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ARTICLE

Can Social Media be Used to Control Academic Stress? An Application of the Theory of Planned Behavior

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ABSTRACT

The present study was conducted aiming at investigating the effect of social media-based intervention according to the Theory of Planned Behavior (TPB) to control the academic stress of the students. This study comes in two descriptive and quasi-experimental sections in the Academic Year 2018–2019. In order to determine the effect of planned behavioral constructs on stress levels, the descriptive study was conducted on 320 students. The quasi-experimental study was organized to determine the effect of a social media-based educational intervention on the TPB on 180 students. Data collection was conducted through questionnaires of personal information, Gadzella's Student-Life Stress Inventory, and researcher-made questionnaire based on the TPB, with a confirmed validity and reliability. TPB predicted 15.1% of the variance of academic stress among students and the perceived behavioral control construct had the most significant effect ($p < 0.001$). The mean score of knowledge and subject norms in the experimental group was significantly increased during the study ($p < 0.05$). The social media intervention could reduce the students' academic stress to some extent and lead to the student's subject norms development.

KEYWORDS

Academic stress; social media; students

1 Introduction

The stressful factors and life events among students in developing countries such as Iran include educational, psychosocial, economic and future concerns regarding occupation, marriage and individual habits, academic fields, emotional issues and family issues [1]. Obviously, stress will leave the adverse effect on academic, social and occupational performance, personal satisfaction and, most significantly, mental health [2]. Facing a stressor involves a range of physical and psychological responses in students. Stress manifestations consist of physical harm, chronic energy shortages, motivational poverty, headache, digestive problems, and sleep disorders [1]. Since the student population is one of Dynamic population

and future makers of society, thus, special attention is required to address their psychological problems [3]. Foruzandeh et al. [4] in a research on the relationship between academic stress and the quality of life found that with increased stress level, the quality of life declines in all aspects, so that it can be argued that students' academic stress can adversely affect their quality of life. In addition, Fouladvand et al. [5] in their study on the relationship between social support, academic self-efficacy, academic stress and mental and physical health concluded that higher levels of mental health and physical health were predicted by higher scores of social support while lower academic stress acted asa predictor of academic self-efficacy.

Moreover, the effectiveness of health education programs depends on the skill of using the appropriate theories, and those programs that are based on theory-based approaches are the most effective educational programs. Theories and models are effective guideline for health education and promotion activities, which can respond to the questions of planners about why people lack desirable behaviors, how they should change their behavior, and what factors need to be considered in the evaluation of plans. The success rate of health education and health promotion programs varies, though those that are based on adequate theories and models are probably more successful [5].

The TPB is a cognitive social pattern of value expectation. Ajzen and Fishbein invented this theory in 1980 [6]. This theory considers intention as the main determinant of behavior, affected by the three independent constructs of attitude, subjective norms, and perceived behavioral control. A person's belief in the results of his behavior and evaluation leads to the attitude formation. Subjective norms are also affected by individual beliefs about others' expectations and his motivation to meet these expectations. The third component of the perceived behavioral control is affected by the perceived power and control beliefs, which may influence behavior directly or indirectly through intention [7].

Considering the transformation of instruments and methods of production and dissemination of information as well as laying the groundwork for the easy and extensive exchange and dissemination platform for information, recent advances in the field of social media communication and information technology caused fundamental changes in the media, information instruments and community education [8].

Digital media are a distinct set of communication technologies owning certain features along with the modernization, namely, digital features and the wide availability for personal use as communication instruments. These media include network-based online media (such as the World Wide Web), telecommunication services such as multimedia messaging, SMS and other forms of cell phone data exchange networks as well as media based on digital physical carriers such as Media software packages, computer games, etc. [9].

Considering the extension of education with regard to the vastness of communities, the need for constant education and education of citizens, the lack of physical space and cost of construction, time constraints for people and traffic problems in today's society, have doubled the significance of distance education (Internet-based). Through creating the appropriate environment, the health system can develop the Internet usage in the field of health [10].

