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The Effectiveness of Motivational Interviewing on Situational Emotions and Temperament/Character Dimensions among Probationary University Students

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ABSTRACT: The purpose of this study was to investigate the effectiveness of motivational interviewing (MI) on situational emotions (SEs) and temperament/character dimensions among probationary university students. The research method was experimental with pretest-posttest. The statistical population was undergraduate probationary students at University of Zanjan during the academic year 2018-2019 whom 40 were selected through stratified sampling method and assigned randomly into experimental and control groups (20 members in each group). Both groups underwent pre-test and post-test procedures. Members of the experimental group received a series of five sessions (each session was 120 minutes long) of MI per week of the procedure, whereas the members of the control group received no intervention. Short form of situational emotions scale and Temperament and Character Inventory (TCI-125) employed for data collection. The results of data analyzed using multivariate analysis of covariance (MANCOVA) showed that MI had a significant effect on components of SEs (interest, well-being and boredom), so that it increased interest and well-being and decreased boredom, whereas it had no significant effects on temperament / character dimensions among probationary university students (P<.05). Therefore, one can conclude that MI can be used to improve the academic performance of probationary University students.

Keywords: Motivational interviewing, Situational emotions, Temperament/Character, Probationary

Introduction

University students are selected human resources and the builders of the future of the country, and their success is of the main goals of educational programs. University student failure in education is the cause of individual and social problems and deviation from reaching the goals of the educational system. One of the criteria for university students' academic failure is the common phenomenon of probation. As getting a grade point average of less than 12 in each semester, probation is one of the most important examples of academic failure (Taghvaeinei, 2018). Studies have shown that personality factors, motivation and interest can affect academic success in universities (Najimi, 2012). Among the factors predicting vulnerability to many problems and issues from a very young age in the future is the personality structure. The overall structure and dimensions of personality are established in childhood and have a high stability over time (Abolghasemi, 2011). One of the personality theories examining personality dimensions is Cloninger's seven-factor model of personality, which has created a strong theoretical framework

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about personality involving both normal abnormal personalities by emphasizing biological parameters. According to this view, the personality is composed of temperament and character. Temperamental factors refer to a person's broad view of the environment that has biological bases (Calati et al., 2008). Indeed, automatic emotional responses somewhat inherited and persist throughout life are called temperament in Cloninger's theory that involves four dimensions: harm avoidance, novelty seeking, reward dependence and persistence. On the contrary, character refers to individual self-concepts and differences in goals, values and choices and the meaning of his experience in life affected by social learning and grow throughout life involving three dimensions of self-directedness, cooperativeness and self-transcendence (Kaviani & Poor Naseh, 2005). Studies have shown that the students not improving on their test scores have the lowest scores on self-directedness (Tio et al., 2016). Another study showed that high harm avoidance was associated with low academic achievement and high persistence in women and high reward dependence in man was associated with high academic achievement (Mullola et al., 2015). Moreover, other studies have found that high academic achievement is associated with low novelty seeking and low self-transcendence (El Sheikh et al., 2014). Another factor with a significant role in learning and academic achievement is emotions (Randler, 2011). Educational status is associated with many emotions like enjoyment of learning, hope, pride, anger, anxiety, shame and boredom. These feelings are closely related to learning, academic performance, personality development, and health (Pekrun, 2007). Learning processes need more than just a cold cognition and include factors like social and emotional variables that must be considered while examining learning processes. Recent psychological studies have emphasized the significance of emotions in learning and academic achievement (Philipp Mayring, 2003). Students experience learning situations differently based on previous experiences, social context, personal goals, personal preferences, and so on (Götz et al., 2003). SEs are emotions sensitive to change and are not a fixed feature and occur in a specific context, for example in a particular class, and can occur during learning. Thus, SEs are short-term emotions that may be considered as a product of the interaction of situational conditions and individual talents and include three factors: interest (Communicating with a specific topic that is important and practical), well-being (Satisfaction and enjoyment of situational conditions or, in other words, cognitive and emotional evaluation of the situation) and boredom (Not doing the work along with disinterest) (Randler, 2011). SEs in educational settings seem to affect students' intrinsic motivation (Krapp, 2005) or even individual desire for sustainable biological behavior (Fröhlich et al., 2013). Thus, SEs should be considered to design effective learning environments (Schönfelder & Bogner, 2018).

