

Self-Awareness Skill Building and Correlation to Improved Mental Health Status in College Students Living in Iran during the 4th peak of COVID-19 Pandemic

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Abstract

The study aimed at measuring the impact of self-awareness skill building on the levels of self-esteem, depression, and anxiety in college students. Additionally, the study investigated the effect of an exogenous factors such as mindfulness, goal setting, and time management competencies on the endogenous factors such as problem-solving techniques and brain functionality. The general premise of the study is cross-sectional and quantitative with sample population of college students studying in the College of Computer Science at Baha'i Institute of Higher Education (BIHE) in Iran. At the start of the study, the number of participants was 51 with 30 males and 21 females; however, during the course of the study and due to exclusion criteria, 13 students were eliminated from the research and the end number was at 38 participants. Using the Rosenberg's Self-esteem combined with Beck Depression and Anxiety inventories, the independent variable, the skill building training scale was measured in terms of the dependent variables, self-esteem, depression, and anxiety. Both the Pearson coefficient and the T score were calculated to find the associations among such variables. The final data analysis of the pretest and posttest results showed students gained 64.8855% increase in self-esteem, 33.1439% decrease in depression, and 7.66129% decrease in anxiety. The hypothesis stated that skill building training promotes self-esteem, while reducing anxiety and depression, subsequently heightening problem-solving and time-management techniques.

Keywords: mindful meditation, self-esteem, self-awareness, problem solving, goal setting, college students, depression, anxiety, time-management, WOOP technique

Transitioning from high school to college encompasses a great deal of change, which may lead freshmen students to experience stress and negative pressures from external factors (D'Zurilla & Sheedy, 1991). Generally, college students experience a high level of anxiety due to many factors such as challenges with difficult subjects, housing, and problems with forming new interpersonal relationships and identifying with the majority culture. In a study of 308 young adults, data showed that psychological distress can significantly lower self-esteem. The study also emphasizes on the role of psychological and social distress and its correlation to self-esteem in college students (Becerra et al., 2021). The global outbreak of COVID-19 has also created a worldwide enforcement of mandatory quarantine, social distancing, panic, loss of human lives, economic downfall, and travel ban across the world that have shown to increase anxiety and depression across the board (Zhai & Du, 2020).

The Importance of Self-awareness

Study has shown (Rawlinson, 1990; as cited by Jack & Miller, 2008) that self-awareness is a conscious process of self-understanding and knowing one's level of strengths and limitations and severity of emotions that could ultimately impact an individual's behavior in various situations. Burnard (1999) believes that healthy self-awareness leads to empowerment and feeling of control, thus enabling the individual to be less of a victim and more of being in control of their situation.

Purpose of Research

Over the past few decades, college students' anxiety disorders have been on the rise (Leta, 2001), which interfere with academic performance and social regulations. Various studies have also shown the increased level of anxiety in young adults can be detrimental to many other areas of life (McCarty, 2007), and various studies have demonstrated that the impact can be debilitating in the long run. Self-awareness can improve judgment and help identify opportunities for professional development and personal growth (Goleman, Boyatzis, & McKee, 2002).

The hypothesis states that self-awareness skill building improves the individuals self-esteem, while decreasing anxiety and depression. Therefore, a customized self-awareness skill building training was designed to measure such correlation in the college student population.

Baha'i Institute of Higher Education (BIHE)

Founded in 1987, BIHE was formed in response to the Iranian government's continuing campaign to deny Iranian Baha'is access to higher education. Being a student at BIHE is still prosecutable by the Iranian government as it considers it a threat; even though, BIHE is solely an academic institution. BIHE students have been chosen for this research because they have consistently been accosted with oppressive conditions, and as a result, they have been forced to face the additional stressors. For instance, the Iranian government has refused to recognize any undergraduate degree completed through BIHE. Computer Science students were selected due to the nature of their field leaving fewer opportunities for social interactions and emotional checks and balances. According to Passos et al. (2020), the prevalence of anxiety and depression symptoms among the students were, respectively, 51.9% and 64.9%, which are higher than previous findings in the Brazilian general population and among medical students. Furthermore, during the pandemic, Iran has experienced extreme levels of COVID19 outbreaks, where the virus has spread prevalently in all provinces of this country, and the government has not been able to control it and has asked for assistance from World Health Organization, (WHO, Abdi, 2020).