Most people in Iran continue to study even after their recruitment and consequently, they are exposed to various stresses due to their field of study, curriculum, job prospects, etc. [11–13]. Thus, due to the significance of youth psychological well-being, the present research was conducted aiming at controlling academic stress through the social media-based educational intervention according to TBP; focusing on students of Ferdowsi University of Mashhad (Iran).

2 Methods

2.1 Study Design

The present study includes the two descriptive and Quasi-experimental sections. In the first phase, a descriptive study was conducted to determine the prediction power of TPB constructs on 320 students

studying at the Mashhad Ferdowsi University (which was a public university center) in the Academic Year 2018–2019. In order to determine the sample size for the descriptive study, according to the previous study [14], the sample size was obtained 80 for each faculty based on the following formula and considering the standard deviation 22.8, 95% confidence level and accuracy 2.5. Therefore, considering that 4 faculties are being studied for the first phase, the sample size was estimated 320.

In the second phase, the effect of social media-based educational intervention according to TPB a quasi-experimental study was conducted on 180 students. In order to determine the sample size at this phase, based on the previous study [14], the mean and standard deviation of academic stress in the two experimental and control groups were 44.3 ± 11.8 and 49.7 ± 11.8, respectively, with an error 0.05 and the 80% power, the sample size for each experimental and control group were calculated on 90 students. The results of the descriptive study indicated that stress falls into three levels, Regard to this fact 63-112 is considered as the mild stress, 113-162 moderate stress, and 163-212 as severe stress. Then, the author was randomly selected 180 students from two moderate and severe stress categories and assigned into two experimental and control groups. However, considering the dropout of 14 students in the experimental group and 13 students in the control group, after random assignment, the sample size decreased to 153 people (9.44% attrition) (Fig. 1).

2.2 Study 2: Inclusion and Exclusion Criteria

The inclusion criteria included students in Faculties with 3 Programs (undergraduate, graduate, Ph.D.), consent for participating in the research, having smart phones and computers, ability to work with mobile phones and computers, access to the Internet and the lack of mental illness. Students of the Faculty of Education and Psychology were not included in this study. Unwilling Students to participate were also excluded.

2.3 Study 3: Validity and Reliability of the Instrument

The instrument used in the present study included a personal information questionnaire, Gadzella's Student-Life Stress Inventory and a researcher-made questionnaire on the Theory of Planned behavior, the information of each is as follows:

2.3.1 Personal Information Questionnaire

This questionnaire included information on the study area and program, age, gender, marital status, and residence status

2.3.2 Gadzella's Student-Life Stress Inventory

The instrument for measuring academic stress was Gadzella's inventory (1998) with an internal consistency of r = 0.71 (23), which was designed to study the stressors in students' life and their reaction to them. The questionnaire comprised 51 questions and its scoring was as five-point Likert scale. The questionnaire had 9 subscales: 1-Frustration 2-Conflicts 3-Pressures 4-Changes 5-Self-imposed 6. Physiological 7. Emotional 8-Behavioral and 9-Cognitive. The points for questions are summed up to gain the general scores in each subscale. Higher scores indicate higher academic stress and more responses to stress [15]. The validity and reliability of the scale in the Iran was confirmed by Moradi [16].

2.3.3 Researcher-Made Questionnaire Based on the Theory of Planned Behavior

measure the constructs of Theory of Planned Behavior, a researcher-made questionnaire was used. Content validity method was used to determine the research validity. To this aim, 9 health education experts were provided with the questionnaire and their opinions were used to modify the questionnaire. The values for CVR and CVI indices were reported at acceptable level. Cronbach's alpha was also used to achieve the scientific reliability of the instrument, such as the questionnaire was filled in by 30 students who were not present in the main study. The Cronbach's alpha coefficient of the awareness

variable and attitude constructs, subject norm, perceived behavioral control, and behavioral intention were 0.75, 0.76, 0.73, 0.89, and 0.73, respectively. The total alpha of the constructs of TPB questionnaire was obtained 0.85, indicating the acceptable reliability of all scales.