Given the above, it is necessary to consider the fact that nowadays the learners suffer from academic stress and are fragile against the exam scene and the presentation of class materials in the country's education system, negatively affecting their academic success. Thus, one way to deal with this problem is to provide appropriate counseling. One of the short-term counseling techniques is MI, developed by Miller and Rollnick, which is a client-centered method to strengthen and increase the internal motivation for change through discovering, identifying and resolving doubts, ambivalence and heterogeneity in behaviors by using an interactive and

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empathetic listening style to increase motivation putting a special emphasis on difference between personal goals and the current behavior. Studies have shown that MI increases motivation, attracts personal attention, and allows for greater changes (Miller & Rollnick, 2002). Ashouri et al. (Ashouri et al., 2015) showed that MI has led to increased self-efficacy and improved self-concept of underdeveloped students. The results of Ashrafzadeh et al. (Ashrafzadeh et al., 2017) indicated that MI training has had a significant impact on academic self-efficacy and problem solving of female high school students. Hall, Sears & Walton (Hall et al., 2020) concluded that MI training to welfare organization employees increased self-efficacy and empathy in them. Strait, Williams & Peters (Strait et al., 2019) showed that MI improved student academic performance. Park et al. (Park et al., 2019) showed that MI helps manage stress through self-reflection.

As already stated, academic failure and subsequent probation of students at the universities can lead to undesirable and in many cases irreparable consequences that are not a personal problem but a social problem and the resulting problems will affect society in the future. Thus, it seems necessary to use psychological approaches and interventions that can help students who are underdeveloped and conditioned and prevent the subsequent adverse consequences to prevent these adverse effects. It has to be noted that so far no serious action has been taken regarding probationary university students in psychological interventions. Hence, in this study, the effectiveness of MI on SEs and the dimensions of temperament / character of probationary university students have been examined.

Method

The study was experimental with a pretest-posttest design. The statistical population was all undergraduate students (male and female) suspended and deprived of education for three semesters at Zanjan University in the academic year 2018-2019, and were allowed to continue their courses by providing documents for the academic commission, describing their plausible conditions and problems, in order to cancel academic suspension, once more, and they were introduced to receive counseling from psychological consulting center. They were 105 (63 boys and 42 girls) students, of whom 40 were randomly selected using stratified sampling and assigned to two groups (experimental and control) of 20 randomly. The inclusion criteria were that the participants of both groups (experimental and control) not receiving any psychological intervention the six months before participating in the study, and participated in the study with conscious desire and consent. The exclusion criteria were the participants of the experimental group missing more than one session of MI group therapy sessions and not receiving any other psychological intervention from the beginning to the end of MI group therapy sessions.

Tools

1. Short form of situational emotions scale: This scale was developed by Randler et al. (Randler, 2011) to measure SEs in science education with nine items and three sub-factors: boredom, interest and well-being. Three questions are assigned to each sub-factor. The scoring of this scale is as Likert scale, so that “completely disagree” gets a score of one and “completely agree” gets five.

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Thus, in each sub-factor, the low limit is 3 points, the average limit is 9 points and the upper limit is 15 points. In each of the sub-factors, a score of 3 to 6 is low, a score of 6 to 9 is average, and higher than 9 as high. Randler reported the validity of this scale as appropriate, and reported the reliability of well-being, boredom and interest factors as .86, .77 and .81, respectively. Mohammadifar (2015) reported the reliability of well-being, boredom and interest factors as .71, .78 and .68, respectively.

