298.
- Chaouachi, K., Hookah (Shisha, Narghile) smoking and environmental tobacco smoke (ETS). A critical review of the relevant literature and the public health consequences. *International journal of environmental research and public health*, 2009. 6(2): p. 798-843.
- Dehdari, T., H. Joveyni, and M. Gohari, Waterpipe smoking in the male college students: an education intervention using theory of planned behavior. 2013.
- Mehri A MS, Morovati MA. The effect of an educational program based on the Theory of Planned Behavior on helmet use among employed motorcyclists Payesh. 2012 January - February 2012;11(1):13-20.
- Besharati F, Hazavehei S, Moeini B, Moghimbeigi A. Effect of Educational Interventions Based on Theory of Planned Behavior (TPB) in Selecting Delivery Mode among Pregnant Women Referred to Rasht Health Centers. *ZUMS Journal*. 2011; 19 (77) :94-106
- BARATI, M., et al., Evaluation of theory of planned behavior-based education in prevention of MDMA (ecstasy) use among university students. *Medical Journal of Tabriz University of Medical Sciences*, 2011.
- HATEFNIA E. NSAD, MAHMOUDI MAHMOUD, LAMIEIAN M. . THE EFFECTS OF "THEORY OF PLANNED BEHAVIOR" BASED EDUCATION ON THE PROMOTION OF MAMMOGRAPHY PERFORMANCE IN EMPLOYED WOMEN. *JOURNAL OF BIRJAND UNIVERSITY OF MEDICAL SCIENCES* 2010;17(1):50-8.
- Murnaghan, D.A., et al., Predictors of physical activity, healthy eating and being smoke-free in teens: a theory of planned behaviour approach. *Psychol Health*, 2010. 25(8): p. 925-41.
- Spijkerman, R., et al., Explaining adolescents' smoking and drinking behavior: The concept of smoker and drinker prototypes in relation to variables of the theory of planned behavior. *Addictive behaviors*, 2004. 29(8): p. 1615-1622.
- Ajzen, I. and M. Fishbein, Attitudes and normative beliefs as factors influencing behavioral intentions. *Journal of personality and social psychology*, 1972. 21(1): p. 1.
- Ajzen, I. and B.L. Driver, Prediction of leisure participation from behavioral, normative, and control beliefs: An application of the theory of planned behavior. *Leisure Sciences*, 1991. 13(3): p. 185-204.
- constructing Questionnaires Based on The Theory of planned behaviour. Available from: <http://www.people.umass.edu/aizen>.
- Ajzen, I., The theory of planned behavior. *Organizational behavior and human decision processes*, 1991. 50(2): p. 179-211.
- Ajzen, I., Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior. *Journal of Applied Social Psychology*, 2002. 32(4): p. 665-683.
- The Theory of Planned Behavior: A Bibliography. 1996; Available from: <http://www.people.umass.edu/aizen>.
- Bandura, A., *Self-efficacy: The exercise of control*, 1997, New York: Freeman.
- Armitage, C.J. .Can the theory of planned behavior predict the maintenance of physical activity? *Health Psychology*, 2005. 24(3): p. 235.
- Icek, A., *Attitudes, personality and behavior*. Chicago: Dorsey, 1988.