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An exploratory study of self-efficacy and attitudes on self-care health behaviors among Greek Naval Academy cadets. An application of the Theory of Planned Behavior

Un estudio exploratorio de la autoeficacia y las actitudes sobre los comportamientos de salud de autocuidado entre los cadetes de la Academia Naval griega. Una aplicación de la Teoría del Comportamiento Planificado

Um estudo exploratório de auto-eficácia e atitudes em comportamentos de saúde de autocuidado entre cadetes da Academia Naval Grega. Uma aplicação da Teoria do Comportamento Planejado

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Abstract: Many health conditions are caused by risk behaviors, such as problem drinking, substance use, and smoking. Health-compromising behaviors can be eliminated by self-regulatory efforts, and health-enhancing behaviors can be adopted instead, such as physical activity, weight control, and preventive nutrition. Literature review indicated the negative correlation between smoking and exercise, suggesting that smoking status has been positively associated with weight-loss intention, but negatively correlated with use of exercise. Additionally, smoking is negatively associated with readiness for participation in vigorous exercise. Research supports the fact that healthy diet can prevent and manage cardiovascular diseases and orthopaedic disorders. Facts indicate that if interventions foster exercise habits, this could facilitate transfer effects from one health behavior to the other. The aim of the study was to investigate the involvement of self-efficacy and attitudes on self-care health behaviors such as eating, smoking and exercise habits. The sample consisted of 185 cadets of the Greek Naval Academy (165 men, 20 women). They completed the Greek versions of the "Theory of Planned Behavior" and "Health Behavior" questionnaires. Results indicated that youngest cadets reported healthier habits than the older ones. More specifically, they were more positive oriented on eating healthier, and exercising, and more negatively oriented towards smoking. Overall, results shine for the first time some light on crucial and important aspects of prediction of intentions among healthy and unhealthy behaviors of military personnel.
Key words: self-efficacy, attitudes, intention, self-identity, perceived behavioral control.
Resumen: Muchas condiciones de salud son causadas por conductas de riesgo, como problemas con el alcohol, uso de sustancias y fumar. Los comportamientos que comprometen la salud pueden eliminarse mediante esfuerzos de autorregulación, y en su lugar se pueden adoptar comportamientos que mejoran la salud, como la actividad física, el control del peso y la nutrición preventiva. La revisión de la literatura indicó la correlación negativa entre el tabaquismo y el ejercicio, lo que sugiere que el tabaquismo se asoció positivamente con la intención de perder peso, pero se correlacionó negativamente con el uso del ejercicio. Además, fumar está asociado negativamente con la disposición para participar en ejercicios vigorosos. La investigación respalda el hecho de que una dieta saludable puede prevenir y controlar las enfermedades cardiovasculares y los trastornos ortopédicos. Los hechos indican que si las intervenciones fomentan los hábitos de ejercicio, esto podría facilitar los efectos de transferencia de un comportamiento de salud al otro. El objetivo del estudio fue investigar la implicación de la autoeficacia y las actitudes en los comportamientos de salud de autocuidado, como comer, fumar y los hábitos de ejercicio. La muestra consistió en 185 cadetes de la Academia Naval griega (165 hombres, 20 mujeres). Completaron las versiones griegas de los cuestionarios «Teoría del comportamiento planificado» y «Conducta de salud». Los resultados indicaron que los cadetes más jóvenes informaron hábitos más saludables que los más viejos. Más específicamente, fueron más positivos orientados a comer de forma más saludable, a hacer ejercicio y a tener una orientación más negativa hacia el tabaquismo. En general, los resultados brillan por primera vez sobre los aspectos cruciales e importantes de la predicción de intenciones entre los comportamientos saludables y no saludables del personal militar.
Key words: autoeficacia, actitudes, intención, identidad propia, control conductual percibido.
Resumo: Muitas condições de saúde são causadas por comportamentos de risco, como beber problemas, uso de substâncias e fumar. Os comportamentos comprometidos com a saúde podem ser eliminados por esforços de auto-regulação, e os comportamentos que melhoram a saúde podem ser adotados, como atividade física, controle de peso e nutrição preventiva. A revisão da literatura indicou a correlação negativa entre tabagismo e exercício, sugerindo que o estado de tabagismo tenha sido