2. Cloninger's temperament and character inventory (TCI-125): The tool was created by Cloninger et al. (1993) to measure temperament and character (Kaviani, 2009) .This inventory has seven dimensions, four dimensions (novelty seeking, harm avoidance, reward dependence and persistence) measure temperament, and the other three dimensions (self-directedness, cooperativeness and self-transcendence) measure character. Its normalized form in Iran has 125 questions, each participant answers these questions by selecting one of the correct and incorrect options, and these questions are scored as zero and one. Each of the dimensions of temperament and character in this list has questions where the score of each dimension is obtained from the sum of the scores after that these scores are considered raw scores and must be converted to T scores to be ready for interpretation. Scores from zero to 16.7 are very low, 16.7 to 33 are low, 67 to 83.3 are high and 84 to 100 are very high. Kaviani (2009) obtained the internal correlation of scales using Cronbach's alpha coefficient in a sample of 1212 participants for novelty seeking .72, harm avoidance .80, reward dependence .73, persistence .55, cooperativeness .77, self-directedness .84 and self-transcendence .72. Validity coefficients (n = 100) are as novelty seeking .75, harm avoidance .72, reward dependence .87, persistence .90, cooperativeness .76, self-directedness .66 and self-transcendence .86 (Kaviani & Poor Naseh, 2005).

Procedure

As the number of group members is usually considered 8-12 participants in group therapy (Yalom, 1995) , the experimental group was randomly divided into two subgroups of 10 participants and then the pretest (short form of situational emotions and TCI-125) was performed for each member of the groups (experimental subgroups and control group). Then short-term treatment of MI was performed with the presence of counselor and group members in five sessions (120 minutes) weekly according to the structure stated in the treatment sessions that it was performed for the experimental subgroups for the members of the control group. During this period, the members of the control group did not receive any intervention. It has to be noted that the experimental subgroups had a total of two subjects dropping out. Finally, at the end of five treatment sessions for both groups (experimental subgroups and control group), the post-test (short form of situational emotions and TCI-125). Finally, the data collected were analyzed using multivariate analysis of covariance in SPSS-22.

Table 1 shows the contents and structure of MI sessions, extracted from the MI group intervention workbook with the structure of five Fields sessions (Fields, 2006).

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Table 1. Contents and structure of MI sessions

Session	Content	Home work
First	Introduction, acquaintance with group members, teaching change stages, practicing steps and determining the change stage of clients	Specifying change step
Second	Reviewing why they are in the group and asking them to comment on the change.	Browsing home works
Third	Discussion as brainstorming about strengths and weaknesses and their relationship to educational problems.	Identifying one's strengths and weaknesses
Fourth	Defining values, performing the exercise of identifying and prioritizing first-rate values, practicing defining values and practicing matching values and behavior	Identifying values and prioritizing them
Fifth	Familiarizing the clients with the basics of the temptation, identify very tempting situations to deviate from the program, informing them about the learning process and identifying inappropriate goals	

Results

Data were analyzed in SPSS using descriptive (frequency, frequency percentage, mean and standard deviation) and inferential (multivariate analysis of covariance) statistics. The participants in both groups in the SEs pretest and temperament / character dimensions had a similar means level, but MI group had a higher mean level than the control group in the post-test. Moreover, the results of Kalmogorov-Smirnov (Z) test showed that the data distribution for SEs and temperament / character dimensions for both groups were normal in pre-test and post-test stages (P>.05) (Table 2).

Table 2. Descriptive statistics of SEs and temperament / character dimensions in the experimental and control groups

Variables	Group	Stage	Mean	SD	Kalmogorov-Smirnov (Z) test	
					Z	P
Situational emotions	MI	Pre-test	23.94	3.096	.160	.200
		Post-test	27.94	2.508	.187	.098
	Control	Pre-test	24.35	3.617	.139	.200
		Post-test	25.35	2.661	.096	.200
Temperament/character dimensions	MI	Pre-test	72.78	5.704	.187	.097
		Post-test	78.83	4.176	.113	.200
	Control	Pre-test	72.50	3.635	.110	.200
		Post-test	77.10	3.447	.195	.072

Before using the multivariate analysis of covariance parametric test for the variables, the presumption of homogeneity of variance was examined using Levene's test and the results showed that this presumption was established for SEs and temperament / character dimensions. Moreover, the results of Box's M test showed that this test was insignificant for the variables and establishment of the homogeneity of the variance-covariance matrix (P = .254, F = 1.299), (Table 3).

