

## The efficacy of multimodal intervention program on mental health states

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### ABSTRACT

Filipino youths are the hope of Philippine society. However, cigarette smoking and binge drinking continually corrupt this aspiration. Mental health states interplay with the growing setback of substance consumption. The main objective of the study is to determine the efficacy of the multimodal intervention program among the participants in this study. Specifically, it answers the following objectives: i) Develop an intervention program to address the high anxiety, mild depression, and normal self-esteem of the participants and ii) Determine the significant difference between the control group and the experimental group in the pre-test and post-test intervention measures. A matched-group experimental design was carried out among the participants who were randomly assigned to the control group and the experimental group. There were forty participants who met the criteria set by the researchers. When the multimodal intervention program was tested using t-test to analyze the findings at .05 level, it yielded significant results. Based on the findings of the study, the developed multimodal intervention program appeared to be effective. A follow-up study may be conducted to further test the efficacy.

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## 1. INTRODUCTION

Students entering university for the first time may bear excitement and stress. They are thrilled because of the anticipated new events and encounters. On the other hand, this is also the phase that they are expected to experience the impact of university life like scholastic workload; homework, requirements, reports, research work, quizzes, and examinations. This might be aggravated by nostalgia since they left their home and their family. Freshman students are susceptible to the use of alcohol and nicotine since they are in their transition phase [1]-[3]. They are vulnerable to health hazards due to changes and challenges encountered in their new university/college life.

According to the World Health Organization, one of the most appropriate terms used in alcohol epidemiology to evaluate the burden arising through alcohol use is binge drinking [4]. Binge drinking is defined as 5 + drinks per occasion [5]. It has been characterized as heavy drinking over such a relatively short time and is defined in females or males as 4 or 5 alcoholic beverages in a row [6]. The incidence of binge drinking in university students is indeed not easy to calculate since documented studies indicate various frequencies [6]. In all parts of the world, one of the main causes of death and illness is smoking [7]. The World Health Organization mentioned that approximately, 8 million annual mortality due to cigarette and smoking tobacco and the direct consumption of tobacco caused 7 million deaths. [7]. By the end of the 21st century, it is estimated that one billion people will die because of tobacco smokers [8]. In the book authored by Kasper, the several types of sickness like cancer, and other respiratory as well as cardiovascular diseases which can be preventable are caused by smoking [7]. There are various undesirable health consequences of

both binge drinking and cigarette smoking and these are all hazardous to health. The mental health states that may cause the ingestion of substances are anxiety, depression, and self-esteem. In anxiety, uneasiness, nervousness, and fear could be felt. Depression is associated with loneliness, irritability, difficulty in coming up with decisions, and being pessimistic. Self-esteem is another mental health concern for students. Self-esteem is the positive or negative evaluation a person makes with regard to himself or herself. It also refers to beliefs, attitudes, and perceptions about oneself [9]. A positive self-esteem is an indicator of sound mental health and good social performance [10]. Positive self-esteem may allow people to make better decisions, such as adopting healthy habits [11], and it has a positive impact on mental health, and personality development [12]. Negative self-esteem could lead to social problems like depression, anxiety, high-risk behaviors and substance use [10].

Among college freshman students, the problem emerges if mental health is challenged as a result of a transition that may lead to the consumption of alcohol and nicotine. When these become unmanageable, it may result in health risks and unhealthy behavior. Smoking or tobacco use was reported to be linked with anxiety symptoms [9], [10] and symptoms of depression [11]-[13]. Likewise, alcohol drinking is associated with depression, [14]-[16] anxiety, [17] and anxiety and depression [18]. Self-esteem is associated with smoking, [19] smoking and alcohol consumption [20], and alcohol use [21]. In the Philippines, the most commonly used substances by adolescents are alcohol and nicotine [22] and the consumption of these substances was high [23]. Likewise, the use of the illicit drug was also high [24]. Teenage years and early adulthood reflect crucial phases during which behaviours of substance use like alcohol, cigarettes and even drug use have been formed. These are critical times in which these habits are to be avoided. The increasing consumption of alcohol and smoking calls for the best solution to public health concerns [20]. Successful interventions are needed to facilitate the formation of attitudes among school children, to prevent adolescent risk behaviors, [21] and to build effective and safe coping strategies in times of crisis [25]. The regular use of alcoholic beverages and cigarette smoking among college students is alarming because these substances are addictive.

Worldwide, there are proliferations of various therapies in addressing the mental health problems however, in the Philippines, there is scarcity of research that deal on the mental health problems of alcohol drinkers and cigarette smokers. This research was conducted as an offshoot of the study conducted by Florendo and De Guzman [26]. This research was performed as a response to the need of creating an intervention program to deal with the mental health states high anxiety, mild depression, and average self-esteem of the college freshman binge drinkers and cigarette smokers. The main objective of the study is to determine the efficacy of the multimodal intervention program among the participants in this study. Specifically, it answers the following objectives: i) Develop an intervention program to address the high anxiety, mild depression, and normal self-esteem of the participants and ii) Determine the significant difference between the control group and the experimental group in the pre-test and post-test intervention measures. The researchers predicted that there was no significant difference in the mental states of the control group and the experimental group on the pre and post-intervention measures.