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positivamente associado à intenção de perda de peso, mas correlacionado negativamente com o uso do exercício. Além disso, o tabagismo está associado negativamente com a prontidão para a participação no exercício vigoroso. A pesquisa apóia o fato de que uma dieta saudável pode prevenir e gerenciar doenças cardiovasculares e distúrbios ortopédicos. Os fatos indicam que, se as intervenções promovem hábitos de exercício, isso poderia facilitar os efeitos de transferência de um comportamento de saúde para o outro. O objetivo do estudo foi investigar o envolvimento de auto-eficácia e atitudes em comportamentos de saúde de autocuidado, como hábitos alimentares, tabagismo e exercício. A amostra consistiu em 185 cadetes da Academia Naval Grega (165 homens, 20 mulheres). Eles completaram as versões gregas dos questionários "Teoria dos Comportamentos Planejados" e "Comportamento da Saúde". Os resultados indicaram que os cadetes mais jovens relataram hábitos mais saudáveis do que os mais velhos. Mais especificamente, eles foram mais positivos orientados para comer saudável e exercitar, e mais orientados negativamente para o tabagismo. Em geral, os resultados brilham pela primeira vez uma luz sobre aspectos cruciais e importantes da previsão de intenções entre os comportamentos saudáveis e não saudáveis do pessoal militar.

Key words: auto-eficácia, atitudes, intenção, auto-identidade, controle comportamental percebido.

Introduction

Sedentary lifestyle is a major social issue. In most developed countries, less than half of the adult population engages, most days of the week, in thirty minutes of physical activity of medium intensity and a 25% does not engage in any physical activity at all (World Health Organization, 2002). The percentages of sedentary lifestyle are increasing in certain population groups, such as the elderly, women, minorities and people having physical particularities. The increase in physical activity can contribute to our health, including the prevention of a number of illnesses (Chapman, Fraser, Brown & Burton, 2016). When vital functions of the human organism such as breathing, heart function and circulatory system, are degraded due to low mobility, various kinds of illnesses are developed, such as cardiovascular problems, cancers, diabetes, stress and depression (Kim et al., 2012; Baxter, Scott, Vos, & Whiteford, 2012).

Researches have dealt with the relation that exists between exercising and health. The findings showed that exercising can help prevent heart diseases, weight control, stress reduction, as well as help fight osteoporosis, hypertension and various psychological disorders (Biddle & Fox, 1989; Conner, Norman, & Bell, 2000). Systematic exercise is necessary for the maintenance of physical and mental health of people. Research points out that high levels of stress and anxiety or stressful situations are closely related to low levels and small duration of exercise (Carek, Laibstain, & Carek, 2011).

The results of the Boutelle, Murray, Jeffrey, Hennrikus and Lando's (2000) study showed that men and women that worked out a lot, also showed low levels of fattening foods, low levels of obesity and low levels of stress and anxiety. Also, these people, in general, had and followed healthier behaviors, such as wearing seat belt while driving (for women mostly) and got sick less in the previous year (for men mostly). The study of Jonson, Nichols, Sallis, Calfas and Hovell (1998) dealt with the relation between the nutrition of students and the exercise they were getting. Their results reported that for men, healthy nutrition was closely related to exercise, elasticity and strength increase. For women, robust exercise was related to healthy nutrition and strength increase with the consumption of less fattening foods. According to the studies, another factor which influenced the food habits of the persons was their socio financial level. Teenagers from low social layers present higher levels of dietary abnormalities and low levels of exercising (Srinivasan, Pescatello, & Bhat, 2014).