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Table 3. The results of homogeneity of variances and homogeneity of variance-covariance matrix for variables in two groups

Dependent variables	Levene's test				Box's M test for the variables
	F	**DF1**	**DF2**	**P**	
Situational emotions	.489	1	36	.489	Box's M = 8.575 F = 1.299 P = .254
Temperament/ character	.008	1	36	.929	

Then the presumption of the homogeneity of the regression line slope and the existence of a linear relationship between the covariate and the dependent variable were examined and the results indicated that these two presumptions were established for the variables. Moreover, the results showed that by considering the pre-test scores as a covariate, MI led to a significant difference between the groups in the SEs (F = 11.866, η^2 = .264), but ineffective on temperament/character dimensions (P>.05). It means part of the individual differences in the SEs variable was due to differences in group membership (the effect of the intervention). Thus, MI led to an increase in the mean SEs of participants in the experimental group (according to Table 2) compared to the control group. Hence, one can state that MI only affected SEs probationary university students but did not have a significant effect on students' temperament / character dimensions (Table 4).

Table 4. The results of analysis of the covariance of the inter-groups effects of the mean variables

Components	Source of changes	SS	DF	MS	F	P	Eta
Situational emotions	Group* pre-test	3.846	1	3.846	1.339	.256	.043
	Pre-test	62.637	1	62.637	20.487	.0001	.383
	Group	36.124	1	36.124	11.866	.002	.264
	Error	100.461	33	3.044			
Temperament/ character	Group* pre-test	45.603	1	45.603	4.058	.053	.119
	Pre-test	107.999	1	107.999	9.003	.005	.214
	Group	21.469	1	21.469	1.790	.190	.051
	Error	395.847	33	11.995			

Moreover, the results showed that by considering the pre-test scores as a covariate, MI led to a significant difference between the groups in the components of boredom (F = 35.352, η^2 = .517), interest (F=32.789, η^2 = .498) and well-being (F = 44.022, η^2 = .572). The effect of boredom is 51.7%, interest is 49.4% and well-being is 57.2%. This means that a part of the individual differences in boredom, interest, and well-being were due to differences in group membership (intervention effect). Hence, MI decreased the mean boredom scores and increased the mean scores of interest and well-being of the experimental group participants compared to the control group. Thus, one can claim that MI affects boredom, interest, and well-being of SEs of the probationary university students (Table 5).

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Table 5. The results of analysis of covariance the intergroup effects of mean of SEs components

Components	Source of changes	SS	DF	MS	F	P	Eta
Boredom	Group* pre-test	.112	1	.112	.090	.767	.003
	Pre-test	18.207	1	18.207	14.994	.0001	.312
	Group	42.928	1	42.928	35.352	.0001	.517
	Error	40.071	33	1.214			
Interest	Group* pre-test	.075	1	.075	.056	.815	.002
	Pre-test	36.780	1	36.780	29.087	.0001	.468
	Group	41.460	1	41.460	32.789	.0001	.498
	Error	41.727	33	1.264			
Well-being	Group* pre-test	4.027	1	4.027	2.317	.138	.072
	Pre-test	37.077	1	37.077	19.678	.0001	.374
	Group	82.946	1	82.946	44.022	.0001	.572
	Error	62.179	33	1.884			

Discussion

The purpose of the study was to examine the effectiveness of MI on SEs and the dimensions of temperament / character of probationary university students. The results showed that MI had a significant effect on SEs of the probationary university students but no significant effects on their temperament / character dimensions, MI resulted in a high score on interest and well-being and a low score on boredom but had no significant effects on any of the dimensions of temperament / character. The results are consistent with those of Safaeinaeini et al. (Safaeinaeini et al., 2019), showing that group MI training affects academic burnout (burnout, apathy, and inefficiency); Wells & Jones (Wells & Jones, 2018) showing that MI helps teachers create a learning environment based on cooperativeness, empowerment, participation and motivation, and with the understanding of the emotional dimension of learning. Moreover, the results are inconsistent with those of Ashouri et al. (Ashouri et al., 2015) showing that MI is effective in increasing self-efficacy and self-concept of low-achieving high school students and with those of Hall, Sears & Walton (Hall et al., 2020) that showed that teaching MI to welfare organization staff leads to increased self-efficacy. The results were also inconsistent with those of McCabe et al. (McCabe et al., 2019) that showed using MI in people with OCD undergoing ERP treatment enhances self-efficacy, leads to greater adherence to treatment, and consequently reduces symptoms and treatment stability.