Self-Awareness Workshop Mechanism

Three workshops were designed to help students learn how to increase their self-esteem and consequently decrease depression and anxiety, while learning techniques to manage their level of stress (Pestonjee, 1992). The techniques developed for these workshops were based on engaging and motivating students. These included understanding the importance of goal setting and practicing it (Bovend'Eerd, Botell, & Wade, 2009), understanding different reasons for procrastination and using the WOOP technique to manage it (Duckworth, Kirby, Gollwitzer, & Oettingen, 2013), practicing meditation and relaxation for self-love in order to decrease depression (Baer, Smith, & Allen, 2004; Kabat-Zinn, 1990; Kabat-Zinn, 2003), applying CBT emotional mindfulness for decreasing anxiety (Britton, Shahar, Szepsenwol, Jacobs; 2012), and working different pillars of self-esteem to increase it (O'Brien & Epstein; 1988).

Workshop sessions were conducted in three phases, each over a period of three months (November, December, and January). Each session was three hours, so a total of 9 hours of self-awareness program was taught to students via Zoom meeting application. Their cameras were kept on during the whole workshop. In addition, students had to participate in an online group to discuss their thoughts and concerns between two workshops. Each workshop had some assignments and students had to report their activities at the next session. Pretest questionnaires were conducted before the first workshop and posttest questionnaires were given after the last session.

Defining the Variables

The independent variable being manipulated is awareness workshop equilibrium against the dependent variables that change as a result of the manipulation in the levels of self-esteem, depression, and anxiety in the participating population (Reynolds & Livingston, 2011). To ensure the internal validity, the following variables were isolated as control elements: participants' age, gender, and the undergraduate major.

Confounding Variables – Other variables suspecting of influencing the outcome were considered to be the impact of COVID19 pandemic, the proximity of graduation date, and belonging to a minority religious group being subjected to persecution, thus increasing the level of students' stress and consequent domino effect on their psychological well-being. Isolating the confounding variables prevented the presence of interfering variables, which would have resulted in an unmeasured third variable influencing the study result (Reynolds & Livingston, 2011).

Extraneous Variables – Researchers acknowledge that other factors may also be influential in the outcome of the study such as each student's temperament, personality, characteristics, gender, and response to adversity. These factors should be taken into consideration in the next research study.

Other multifactorial elements to be considered as extraneous variables may be socioeconomic inequalities and student's academic performance and standing, family dynamics, and relational difficulties or other unknown stressors. It is imperative that extraneous variables to be analyzed and studied to rule out other factors influencing the results.

Participants

According to the results, 21 (40.4%) of the sample were female and 30 (57.7%) were male, and 1 (1.9%) did not specify their gender. Age distribution of the sample population in the pretest stage indicated that 36 (69.2%) were in the age group of 18 to 21, 13 (25%) were in the age group of 22 to 25, 2 (3.8%) were in the age group of 26 to 30, and 1 person (1.9%) did not specify their age group. In the posttest stage, compared to the pretest, 13 individuals who were present in both stages but had canceled the test for various personal and family reasons, were excluded and one person was excluded in the same stage before the test. Due to the lack of complete answers to the questions, the questionnaires were removed in the pretest stage, and finally 38 people who were fully present in the pretest stage and fully participated in the intervention sessions were selected, so the research process continued with these 38 people.

Sample Population Selection - Sample selection was based on both convenience (haphazard) and purposive methods. Convenient sampling allows the researchers easy access to participants, and the purposive sampling allows for collecting data only from participants who show relevant elements to the hypothetical set up and are associated to the specific research criteria (APA, 2020).

Inclusion and Exclusion Criteria - Inclusion criteria was based on the sample population of participants being students at BIHE majoring in Computer Science, having access to WIFI, who were willing to give consent to pretest, posttest, and attending all the training sessions through Zoom. The disqualifying factors that would exclude the subjects from being considered in the study were any student not majoring in computer science and anyone not attending BIHE, since it would interfere with the outcome and the end result of supporting the main hypothesis.

Akullianet al. (2020) states that some factors, such as fear of failure, impact Computer Science students and lead them to burnout, anxiety, and depression. Therefore, subjects were recruited from Baha'i Institute of Higher Education (BIHE) undergraduate program in the College of Sciences majoring in Computer Science. The study, a micro-genetic research methodology technique, of a short-term data collection duration, took over the course of three months during the fall semester.