## 2. RESEARCH METHOD

In the preparation of the multimodal intervention program, the psycho-educational activities were reflected on how to decrease high anxiety, mild depression, and the enhancement of self-esteem. The intervention program was a combination of several activities to address the mental health states of the participants. It consists of relaxation exercises, classical music, relaxation exercises coupled with cognitive restructuring. Bioenergetic activities and movement activities or physical activities, dance moves, and video viewing, were also included in the program. Similarly, the multimodal intervention program emphasized the participants' strengths and weaknesses, as well as their roles and responsibilities.

A total of forty freshman college students at Isabela State University-Main Campus were purposely chosen as participants in this research. The participants were selected based on the following criteria: utilized 3-8 sticks of cigarettes and consumed 700-1,200ml of alcoholic beverages per day. The participants were identified through a pre-survey questionnaire. A matched-group experimental design was utilized by the researchers. The data gathered was analyzed through the Statistical Package for Social Sciences and paired sample test at 0.05 level of significance was used to analyze the data.

Beck anxiety inventory (BAI) was used to test anxiety while Beck Depression Inventory-II (BDI-II) was utilized to measure depression of the participants. Twenty-one anxiety and depression symptoms respectively were measured separately by BAI and BDI-II. Both inventories range from 0 to 3 and the diversity of scores could be attained from 0-63. High scores indicate a higher level of anxiety and depression, while lower scores mean lower anxiety and depression level. When the BAI was put to the test, the validity was  $r = 0.72$ , the reliability was  $r = 0.83$ , and the internal consistency was 0.92 [27]. Most BDI-II studies have reported a mean alpha coefficient of about 0.9, ranging from 0.83 to 0.966. The BDI-II is a valid and

reliable instrument with .93 test-retest and .92 internal consistency [28]. This instrument is one of the most used questionnaires to measure the severity of depression, which can also be administered as a screening tool in non-clinical populations [28]. The Rosenberg Self-Esteem Scale (RSES) consists of 10 items to measure the comprehensive worth of a person. The answer on RSES ranges from 1 to 4 (strongly agree to strongly disagree) and the total range of score is 10 to 40. On this scale, affirmative and negative statements measured self-esteem; both positive and negative self-worth. The higher the score, the higher one's self-esteem, while the lower one's self-esteem. RSES 'Cronbach's alpha coefficient was 0.86 [29]. When permission was obtained, the participants were identified. There is an ethical clearance from the participants. They were given an explanatory statement and informed consent which they signed before the conduct of the study. The explanatory statement and informed consent were elucidated for better understanding. The ethical principles of research were considered in the management of the participants.

### 3. RESULTS AND DISCUSSION

The discussions of the results of this study are presented in this section based on the objectives. The multimodal intervention program. The changes and adjustments encountered by freshman college students in their university life play a major role in the success of their academic life. It can not be denied that the stress they encounter influences their mental health states. They are frightened, threatened, discontented, and unhappy and at times become miserable. They are actually at risk. Thus, they are vulnerable to alcohol use and cigarette smoking. Studies conducted revealed that students relieve their anxiety [9], [10], [17], depression [11]-[16], and low self-esteem [19]-[21] through binge drinking and cigarette smoking. Hence, binge drinking and cigarette smoking could be realized through the underlying psychological explanation of ingesting these substances.

The Multimodal intervention program is a program developed by the researchers to address high anxiety, mild depression, and average self-esteem among the participants. The Intervention Program aims to help freshman college binge drinkers and cigarette smokers to 1) Determine techniques on how to manage their high anxiety and mild depression; 2) Enhance their self-esteem; and 3) Discover discerning attitude for growth, learning, and change in personal life.

The Multimodal Intervention Program consisted of various activities to address the mental health states of the participants. The intervention program started with a mood setting and trust building activity to establish rapport and ended with a prayer. To deal with high anxiety, relaxation activities like hypnotic induction, classical music, and hypnotic induction with cognitive restructuring were provided. The following bioenergetic activities were presented for the treatment of mild depression and self-esteem enhancement: self-awareness through muscle tension, movement activities or physical activities, video viewing while imitating dance moves, and expression of free dance movements while rock music was played. The identification of participants' strengths and weaknesses, as well as their roles and responsibilities, was also included. The intervention program consisted of specific objectives per activity, materials used were identified, procedures were indicated, and processing of the activity were done. The intervention activity was conducted twice a week for three months after classes of the participants in a psychological laboratory. Significant difference between the control group and experimental group in the pre-test and post-test intervention measure.