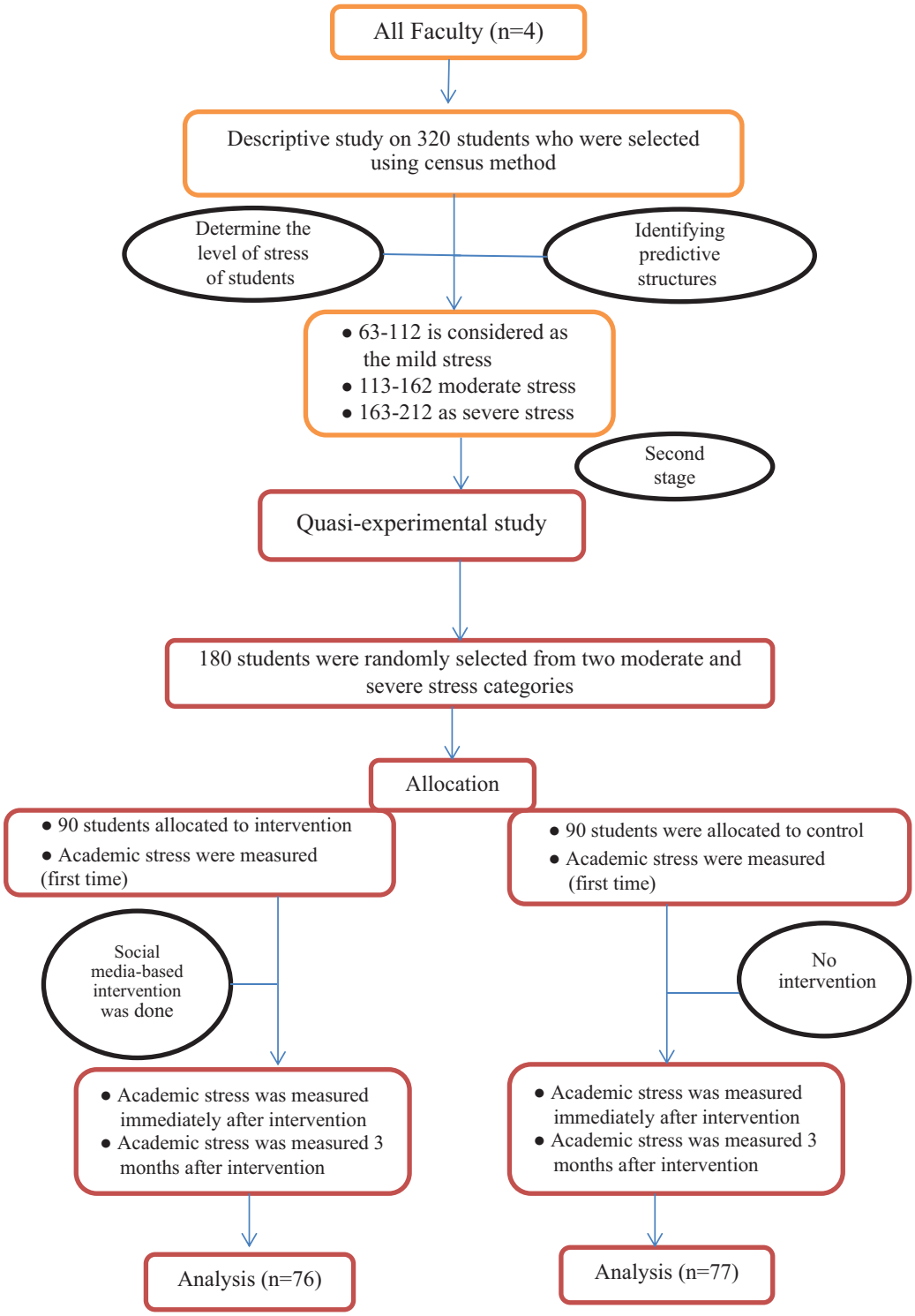

Figure 1: Flowchart of the study

The questionnaire pertaining to TPB constructs was designed based on the Likert scale and with the 5-point response scale ranging from 1 (totally disagree) to 5 (totally agree) where 5 questions were assigned to the attitude (e.g., stress management is related to the better score in tests), 4 questions to subject norms (e.g., the family helps me to keep calm during the tests), 5 questions to the perceived behavioral control (e.g., I can look at the positive aspects of issues in stressful situations and think of good events) and 4 questions to the behavioral intention (e.g., I intend to prevent stress by timely doing my homework). The scores of attitudes ranged 5-25, the subject norms "4-20", perceived behavioral control "5-25", and behavioral intention "4-20".