Sample Size -The total population of 51 participants in pretest questionnaire was comprised of 30 males (58.8%) and 21 females (41.2%). The age range for all participants was 18 to 30 ($M = 24$). The total population of 38 participants in posttest questionnaire was comprised of 22 males (57.9%) and 16 females (42.1%). The age range for all participants was 18 to 30 ($M = 24$). The total population of 13 participants who did not meet the criteria for completing the research was comprised of 8 males (61.5%) and 5 females (38.5%). The age range for all excluded individuals was 18 to 25 ($M = 21.5$).

Methodology

The study is based on a quantitative, micro-genetic research methodology to measure the applicability and effectivity of self-care skill building training on college students aiming to reduce the level of anxiety, stress, and depression. Pretest posttest questionnaire were adapted from a translated version of Rosenberg (self-esteem scale – Beshlideh version,) and Beck (depression/anxiety- Kaviani version) with justification for cultural contrast.

Goal And Purpose of Research – The intent of this research is to measure the level of anxiety, depression, and low self-esteem of students, who attend Baha'i Institute of Higher Education in a highly stressed environment, since the Islamic Republic of Iran has banned minorities from attending mainstream universities and colleges.

Research Design -November 2020 to mid-January 2021. In the First week of November , the pretest and the consent were delivered to the research participants via email. Using a private email account response was stored in a confidential file, with only researchers' accessibility. First phase of workshop training was implemented on November 8, followed by December 13 for the mid training module, and the final module was administered on January 17, 2021. Posttest was given at the end of January after the completion of the last phase of training. The process was followed by each individual completing a demographics survey and the pretest. The pretest was based on a modification of three different psychometric inventory assessment measuring levels of anxiety, depression, and stress.

The Rosenberg self-esteem scale (RSES; Rosenberg, 1965; Blascovich&Tomaka, 1993), The Beck Depression Inventory BDI-II (Beck, Ward, Mendelson, Mock,&Erbaugh, 1961) and The Beck Anxiety Inventory (Beck, 1988; Beck & Steer, 1993) were used to create the pretest and posttest for this study.

Specifications of Instruments Used -The data was collected using the validated and reliable confidence interval in Farsi (the Iranians' primary language) of Rosenberg's demographic Questionnaire, Self-esteem Scale (RSES), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI), using data collection device (the added Farsi version was normed and has been validated and reliable). The Demographic Questionnaire was conducted to ensure that the inclusion criteria of the participants are met, as well as screening for age, gender, major, and marital status.

Reliability and Validity

The reliability and validity of all the data collection instruments were substantiated as follows: Beck Depression Inventory (Hamidi et al., 2015); Beck Anxiety Inventory (Kaviani & Mousavi, 2008; Rafiei & Seifi, 2013), and Rosenberg Self-Esteem Scale (Beshldeh, Yousefi, Haghghi, & Behrouzi, 2012).

Measures

The 3-hour customized workshops were designed to be conducted in three consecutive months to teach the students the following skill sets: a) mindfulness and meditation, b) goal setting, WOOP Technique (Oettingen, 2014), Cognitive Behavioral Therapy (CBT), mindfulness for anxiety (Beck Institute Mindfulness & CBT, 2018), self-love for depression, self-esteem (Rosenberg, 1986; O'Brien & Epstein, 1988), problem solving, time management.

- The BDI - Beck Depression Inventory-II (BDI-II) is a self-report scale and contains 21 categories and 84 statements for assessing depression (Beck, Steer, & Brown, 1996). All participants rated their symptoms of depression that they had experienced during the past two weeks. The raw total scores are varying from 0 to 63 in which the scores were categorized as minimal range (0 to 13), mild depression (14-19), moderate depression (20-28), and severe depression (29-63) (Smarr, & Keefer, 2011).
- The BAI - Beck Anxiety Inventory (BAI) is a self-report scale and contains 21 items for evaluating anxiety (Beck, Epstein, Brown, & Steer, 1988). All participants rated their mood and how much they were bothered by every symptom during the past week with a Likert scale ranging from 0 (not at all) to 3 (I could barely stand it). The raw total scores varied from 0 to 63 in which the scores were categorized as no anxiety (0 to 9), mild anxiety (10-18), moderate anxiety (19-29), and severe anxiety (30-63) (Julian, 2011).
- Rosenberg Self-Esteem Scale - Rosenberg Self-Esteem Scale (RSES) is a self-report scale and contains 10 items for evaluating the global Self-Esteem (Rosenberg, 1965). The RSES has four response categories from strongly disagree to strongly agree and depending on how the response categories were coded (1-4 or 0-3). (In this study, the raw total scores varied from 10 to 40 in which the scores were categorized as poor self-esteem (10) or excellent self-esteem (40) (Lo Cicero, & Gansler, 2010).