There are many factors that may play an important role in the prediction of certain behaviors, such as exercising and nutrition. Researches mention that a theory which can give answers to such problematic behaviors is probably the "Planned Behavior Theory" (Ajzen, 2012). According to this theory, what immediately precedes any behavior is the ''Intention'' of the person to take an action. The possibility of demonstrating a certain behavior is called ''behavior intension''. The stronger the intention of a person, the more likely it is for the persons to behave according to their behavior (Ajzen & Fishbein, 1980). According to the theory, the demonstration of a behavior is not related to the intention of the person only. A behavior may be completely under the person's control, that is if he/she decides to demonstrate it or not. Regardless of the intention of a person to demonstrate a behavior, usually there are obstacles that might create problems. Such obstacles are internal factors, such as skills, knowledge, programming and external factors such as time, opportunities, cooperation with others, etc. (Ajzen & Madden, 1986). Additionally, Armitage and Conner (2001) reported that the Theory is a well-established model were it accounted for 39% of the variance in intention and for 27% of the variance in behavior.

Later respective research (Theodorakis, 1994), examined some additional factors that have to do with behavior prediction. One of these factors was Self-Identity. Self-identity focuses on the personal belief of a person about their capability to follow a new behavior. Finally, another factor that interferes with a person's intention is what is called by Ajzen (1991) "Perceived Behavioral Control (PBC)". According to Ajzen (2012), PBC refers to people's perception of how easy or difficult it is to demonstrate a specific behavior.

Investigators used the theory of planned behavior to predict intentions/behaviors such as: participation in sports and physical activities (Theodorakis, Natsis, Papaioannou, &

Goudas, 2003; Bebetsos & Konstantoulas, 2006; Zorzou et al., 2014), and in exercise (Hagger, et al., 2002; Dimitrakaki et al., 2013). Also, validity of the theory was investigated in different healthy and unhealthy behaviors such as dieting (Povey, Conner, Sparks, James, & Shepherd, 2000; Bebetsos et al., 2014), alcohol use (Rise & Wilhelmsen, 1998; Kuntsche, Knibbe, Gmel, & Engels, 2006), smoking, exercising, and eating-habit domains (Bebetsos, Chroni, & Theodorakis, 2002; Bebetsos, Papaioannou, & Theodorakis, 2003) and post graduate program participation (Bebetsos, 2015).

On the other hand, in 1984, Weinberg and his colleagues tried to investigate any possible relation between self-efficacy and weight reduction, during a weight loss. Their results support Bandura' s theory of "Self-Efficacy" (1986) proving that the existing self-efficacy helps reduce the weight of obese persons. The more confident the persons feel about coping with a diet program, the better they manage to succeed.

In 1995 the first extended study was conducted by Parcel and his colleagues, in order to find a measuring instrument of self-efficacy for healthy diet, especially for children. Researchers tried to prove the relation between self-efficacy and healthy diet, low in salt and fat. The questionnaire was given to 1127 children in various primary schools in America. The results showed that the particular questionnaire could be used for self-efficacy evaluation on healthy nutrition for children. As the researchers reported, more researches should be conducted in order to prove if this questionnaire can be used as a measuring instrument of the relation between self-efficacy in general with healthy diet. Because self-efficacy might influence eating habits but there are also environmental and other personal factors that may also influence the selection of eating habits.

Shannon, et al. (1997), study showed that self-efficacy is a basic element of prediction about the skill of a person to change its eating habits. In this particular study, self-efficacy in the initial and final measurement was a very important factor of prediction for the changes in eating habits. The results of this study also support that the percentage of self-efficacy was reduced only in white men, as they were the only ones that showed less effort to change their bad eating habits. The answer to these results was that probably these men believed that the persons responsible for changing their eating habits were their wives, or persons responsible for the preparation of their meal. Additionally, age was a basic factor of self-efficacy. The older a person is, the more willing they are to make changes in their lives, have made more changes in the past, have more successful experiences and as a result, have increased self-efficacy. Finally, the results have supported the hypothesis that ''building'' self- efficacy is one of the basic factors in the prediction of eating changes for groups of population of low socio-economic level.