2.4 Social Media-Based Educational Intervention

Social-media-based educational intervention was conducted on the experimental group in the present study based on TPB constructs and with further emphasis on the predictive constructs determined in the descriptive study, as well as based on the digital media by using cyberspace and cellular phone platforms

For sharing knowledge, a space was provided for discussion and suggestions to the participants in the study. The strategy of providing educational content focused on perceived behavioral control and awareness. Also, emphasis was made on other constructs to reach the general purpose of the study, i.e., controlling the academic stress. Further details are provided in Table 1. The control group did not receive education during this period. Questionnaires were immediately filled after the intervention and three months later by two groups of control and experimental.

Table 1: Plan for conduction of the intervention

***First Strategy: Improving students' awareness regarding the academic stress*:** Some contents were shared in the educational channel and the blog to enhance awareness on the effects of academic stress.
***Second Strategy: Improving students' attitudes regarding the academic stress*:** A group was created and organized to allow participants to express their views on the positive outcomes of controlling academic stress to influence people's attitudes.
***Third Strategy: Improving students' subject standards regarding controlling academic stress*:** We invited the people, the opinion of whom was significant to the participants, namely, their spouse, sister, brother and friend to join the educational channel and study the shared content. The role and support of those around them was also emphasized in controlling the academic stress.
***Fourth Strategy: Improving the level of perceived behavioral control of students in controlling academic stress*:** Education ways to keep calm and how to control stress in stressful situations, presenting short educational videos on how to control stress, listing some of the conditions that may be causing stress in students and providing solutions to overcome those conditions.
***Fifth Strategy: Improving students' behavioral intention on controlling student stress*:** The above constructs were emphasized to reinforce and enhance behavioral intention.

2.5 Data Analysis

After collecting data pertaining to pre-test, post-test (immediately after intervention) and follow-up stage (3 month after the intervention) in the experimental and control groups, the Kolmogorov-Smirnov test was used to determine the distribution of variables in terms of normalization. Then, using descriptive statistics, namely, frequency distribution of variables, mean and standard deviation, data were described for both experimental and control groups. Analytical statistics were used to compare the mean of variables in the two groups according to the distribution of variables. In order to compare the effect of education over time, after the follow-up phase, variance analysis was used in repeated data for normal variables and Friedman test was used for abnormal variables. The significance level 0.05 was considered for all tests.

2.6 Ethical Considerations

The study conduction process began after obtaining the approval from the Deputy of research and obtaining permission from the Ethics Committee (IR. MUMS. REC. 1395. 485) and registering at RCT (IRCT2016120628529N4), and coordinating with the officials of Ferdowsi University of Mashhad. At first, the purposes of the research project were explained to the subjects, and after obtaining informed consent, the students were provided with questionnaires and completed it as self-report. The right to abandon participation was considered for those who were unwilling to cooperate.

3 Results

The sample comprised 50% female and 50% male participants in the present study. Most research samples aged 18-28 (1.83%), of which 50% were undergraduate students and most of them were single (80%) and native (80%) (Table 2).

Table 2: Frequency distribution of demographic variables

Academic stress		Intervention		Control		*P*
		N	%	N	%	
Age Categories	18-28	54	83.1	58	82.9	0.366
	29-38	11	16.9	10	14.3	
	39-48	0	0	2	2.9	
Sex	Girl	38	50	37	48.1	0.81
	Boy	38	50	40	51.9	
Grade	Undergraduate	38	50	36	46.8	0.688
	Masters and PhD	38	50	41	53.2	
Marital status	Single	60	80	60	78.9	0.873
	Married	15	20	16	21.1	
Residence status	Native	60	80	61	79.2	0.905
	Non-native	15	20	16	20.8	

Based on the results, there was no significant difference between the two groups before and after intervention in terms of gender, age group, educational Program, marital status and residence status ($p > 0.05$). Because of incomplete completion of the questionnaires, the variable of age group, marital status and residence status were unanswered

Based on the results of linear regression analysis, generally, 15.1% of the observed dispersion in academic stress is justified by the variables of the Theory of Planned Behavior, among which the perceived behavioral control construct had a significant effect ($p < 0.001$) and other constructs lacked a significant statistical effect ($p > 0.05$) (Table 3).