Table 1 shows the differences in the participants' mental health states of anxiety, depression, and self-esteem between the control and experimental groups at .05 level of significance. The statistical results showed that for mental health state anxiety, the pre-test and post test in the control group showed that there was no significant difference ( $p=0.086$ ). However, in the experimental group when the multimodal intervention is used, there is a decrease in the mental health state anxiety when the pre-test and post test results are compared ( $p=0.000$ ), which is significant. Results revealed that the mental health state depression in the control group the pre and post test disclosed ( $p=0.577$ ) which is insignificant. In the experimental group when the multimodal intervention program was utilized, the mental health state depression was reduced in the post-test ( $p=0.000$ ) a significant difference was discovered.

As displayed in Table 1, in the control group, the mental health state self-esteem scores in the pre-test and in the post-test, ( $p=0.29$ ), which is not significant, were noted. In the experimental group, in the pre-test and in the post-test, an increase in self-esteem was recorded ( $p=0.000$ ), which is significant when the multimodal intervention was used. The findings of the experiment conducted signify that the multimodal intervention program seems effective in reducing the level of symptoms of anxiety and depression and enhancing the self-esteem of the participants. In the control group, there is no significant difference in the performance of the respondents in the pre and post-intervention measures while in the experimental group, the hypothesis is rejected since there is a significant difference in the mental states of the respondents in the

pre and post-intervention measures. Significant difference between the pre-test and post-test intervention measures in the control and experimental group.

Table 1. Significant difference between the control group and the experimental group in the pre-test and post-test intervention measures

Mental health states	Pre-test	Post-test	Mean difference	Interpretation	t-value	p-value
Anxiety						
Control group	34.4	34.95	-0.55	Increased	-1.814 <sup>ns</sup>	0.086
Experimental group	35.4	26.85	8.55	Decreased	15.968*	0.000
Depression						
Control group	13.15	13.3	-0.15	Decreased	-0.567 <sup>ns</sup>	0.577
Experimental group	13.85	8.1	5.75	Decreased	17.78*	0.000
Self-esteem						
Control group	21.70	21.25	0.45	Decreased	1.088 <sup>ns</sup>	0.29
Experimental group	20.65	27.45	-06.8	Increased	-13.88*	0.000

Legend: <sup>ns</sup> = not significant \* = significant at .05 level of significance.

The findings of this study are in agreement with the following various studies: Scientific investigations have proved that music is safe, useful and relevant [30]. Music can make you feel better; it can enhance, improve, or exacerbate your mood [31]-[33]. Music can also improve the quality of life, lessen anxiety [33]-[39], lessen negative affect [40] and can increase subjective well being or enhance psychological well being [35]-[37]. Respondents' under stressful conditions when exposed to classical music or music experienced less stress, less anxiety, become more calm [38], [39], [41]-[43], and relieve level of stress [44]. It was also revealed that depression was reduced through music [40], [45]-[47].

Induction is a mechanism that advises and facilitates the transfer of individuals from a regular state of consciousness and actions to a specific state of consciousness and action known as hypnosis or hypnotic trance [48]. The role of hypnotic induction was recognized to encourage an individual to progress to a therapeutic hypnotic state [48]. Efficient and effective induction must promote cognitive versatility, sensitivity, absorption, and dissociation, and must deliver these to patients in the most suitable manner (i.e., easiest) for them [48]. Hypnosis can facilitate many aspects that are immediately important to helping people who are depressed [49].

Hypnosis can be efficient and useful as an adjunct in managing depression [50]-[53], anxiety [51], [54], distress, and can increase self-esteem and optimism [54]. Similarly, combined hypnosis with cognitive behavior therapy is essential in managing depression and the treatment of various emotional disorders [55]. Hypnosis was also efficacious, especially when there are other interventions used in treating patients [56].

Several studies revealed that physical exercises and physical activity seemed effective in the reduction of symptoms of depression [57]-[62]. Physical exercises may also provide beneficial effects such as reduction of anxiety [58], [63]. The higher the level of physical activity, the lower the possibility of acquiring anticipated anxiety and even anxiety disorder [63]. There is a significant relationship between physical activity and self-esteem among participants [64]. Positive results were found on the effect of physical activity and self esteem [65], [66] among students who participated in the research.

Among adolescents, it can be observed that rock music is appealing [66]. When a person hears and listens to fast music, he/she is carried away by the beat of the music. Dance movement appears to be cathartic [67]. Dance can be used in the treatment of depression and anxiety [68], [69]. When a person engaged in dance moves, the body and psychological endurance is affected to lessen the negative effects of their distress [70]. Video use can change and modify how an educator can teach and communicate with students. Video as a form of teaching is widely used not only in the Philippines but all over the world. Video is entertaining [69], video can be used as motivation, and a tool for new learning and teaching methods [70], [71]-[73]. Videos are useful and helpful in instruction [74].

#### 4. CONCLUSION

The developed multimodal intervention program appeared useful and helpful in reducing high anxiety and mild depression symptoms and enhancing normal self-esteem among freshman college binge drinkers and cigarette smokers. The multimodal intervention program can be tested on a bigger population to validate the decrease in high anxiety, mild depression, and enhanced self-esteem. This intervention program may also be tried on students who are not binge drinkers and not cigarette smokers but have high anxiety and mild depression and normal self-esteem to further test its efficacy.

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