In the study conducted by Baruth, Sharpe, Parra-Medina, and Wilcox (2014), the results show that women that exercise, are younger, are white, with University education, that have no children and body wise are thin. These women show high percentages of self-efficacy and social support when it comes to exercise. Also, they show high percentages of inciting. On the contrary, married women with children that don't work, are Spanish-speaking and older, and believe that they do not have enough time to exercise. The control of the behavior is between two edges: On the one edge, there is the behavior that is totally controlled and on the other edge there is a behavior that is totally out of control.

In Greece, Bebetsos, Chroni, and Theodorakis (2002), conducted the first survey where the relations between healthy habits and exercise were examined, as well as the stance of people towards these issues, so that a scale of confidence was developed in relation to the healthy eating habits of the Greek population. Participants were male and female students who completed two questionnaires: The first questionnaire examined the behaviors of persons towards exercising and healthy eating and the second, self-efficacy for healthy nutrition. The researchers, upon modification of the questionnaire of self-efficacy made by Parcel and his colleagues (1995), showed that this particular modified questionnaire can be used in future studies. Additionally, from the results of the same study, it arises that the more confident people are about following healthy eating habits, the bigger their intention to follow healthy eating habits and exercise and the stronger their stance towards exercising and healthy eating. Also, the more positive the stance of the persons towards exercising in general, the more positive their stance towards healthy eating.

Specifically, in Greece, minimal research was focused only in the area of the Army Units' physical training (Havenetidis & Paxinos, 2013; Kontodimaki & Mountakis, 2014). More specifically, these studies focused only on laboratory tests such as cardiorespiratory endurance, muscular strength, muscular endurance and flexibility, and body composition. Therefore, the uniqueness and the aim of this study was the investigation of specifically the psychological aspects of self-efficacy and attitudes of the Greek Naval Academy cadets. More specifically, the investigation of any sample possible differentiation according to their self-efficacy, eating, smoking and exercising *(weekly physical activity involvement*) habits.

Methods

Participants

The participants consisted of 185 cadets of the Greek Naval Academy (165 men, 20 women), between the ages of 18-24 (M_{age}=19.7, *SD*=1.38). They completed 4 questionnaires in total, voluntarily.

Instruments

A) Theory of Planned Behavior questionnaire (3 questionnaires)

The modified Greek version of the "Theory of Planned Behavior" questionnaire (Theodorakis, 1994) was used which includes four subscales:

1. Attitude towards *eating healthy*. "*For me to eat healthy is….*" Responses were given on a 7-point Likert type scale, using six different bipolar adjectives as answers (i.e., good-bad, foolish-smart, healthy-unhealthy, useful-non-useful, nice-ugly, pleasant-unpleasant). Answers were ranged from 1 for the negative adjective, 4 as neutral up to 7 for the positive adjective.
2. The mean score of three items estimated participants' *intention to exhibit the appropriate behavior*. Example: "*I intend to eat healthy for the next two months*". Responses were given on a 7-point Likert type scale, with endpoints labeled 'likely' and 'unlikely.'
3. *Self-Identity* can be defined as a particular social object that represents a dimension of the self. This variable was also added to the model by Theodorakis (1994). Four items were used to measure role identity. Examples: "*Depends on me to eat healthy for the next two months*". Responses were given on a 7-point Likert type scale, ranging from 'strongly agree' to 'strongly disagree'.
4. *Perceived Behavioral Control*. The total score of three items was used to estimate participants' perception of control on the specific behavior. Examples: "*If I wanted to, I could eat healthy for the next two months*", "*How much control do you exert over eating healthy for the next two months?*". Participants' responded on 7-point Likert type scales, ranging from 'likely' to 'unlikely' and 'complete control' to 'no control', respectively.

The same questionnaire was used to assess subjects' opinion/behavior on smoking, and exercising habits.