Based on the results of repeated data variance analysis, there is an interaction effect between the educational group and the mean score of the subjectnorm norms construct ($p = 0.001$, $F = 8.432$). Therefore, the presented results divided into the educational groups. According to findings, the mean score of the subject norms constructs during the study in the experimental group was statistically significant ($p = 0.006$, $F = 6.067$), while this difference of mean was not statistically significant in the control group ($p = 0.09$, $F = 2.535$). Also, the variance analysis of repeated data indicated that there was no negative correlation between the educational group and the mean total score of academic stress

(p = 0.118, F = 0.87). In addition, the mean score of total academic stress during the study indicated a significant difference (P = 0.004, F = 5.849). Meanwhile, the effect of the group was not significant (p = 0.68, F = 0.16). Also, independent t-test did not indicate any significant difference in any of the stages between the two groups ($p > 0.05$) (Table 4).

Table 3: Linear regression results before intervention to determine the most important influential structures of the planned behavioral theory

Dependent variable	Independent variable	Beta	*P*	r2
Academic stress	Knowledge	0.23	0.001	0.151
	Attitude	–0.005	0.9	
	Subjective norms	–0.119	0.06	
	Perceived behavioral control	–0.284	0.001	
	Behavioral intention	0.115	0.07	

Table 4: Comparison of the mean and the moderate structures of the theory of planned behaviour and stress, before, immediately after intervention, and three months later, in two groups of test and control

Variable	**Group**	**Before intervention**		**After intervention**		**Follow up stage (3 months after)**		**Test**		
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Tim/group**	**Time**	**Group**
Failure	intervention	19.17	4.01	18.96	3.66	18.72	3.74	F = 0.110, P = 0.89	F = 2.331, P = 0.1	F = 0.739, P = 0.3
	control	19.58	3.48	19.55	3.62	19.13	3.67			
	P-value	0.49		0.32		0.50				
	(t)	0.68		0.993		0.67				
Pressures	intervention	13.42	2.85	13.78	2.69	13.49	2.77	F = 0.533, P = 0.5	F = 1.044, P = 0.34	F = 2.098, P = 0.15
	control	12.92	3.12	12.96	3.27	12.87	3.00			
	P-value	0.30		0.09		0.18				
	(t)	1.030		1.383		1.319				
Self-imposed stress	intervention	21.72	3.33	21.93	3.30	2.133	3.57	F = 0.874, P = 0.4	F = 4.402, P = 0.01	F = 4.561, P = 0.03
	control	20.35	3.30	20.96	3.46	20.44	3.53			
	P-value	0.1		0.07		0.12				
	(t)	2.55		1.777		1.546				
physiologic	intervention	30.37	7.42	28.96	6.92	28.36	7.19	F = 1.823, P = 0.16	F = 6.827, P = 0.002	F = 0.065, P = 0.7
	control	29.88	8.99	29.53	8.99	29.21	0.09			
	P-value	0.70		0.66		0.52				
	(t)	0.38		0.441		0.643				
Emotion	intervention	11.87	3.00	11.78	3.50	11.76	3.37	F = 0.371, P = 0.54	F = 2.405, P = 0.09	F = 1.2303, P = 0.2
	control	11.77	3.73	11.49	3.86	11.16	3.76			
	P-value	0.85		0.63		0.29				
	(t)	0.186		0.474		1.051				
Behavioral	intervention	14.78	3.72	14.96	4.01	14.87	4.41	F = 0.69, P = 0.4	F = 1.012, P = 0.34	F = 1.476, P = 0.2
	control	15.77	4.36	15.94	4.94	15.40	5.46			
	P-value	0.13		0.18		0.50				
	(t)	1.513		1.339		0.666				

(Continued)

Table 4 (continued).