Procedure and Analysis

In this quantitative research, to analyze the data, the researchers used the IBM Statistical Analysis in Social Science (SPSS) model 27 to calculate the variable coefficient and other pertinent data. The authors also note that the research data and the analysis coding system are available upon request.

Literature Review

College students, particularly, freshmen (Towbes & Cohen, 1996) are subject to multi-factorial exogenous elements of stress and stressors (D'Zurilla & Sheedy, 1991). According to study by Romano (1992), college students face the pressure of finding a suitable job, developing a career, and eventually finding their life's partner, while trying to meet societal pressures. The combination of all these stressors could lead to additional anxiety and tension. Romano also refers to a systematic review of 600 articles emphasizing the importance of addressing these stressors, while mentioning that only 24 of these articles have directly discussed interventive programs (1992). It is extremely important that alternative forms of therapy or self-help awareness and education modalities to be investigated, while enhancing the coping mechanism and the necessary skills for college students to face their life's challenges.

Time Management

Realistic time management and plan development can increase productivity and decrease feelings of guilt from not completing the tasks; however, developing and maintaining these skills can be challenging (Valerie, 2009). Therefore, part of the workshop was designed to train the students to manage their time.

Findings showed that though learning time management can improve time management skills, it still is not able to provide a better performance automatically (Claessens, Van Eerde, Rutte, & Roe, 2007). Ghiasvand, Naderi, Tafreshi, Ahmadi, and Hosseini (2017) conducted a research on the relationship between time management skills and anxiety and academic motivation in nursing students in Tehran, Iran. Their findings indicate that improving time management skills can increase academic motivation and decrease anxiety rates among participants.

Analysis of Variance (ANOVA)

Mean and standard deviation of self-esteem, depression, and anxiety variables in the pretest stage - Based on the results, the mean score of self-esteem was 3.03 with a standard deviation of 5.017, for the depression variable was a mean of 13.42 with a standard deviation of 10.17, and for the anxiety variable was 32.35 with a standard deviation of 8.59.

Investigating the Relationship between Variables in the Pretest Stage - The results of the correlation coefficient between the variables showed that the relationship between self-esteem and depression ($r = -0.7474$) was negative and significant ($0.0p < 0.001$). This means that rising self-esteem is associated with a reduction in depression. The results of correlation coefficient between variables showed that the relationship between self-esteem and anxiety ($r = -0.327$) was negative and significant ($0.0p < 0.05$). This means that an increase in self-esteem is associated with a decrease in anxiety. The results of correlation coefficient between variables showed that the relationship between depression and anxiety ($r = 0.530$) was positive and significant ($0.0p < 0.001$). This means that increasing depression is associated with increased anxiety.

Comparison of the Mean of Variables by Gender in the Pretest - In the pretest stage, there was a significant difference in the self-esteem variable by gender ($t = 2.331$, $p = 0.024$), and the comparison of margins shows that women's self-esteem (4.95) is higher than men (1.73). There was no significant difference between the two sex groups in the variables of depression and anxiety ($p > 0.05$).

Comparison of the Mean of Variables by Age in the Pretest - The analysis of the F test (the ratio of two variances) and the DF (Degrees of freedom -the values that have the freedom to vary) shows that the value of F-test in analysis of variance is not significant at the level of $P > 0.05$, so it can be concluded that there is no significant difference in the studied variables by age.

Mean and Standard Deviation of Self-esteem, Depression and Anxiety Variables in the Posttest Stage - Based on the results, the mean score of self-esteem was 1.89 with a standard deviation of 2.27, for the depression variable was a mean of 9.28 with a standard deviation of 8.08, and for the anxiety variable was 30.28 with a standard deviation of 8.91.

Investigating the Relationship between Variables in the Posttest Phase - The relationship between self-esteem variable and positive and significant scores and the relationship between depression is also positive and significant ($p = 0.01$).

Hypothesis Analysis

To test the research hypotheses, according to the comparison between pretest and posttest, dependent t-test was used. In case of a p-value measuring to less than 0.05 percent could show to be significant; however, statistically, a p-value higher than 0.05 is not significant per se; however, it does point to a strong evidence that a null hypothesis may exist.