B) Health Behavior Questionnaire (1 questionnaire)

The Health Behavior Questionnaire was originally developed by Parcel et al., (1995), in order to assess self-efficacy and healthy eating habits in children. The questionnaire was modified in order to better accommodate Greek eating habits (Bebetsos, Chroni, & Theodorakis, 2002). It consisted of 23 items adapted to the Greek cuisine *(Mediterranean Diet)*, and examined participants' self-efficacy on following a healthy diet. For example: "*How sure you are that you can eat your food without salt for the next two months?*"; "*How sure are you that can replace spaghetti with sauce and cheese with plain spaghetti, for the next two months?*"; "*How sure are you that you can eat chicken after you have taken off the skin, for the next two months?*"; "*How sure are you that you can eat a boiled egg instead of a fried one, for the next two months?*". The answers were given on a 10-point Likert type scale, ranging from "not sure at all" to "very sure".

Sample also indicated their class, the number of weekly cigarette consumption and the number of weekly engagement in physical activity/ies in their own free-time (Table 1).

Table 1. Sample' indicators of cigarette consumption and physical activity.

Weekly Cigarette Consumption		Weekly Physical Activity *(times/week)*		Class	
0	139	1-3	69 (35.5%)	1st	56 (30.27%)
1-5	7	4-6	79 (40.5%)	2nd	55 (29.72%)
10->	49	7->	47 (24.1%)	3rd	44 (23.78%)
				4th	30 (16.23%)

Results

Internal Consistency

The internal consistency for the factors of the questionnaires, were (Table 2):

1. For Exercising: a) Attitudes .90, b) Intention .91, c) Self-identity .89, d) Perceived Behavioral Control .88.
2. For Smoking: a) Attitudes .87, b) Intention .89, c) Self-identity .93, d) Perceived Behavioral Control .85.
3. For Eating Healthy: a) Attitudes .82, b) Intention .85, c) Self-identity .87, d) Perceived Behavioral Control .91.
4. For Self-efficacy: .87.

Table 2. Factors Cronbach's alpha.

	Attitudes	***Intention***	***Self-identity***	***Perceived Behavioral Control***	***Self-Efficacy***
Eating Healthy	.82	.85	.87	.91	
Smoking	.87	.89	.93	.85	
Exercising	.90	.91	.89	.88	
					.87

One-Way Anova Analyses

One-way Anova analyses were conducted in order to investigate any possible differences between all four Academy classes. The analyses revealed the following statistical significant differences (Table 3):

Table 3. One-Way ANOVA analyses.

	Eating Healthy			
	1st		***4th***	
Factors	*M*	*SD*	*M*	*SD*
Attitudes	**6.11**	**.76**	4.92	1.25
Intention	**5.64**	**1.02**	4.82	1.15
Self-identity	**5.46**	**1.03**	4.31	1.1
Per. Behavioral Control	**5.07**	**1.27**	4.33	1.36
	Smoking			
Factors	*M*	*SD*	*M*	*SD*
Attitudes	1.42	1.01	**1.87**	**1.51**
Intention	1.68	1.34	**2.89**	**1.96**
Self-identity	1.76	1.44	**2.84**	**1.88**
Per. Behavioral Control	1.69	1.45	**2.63**	**1.95**
	Exercising			
Factors	*M*	*SD*	*M*	*SD*
Attitudes	**6.45**	**.81**	5.36	1.45
Intention	**6.25**	**.80**	5.04	1.32
Self-identity	**6.08**	**.82**	4.84	1.32
Per. Behavioral Control	**3.24**	**1.40**	1.92	1.06
	Self-Efficacy			
	M	*SD*	*M*	*SD*
	5.03	**.66**	3.14	1.32