Variable	Group	Before intervention		After intervention		Follow up stage (3 months after)		Test		
		Mean	SD	Mean	SD	Mean	SD	Tim/group	Time	Group
Total stress score	intervention	134.26	16.59	133.01	17.34	131.45	17.11	F = 0.118, P = 0.87	F = 5.849, P = 0.004	F = 0.16, P = 0.68
	control	132.81	16.56	132.31	20.13	130.17	20.82			
	P-value	0.58		0.81		0.67				
	(t)	0.54		0.23		0.41				
Attitude	intervention	21.61	2.48	21.49	2.45	21.84	2.17	F = 0.179, P = 0.79	F = 1.944, P = 0.15	F = 2.322, P = 0.13
	control	20.97	3.47	20.86	3.25	21.03	3.18			
	P-value	0.19		0.17		0.06				
	(t)	1.290		1.351		1.850				
Subjective norms	intervention	13.26	3.27	14.11	3.30	14.16	6.067	F = 8.432, P = 0.001	F = 0.761, P = 0.446	F = 0.025, P = 0.875
	control	14.23	2.85	13.74	3.28	13.65	2.535			
	P-value	0.056		0.49		3.02				
	(t)	1.927		0.689		3.16				

Variable	group	Before intervention		After intervention		Follow up stage		X^2	*P*-value
		Median	IQR	Median	IQR	Median	IQR		
Conflict	intervention	9	4	8	3	8	3	0.46	0.79
	control	8	3	8	3	8	3	12.58	0.002
	P-value	0.77		0.74		0.41			
	(Z)	0.290		0.325		0.809			
Changes	intervention	8	3	8	3	9	3	0.40	0.81
	control	8	3	8	3	8	2	0.24	0.88
	P-value	0.24		0.14		0.14			
	(Z)	1.164		1.478		1.453			
Cognitive	intervention	6	3	6	3	6	3	2.29	0.31
	control	6	3	6	2	6	2	2.24	0.32
	P-value	0.79		0.39		0.39			
	(Z)	0.266		0.852		0.852			
Knowledge	intervention	6	3	7	3	7	3	14.74	0.001
	control	6	3	6	3	7	3	9.29	0.01
	P-value	0.96		0.37		0.16			
	(Z)	0.046		0.885		1.382			
Perceived behavioral control	intervention	19	5	19	4	19	4	0.014	0.9
	control	18	6	18	5	18	5	1.407	0.4
	P-value	0.19		0.10		0.13			
	(Z)	1.301		1.604		1.509			
Behavioral intention	intervention	15	3	14	4	15	4	2.903	0.23
	control	15	4	15	4	15	4	4.43	0.10
	P-value	0.54		0.46		0.66			
	(Z)	0.608		0.738		0.437			

In Table 4, the median scores of abnormal variables, before, immediately, after intervention and three months later, were shown in two groups of experimental and control. Based on Friedman test results,

perceived behavioral control constructs and behavioral intention did not show a significant statistical difference during the study ($p > 0.05$). Also, the Mann-Whitney test did not indicate a significant difference in none of the stages between the two groups ($p > 0.05$).

4 Discussion

The results obtained in the present study indicated that social media-based intervention according to the TPB was able to reduce the students' academic stress to some extent and developed the students' subject norms.

4.1 Demographic Characteristics and Its Relationship with the Constructs of TPB and Stress Levels

There was a significant difference between the mean score of academic stress and gender in the present study, such as the stress level in female students was higher than male ones. The results of the study conducted by Shokri confirmed the results of the present study [17], while according to Abazari, there was no significant difference of stress level between male and female [18]. The contradiction can be related to the different research population and selection of the sample size used in the research, where females accounted for a small percentage of the samples.

The present study indicated that there was a significant difference between the gender and the median score of awareness and perceived behavioral control constructs, for example girls had a higher median in the awareness score and a lower median in the perceived behavioral control score. In addition, awareness was significantly correlated with academic stress, i.e., increase of awareness will increase the level of academic stress, so that is why level of stress is higher in female students.