- **Hypothesis 1:** Self-awareness intervention increases self-esteem. A null hypothesis is a hypothesis that says there is no statistical significance between the two variables in the hypothesis; therefore, $P > 0.05$ is the probability that the null hypothesis is true.
The value of dependent t, in comparison with pretest and posttest in the self-esteem variable with the value ($P = 0.074$, $t_{(37)} = 1.873$), is not significant at the level of $\alpha = 0.05$. It can be concluded that self-awareness intervention does not increase self-esteem.
- The ASA panel defines the P value as “the probability under a specified statistical model that a statistical summary of the data (for example, the sample mean difference between two compared groups) would be equal to or more extreme than its observed value.” (Wasserstein & Lazar, 2016).
- **Hypothesis 2:** Self-awareness intervention reduces depression: According to the results the value of dependent t, in comparison with pretest and posttest in the variable of depression with the value ($t_{(37)} = 2.556$, $p = 0.015$), is significant at the level of $\alpha = 0.05$, considering that the mean scores of depression in the posttest stage show a decrease. Therefore, it can be concluded that self-awareness intervention reduces depression.

- **Hypothesis 3** -Self-awareness intervention reduces anxiety: According to the results of the value of dependent t, in comparison with pretest and posttest in the anxiety variable with the value ($p = 0.0071$, $t_{(37)} = 1.862$), is not significant at the level of $\alpha = 0.05$, therefore It can be concluded that self-awareness intervention does not reduce anxiety.

Results

An increasing number of students are facing challenges with mental health, particularly anxiety and depression (Son, Hegde, Smith, Wang, & Sasangohar, 2020). This study suggests the urgent need for an interventional approach to address the mental health of students enrolled in college. Moreover, a study by Ratanasiripong, China, and Toyama (2018) has shown that self-esteem is one of the factors that can be linked to stress, depression, and anxiety among university students. The same research also revealed that students with a lower level of self-esteem are more vulnerable to developing anxiety and depression (Ratanasiripong, China, Toyama, 2018). Based on these scientific reports, a customized interventional workshop was created to help increase self-esteem, while decreasing anxiety and depression. The final data analysis of the pretest and posttest results showed students gained 64.8855% increase in self-esteem, 33.1439% decrease in depression, and 7.66129% decrease in anxiety. The hypothesis stated that skill building training promotes self-esteem, while reducing anxiety and depression, subsequently heightening problem-solving and time management techniques.

Study Limitations and Recommendations

Limitations of the Study - This research collected significant information about the impact of self-awareness intervention on Computer Science college students' self-esteem, depression, and anxiety. Although this research revealed a relationship between all four factors, the limitations of this study should be considered in future research. One limitation is that the study used convenient sampling criteria, since it was specifically designed for BIHE students, who demonstrate a greater degree of stress in their studies. The study was conducted during the COVID-19 pandemic, which could lead to confounding and extraneous variables such as heightened levels of depression and anxiety, thus interfering with the results. Particularly that current COVID-19-related studies have already documented such a negative impact of the pandemic on college students' mental health. A study by Son et al. (2020) states that because of the long-term pandemic conditions, for instance, lock-downs and respecting social distance orders, there is an urgent need to cultivate strategies to prevent problems on college students' mental health. On February 2020, Iran reported its first COVID-19 case, and since then it has become one of the most affected countries (Ramírez-Aldana, Gomez-Verjan, & Bello-Chavolla, 2020). The current study was held during the 4th peak of the COVID-19 pandemic in Iran when students had already been experiencing its effects. Therefore, the participants' level of depression and anxiety may have already been heightened. The researchers suggest that the study be repeated with the same criteria after the COVID-19 consequences are lifted. The assessment tools used for this study are self-report measures; therefore, another limitation could be the participants' bias. For instance, they might respond to the questions in the way that was their ideal answer.

Recommendations - Results of this study could be used to conduct further research in which the impact of self-awareness intervention on different aspects of mental health can be explored. An example would be studying the correlation between students' life satisfaction and academic achievements. This model was tested on students in the college of Computer Science, which is predominately male, yielding an imbalance in participants' gender and consequently impacting the results. Therefore, awareness interventional model should be tested on a variety of college students enrolled in various majors. Additionally, it is recommended that the following considerations be incorporated in future research: Rigorous study design, including randomization and control (comparison) groups, measurement of moderator variables to determine which intervention works best for whom, specificity of outcome measures, and follow-up assessment, including effectiveness of future patient care.

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