In explaining the finding that MI has a significant effect on the SEs of probationary university students, one can state that the main purpose of MI is to increase intrinsic motivation to change behavior, intrinsic motivation originates more than personal goals and values. Indeed, the external pressure to change causes a contradictory and far-fetched reduction in a person's desire for change, a state of reluctance and reactionary disgust that arises when one feels that one's personal freedoms have been threatened, just as the case of probationary university students. When these students first experience academic failure, external pressures to compensate for this decline start, both on the part of the university and on the part of the family and others around them, making them feel

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that their personal freedoms are threatened and thus reducing the tendency to change in them. However, as in MI, the therapist is a supportive individual rather than someone who gives orders, the likelihood of such reactions occurring is greatly reduced and there is an incentive to change them. In other words, MI is a client-centered approach and guidance to strengthen the intrinsic motivation for change by resolving ambivalence, emphasizing the framework of internal attributions and current client concerns and the conflict between behaviors and values. This method tries to make the client aware of the individual responsibility to solve the problem, become more aware and gradually feel a sense of commitment to change. This treatment method helps people put aside their doubts and move towards change, and its purpose is to create a positive environment that encourages the clients to change (Miller et al., 1993). As SEs are emotions that are not a fixed feature and are sensitive to change and occur when a person is exposed to certain situations (Randler, 2011), MI increased the intrinsic motivation of probationary university students to change, the improvement of academic performance, caused it to be associated with it as an important and practical subject in their lives emotionally (increase in interest) and then plan to improve their academic performance (decrease in boredom) and enjoy this action (increase in well-being).

In explaining the finding that MI did not have a significant effect on temperament/character dimensions of probationary university students, one can state that temperament is the emotional core of personality and refers to the basic endogenous intellectual, emotional and behavioral tendencies. In other words, temperament includes neuro-biological and hereditary preparations for expressing primary emotions such as anger, fear, and attachment. Indeed, temperament traits are genetically determined and significantly persist throughout life and to involve automatic reactions like inhibition, activation, and persistence of behavior in response to environmental stimuli such as danger, novelty, and reward. These traits are constant over time and are the same in different cultures. In contrast, character refers to the individual differences in higher cognitive processes, which include logical thinking, formal or hypothetical composition, symbolic interpretation, and initiative. Moreover, character dimensions include individual differences in social goals and values and seem to be affected drastically by the family environment. Contrary to temperament, character grows over time and changes with age. Temperament is in line with emotional, associative and motivational processes and underlies the skills and habits shaped based on emotion. However, character is in line with symbolism and abstract processes (Basharpoor, 2016).On the other hand, given MI feature, which is client-oriented and free them to change, as well as accepting and empathizing with clients without any judgment, MI did not have a significant effect on temperament / character dimensions of probationary university students.

The limitations of the research were the impossibility of controlling variables like gender, socio-economic status, and participants being indigenous and non-indigenous. Moreover, as these students had been referred to the University Student Counseling Center through the Special Cases

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Review Council, it was hard for them to communicate with group members as well as the therapist because of negative emotions.

In future studies, it is suggested that the effectiveness of MI on other emotional, cognitive, emotional and social problems leading to academic failure and subsequent probation in students be examined to evaluate the sustainability of the effects of treatment sessions, tests and follow-up sessions at different intervals. The similar studies are suggested to be done in schools, educational institutions and other universities, and as these students usually have inefficient belief systems effective in their academic failure and probation; thus, the effectiveness of other approaches like cognitive-behavioral and schema therapies on performance should be addressed. Moreover, the treatment method of the present study and other treatment methods appropriate to the problem should be used for two-semester probationary students, one probationary semester and other cases of academic failure like course omission, grade point average drop, and so on.

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