Also, based on the results, there was a significant relationship between the mean score of stress and the education Program, for instance stress level of undergraduate students was higher than of graduate and Ph.D. students. Low stress in graduate and Ph.D. students is more likely to have more experience and familiarity with the university's atmosphere and the quality of exam administration. Transferring from high school to university, leaving the family, unfamiliarity with the laws and atmosphere of the university, etc. can impose severe stress on undergraduate students. The results of the present study were consistent with Nikanjam study [19].

The results indicated that there was a significant difference between the education Program and the median scores of attitude constructs, subject norms, perceived behavioral control and behavioral intention in the research samples, such as the median scores of these constructs was higher in graduate and Ph.D. samples. Moreover, the constructs of subject norms and perceived behavioral control had a significant negative correlation with academic stress, i.e., Increasing in subject norms and perceived behavioral control reducethe level of academic stress. Understanding this relationship is somehow easy. Masters and Ph.D. students have more control over their stress. Also, the social environment, especially the attitude of family and friends affects their attitudes and behaviors. As a result, they experience less academic stress.

4.2 Determining of Predictive Power of Constructs of TPB to Control Academic Stress

The analysis results of linear regression indicated that perceived behavioral control constructs and awareness were significant predictors. A large body of research supports the idea that perceived behavioral control have the same construct with self-efficacy. In other words, perceived behavioral control construct and self-efficacy are conceptually overlapping and, consistent with Bandura's hypothesis, perceived self-efficacy can be considered a prerequisite for behaving. Self-efficacious people have a positive belief over their ability to conduct the intended behavior, or even can resume their behavior after a short interruption, therefore self-efficacious people will more likely to turn their intent into action [20]. According to Bandura, knowledge of the dangers and benefits of behavior is a precondition for changing behavior, and if people lack awareness in this regard, there is not enough

reasons to tolerate problems associated with changing the previous behavior [21]. The results of study indicated demonstrated that all the constructs of TPB have predictive power of aggressive behavior, but perceived behavioral control construct has significantly higher predictive power for predicting aggression intention and behavior [22].

4.3 Determining and Comparing Changes in the Median of Knowledge Regarding the Academic Stress Control

Based on the results obtained, there was a significant difference between the median scores of awareness in the experimental group during the study, such that the median scores of this construct significantly increased immediately after the educational intervention, indicating the positive effect of educational programs on improving the awareness of the participants in the experimental group. In addition, there was a noteworthy statistical difference in the median awareness scores in the control group during the study, but this difference was insignificant in the control group compared to the experimental group. The reason behind the increase in the median scores of awareness in the control group can be due to the presence of graduate and Ph.D. students. Also, presence in cyberspace and various educational channels can be effective in enhancing students' awareness.

In a study aimed at comparing the effect of e-learning and lecture-based teaching on nursing students' awareness, Abu Masoudi indicated that the mean score of awareness increased significantly in both groups after education. Therefore, it can be said that e-learning alike lecture has a positive effect on nursing students' awareness and this method can be used as an alternative or complementary to lecture-based teaching [23].

4.4 Determining and Comparing Changes in the Mean of Attitude Regarding the Academic Stress Control

The results of the present study suggested that there was no statistically significant difference between the mean scores of the attitude constructs during the study, in two groups. the potential reason for this is that at the beginning of the study the participants in the experimental group had a high attitude and education could not have an important effect on this construct.

In a research aimed at determining the effect of education based on TPB on the consumption rate of low value snacks in high schools, Peyman showed that there was no significant difference between the mean score of attitude construct during the study and also two groups had no statistical significant difference [24]. Subsequently, the studies conducted by Williams [25], Milton et al. [26], Tabatabaie [27] and Ghazanfari [28] indicated that the attitude was not changed after the educational intervention. Hamidi [29] in another study revealed that there is not a significant relationship between the attitude and the intention of individuals to search for counseling programs.

4.5 Determining and Comparing Changes in the Mean of Subjective Norms Regarding the Academic Stress Control

The present study indicated that there was a significant difference between the mean scores of subject norms constructs during the study period in the experimental group, such that the mean of this construct was increased after the educational intervention, and three months later. This increase reflected the positive effect of educational programs on the subject norms construct in the experimental group participants. However, during the study there was no statistically significant difference between the mean of this construct in the control group.