1. Eating Healthy
   a) For the factor of "Attitudes" $F_{(3,184)}$=12.205, p<.001. The differences were indicated between the 1st class who had the highest score, and the 4th class with the lowest score.
   b) For the factor of "Intention" $F_{(3,184)}$=4.122, p<.01. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
   c) For the factor of "Self-identity" $F_{(3,184)}$=9.510, p<.001. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
   d) For the factor of "Perceived Behavioral Control" $F_{(3,184)}$=2.727, p<.05. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
2. Smoking
   a) For the factor of "Attitudes" $F_{(3,184)}$=8.684, p<.001. The differences were indicated between the 1st class who had the lowest score, and the 4th class with the highest score.
   b) For the factor of "Intention" $F_{(3,184)}$=6.405, p<.01. The difference was indicated only between the 1st class had the lowest score, and the 4th class with the highest score.
   c) For the factor of "Self-identity" $F_{(3,184)}$=5.100, p<.01. The difference was indicated only between the 1st class had the lowest score, and the 4th class with the highest score.
   d) For the factor of "Perceived Behavioral Control" $F_{(3,184)}$=3.654, p<.05. The difference was indicated only between the 1st class had the lowest score, and the 4th class with the highest score.
3. Exercising
   a) For the factor of "Attitudes" $F_{(3,184)}$=13.204, p<.001. The differences were indicated between the 1st class who had the highest score, and the 4th class with the lowest score.
   b) For the factor of "Intention" $F_{(3,184)}$=11.633, p<.001. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
   c) For the factor of "Self-identity" $F_{(3,184)}$=13.526, p<.001. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
   d) For the factor of "Perceived Behavioral Control" $F_{(3,184)}$=10.234, p<.001. The difference was indicated only between the 1st class had the highest score, and the 4th class with the lowest score.
4. Self-efficacy
   The analysis revealed a statistical significant result:

$F_{(3,184)}$=8.110, p<.001. The differences were indicated between the 1st class who had the highest score, and the 4th class with the lowest score.

Discussion

The aim of this study was the investigation of self-efficacy and attitudes on self-care health behaviors among Naval Academy cadets. To our knowledge, no similar studies have been conducted on the specific topic in Greece. Therefore, discussion and conclusions from the present study reflect a first attempt to interpret the relation of self-efficacy, attitudes, and intentions of Naval Academy cadets towards the adoption of a healthier lifestyle.

To begin with, reliability estimates showed that all five factors had acceptable internal consistency. More specifically, results indicated differentiations among the youngest (1st year) and the oldest (4th year) cadets in all aspects (factors) of the questionnaires. Younger individuals were more positively oriented towards free-time exercising, adopting healthier lifestyle, have higher indicators of self-efficacy, and more negatively oriented towards smoking. Past research among smokers and smoking cessation counselors have highlighted the use of PA as a valuable smoking cessation aid (Haddock et al., 2004; Everson-Hock et al., 2010). Haddock et al. (2004) examined young adults and their opinions on reduction strategies for smokers. The survey mentioned that participants rated diet, physical activity, and low-yield cigarettes as providing the healthiest benefits regardless of their smoking status. International literature indicates that older military individuals showed higher tobacco use than those who entered military school, after their graduation they were more likely to increase their daily cigarette consumption (Zhang, Martinez-Donate, Cook, Piper, Berg, MD, & Jones, 2014).

Additionally, Barton and his co-researchers (2010) mentioned that anxiety might be another reason that leads military personnel to increase tobacco use. On the other hand, in Greece, where non-exercisers and regular smokers' percentages are amongst the higher in Europe (Eurostat, 2008), smokers might not be so receptive to a program that integrates these two behaviors (Mladovsky et al., 2009; Hassandra et al., 2013). Likewise, individuals with higher rates of overall healthy life-style habits, have also higher self-efficacy indicators (Austvoll-Dahlgren, Falk, & Helseth, 2012; Schwarzer, 2008).

Conclusions

Possible Limitations of the study also should be indicated such as: a) the small sample size, and b) due to specific sample, no sex differences could be examined. Overall, this specific research indicated that self-efficacy, eating healthy, smoking, and exercising habits interact and influence one another. Past research mentioned that self-efficacy significantly influenced adolescents' healthy eating behavior (Chan et al., 2014) and also behavior (Chan et al., 2016). Scientists and military professionals must encourage young cadets to engage in any exercise activities that will help their overall health status. It is crucial to emphasize that the health of any military personnel is important and crucial not only for their individual but also, for their professional (career, efficacy, efficiency, etc.) life status. Future studies should not only be addressed on the reduction of such health hazards, but also on educating professional samples on important life decisions that affect not only the sample's life quality but the quality of the close ones.

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