It can be concluded that the social environment, including the attitude of family members, friends and relatives affect the adoption and continuation of a behavior, and can be considered as one of the facilitators of that behavior. Therefore, designing and implementing appropriate educational interventions on these individuals can play an effective role in controlling students' academic stress. Based on the results of Louis, there is a significant correlation between subject norm and stress level [30].

4.6 Determining and Comparing Changes in the Median of Perceived Behavioral Control Regarding the Academic Stress Control

The results obtained in the experimental group indicated that there was no significant difference between the mean scores of perceived behavioral control constructs during and after the study. Perceived behavioral control depends on the existence or absence of facilitator or obstacles to do a behavior or perceived power, and a wide range of potential personal and environmental intermediaries [31]. The results of this study indicated that the subjects did not have complete control over their academic stress due to obstacles. The lack of proper recognition of the psychological characteristics of the students under study and the inappropriateness of educational intervention with their psychological characteristics can be one of the reasons that led to ineffective education. The results of the Louis study show that there was no significant correlation between perceived behavioral control and stress levels. The results of Williams also indicated no significant increase in perceived behavioral control after educational intervention in the experimental group compared to the control group [25].

4.7 Determining and Comparing Changes in the Median of Behavioral Intention Regarding the Academic Stress Control

Based on the results of the study, there was no statistically significant difference between the median of behavioral intention scores in the experimental group during and after the study. It can be argued that the intentions of individuals differ over time and have different intentions, depending on the circumstances in which they are placed. In the present study, in the first phase the questionnaire was filled in before the end of the final exams, therefore students had a high intention to overcome their educational problems and control their stress. While completing the questionnaire was in two phases after the intervention and three months later, during their holidays and rest, which could have decreased their intention. The results of the present study are consistent with those of Williams, Milton studies [25,26] but inconsistent with that of Taghdisi, Mazloomy and Ja'farpoor studies [5,31,32], which could be due to the different practice of intervention.

4.8 Determining and Comparing Changes in the Mean of Academic Stress Regarding the Academic Stress Control

Based on the results of the present study, there was no statistically significant difference between the mean of total score of academic stress between the two groups of experimental and control groups during the study, but the stress score decreased after the intervention and three months later, which could be observed in both the experimental and control groups. Probably one reason behind the reduction of the stress score in the control group was access to other resources or educational programs, which was beyond the control of the researcher. In a study, entitled "the effect of stress coping education on perceived stress and stress coping style in medical students" indicated a decreasing trend in students' perceived stress, nevertheless, changes were significant between the period before education and six months later. Also, changes in coping styles were not significant in different phases. The reason behind the ineffectiveness of education can be the short period of the education course and factors such as the passage of time and stresses associated with the different educational conditions in which the students are located, such as the beginning and the end of the semester [33]. Park's results indicated that the use of a mobile messenger reduced academic stress and increased life satisfaction in students [34]. In a study entitled "The Effect of Offline Teaching on the intensity of the adolescents' anger in Girls' Middle Schools", Zibaei indicated that the mean intensity of anger among female adolescents declined after education, indicating the effect of offline education [35].

5 Limitations

A limitation of the present research, which is found in most questionnaires-based research, is that a number of questions may always remain unanswered in one or more questionnaires. Data was also collected as self-report, in which case the actual performance of the people might not be reflected. Ph.D. students also had less willingness to complete the questionnaire than the students in other Program, which reduced the number of students at this Program compared to other Programs. Due to the researcher's limited time, this research was limited to the students of Ferdowsi University and students from other universities such as Payam Noor, Azad, etc. We are not included in the study. Other limitations of this research include the low speed and low Internet bandwidth, as well as the disconnection of the Internet in Iran.

6 Conclusion

The results suggested that the theory of planned behavior could be a good predictor of behavioral intention and, social media-based educational intervention according to the Theory of Planned Behavior was able to reduce the students' academic stress to some extent and lead to the student's subject norms development. Also, the role of social media such as cellular phones, Internet-based systems and multimedia software in the daily life of the society is serious and controversial that can have dramatic effects on building culture and improving community health. Therefore, the combined use of these media with other theories and health education models and health promotion is suggested as an effective strategy.

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