

# Effect of an Educational Program on Improving the Extent of Mental Health literacy about Depression, Suicide and Internet Addiction among Colleges Students at Assiut University

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## Abstract

**Background:** A high degree of mental health literacy, which involves sufficient knowledge and supportive attitudes toward psychological illnesses in school-aged children, will increase the likelihood of early detection and effective intervention in these conditions, as well as a better outcome of illnesses. **The aim:** Measure levels of literacy about depression, suicide and internet addiction among university students, Assess both positive and negative outcomes of awareness educational program for university students. **Research Design:** This study was conducted using a quasi-experimental research design. **Subjects:** the study comprised of 100 student , 50 student from the faculty of science and 50 student from the faculty of commerce who accept to participate in the study and give an informed oral and written consent. The studied sample consisted of 64 Males and 36 Females from the two faculties. During 3 month period from 1<sup>st</sup> November 2020 to 30<sup>th</sup> January 2021. **Tools:** students were assessed through Depression Literacy Questionnaire (D-Lit), Literacy of suicide scale (LOSS) and Internet Addiction Literacy Scale (IALS) in addition to Socio Economic assessment scale. **Results:** The highest percentage of subjects were males, resided in urban areas, first academic year, with middle socio economic state, and there was highly statistical significant difference of the level of mental health literacy about depression, suicide and internet addiction after application of the educational program for the students from the theoretical and clinical faculty **Conclusion and Recommendation:** There is widespread misunderstanding of the nature of depression, suicide and internet addiction and its causes, risk factors and attitudes towards treatment are negative. The need for psycho-educational programs is necessary which include awareness of mental health and illnesses, particularly depression and the risk of suicide associated with depression, internet addiction, and the development of positive attitudes toward mental illnesses for the benefit of the community.

**Keywords:** Educational program, Mental health literacy, suicide, Depression, internet addiction

## Introduction:

In both the developed and developing worlds, mental health is a major concern. Mental illnesses affect the majority of people, either directly or indirectly, with a lifetime risk of more than 25% for any psychiatric illness. In fact, mental illnesses are thought to account for 12% of the global burden of disease, but mental health spending in most developing countries is a small percentage of total health spending. (World Health Organization (WHO), 2018). According to the World Mental Health (WMH) Survey, up to 50% of serious mental illness cases in developed countries and 85% of serious mental illness cases in developing

countries received no treatment in the previous 12 months (Demyttenaere et al., 2019). When less developed nations undergo long stretches of violent civil unrest, the situation becomes much worse (Al-Krenawi, 2015).

The term mental health literacy has many components, including (I) the ability to recognize specific symptoms or types of psychological distress, and (II) the ability to interact effectively with others. (III) knowledge and attitudes regarding risk factors and causes; (IV) knowledge and attitudes about self-help interventions; (V) knowledge and values about the professional assistance that is available; (VI) habits that facilitate recognition and successful help-seeking; and (VII) knowledge

about how to obtain mental health information. According to the World Health Organization, health literacy is a better predictor of health than education, employment status, income, or ethnic/racial group. As a result, international organizations and policymakers have realized that better HL is linked to reducing health disparities, improving health services, and implementing better health policies at both the person and population level ( **Jorm et al., 2017**).

Mental health awareness is an important determinant of mental health, with the ability to improve person and population health (**Kelly et al., 2015; Kutcher et al., 2017; Reavley & Jorm, 2019**). At the person, population, and institutional levels, improved knowledge about mental wellbeing and mental illnesses, better awareness of how to pursue care and treatment, and reduced stigma toward mental illness have been shown to promote early diagnosis of mental disorders, improve mental health outcomes, and increase use of health services. Mental health recognition into four categories: 1) achieving and sustaining healthy mental health; 2) identifying mental disorders and treatments; 3) eliminating stigma associated with mental illness; and 4) improving the efficacy of seeking help. As a consequence, mental health literacy covers three interrelated topics: knowledge (of mental illness and good mental health), attitudes, and the effectiveness of seeking help. This definition is in line with the World Health Organization's new definition and promotion of health literacy as a means for people to take control of their own health care (**WHO, 2019**).

According to several research, the prevalence of depression among teenagers varies between 3.2 percent and 8.9 percent. Suicide ideation is prevalent in 21.1 percent of adolescents, while suicidal attempt is prevalent in 7.1 percent of adolescents. According to numerous reports, depression is twice as prevalent in girls as it is in boys among teenagers. Multiple stressors that girls face can play a role in the increased prevalence of depression in women. Lack of understanding of depression symptoms may lead to a delay in seeking treatment, worsening the condition to the point that it is difficult to treat. In India, there are many misconceptions about mental

disorders and their therapies among the general public. The stigma associated with mental disorders and psychological care also limits psychiatric interventions to a limited percentage of the population, leaving a large number of people in need without any assistance. (**Nolen-Hoeksema & Girgus, 2018**).

Depression is a major public health issue that is linked to a high rate of morbidity. Depression is a serious public health problem that is associated with a high incidence of morbidity and significant disability. According to the World Health Organization, major depressive disorder (MDD) would be the leading contributor of illness in high-income countries by 2030, trailing only ischemic heart disease as a source of disability. A thorough study into the characteristics and criteria of literacy barriers is required if depression literacy, which includes knowledge of and attitudes toward depression, as well as seeking treatment for depression, is to be improved in the general population and patients suffering from depression (**Mathers & Loncar, 2019**).

Suicide is a worldwide public health issue that impacts both the United States and the rest of the world. According to the WHO, almost 800,000 people die by suicide each year around the world (**WHO, 2018**). Suicide is described as self-inflicted harm with the intent to die that does not result in death, while a suicide attempt is defined as self-inflicted harm with the intent to die that results in death (**Van Orden et al., 2010**). Suicide is currently the tenth leading cause of death in the United States, according to a recent report by the Centers for Disease Control and Prevention (CDC), with around 45,000 suicides per year. For every suicide attempt, there are roughly ten non-fatal attempts (**Centers for Disease Control & Prevention [CDC], 2018**). In the United States, suicide has surpassed homicide as the second leading cause of death for young people (**CDC, 2018**). Suicidal ideation, also known as suicidal thoughts, is believed to affect a greater number of people than those who attempt or complete suicide.

Understanding the following aspects of suicidality is known as suicide literacy: Suicide warning signs and symptoms, causes, risk

factors, and successful treatment and prevention are all discussed. Suicide literacy refers to mental health literacy with an emphasis on suicidality in general. Suicide literacy, unlike mental health literacy, has done relatively little study (**Batterham et al., 2013**). Several studies have looked at various populations and their rate of suicide literacy. According to multiple studies, despite being more at risk for suicide than younger generations, older people have a lower degree of suicide literacy (**Farrer et al., 2008; Griffiths et al., 2008**). This connection may be clarified by the fact that older generations have had less exposure to suicide than younger generations, due to suicide being a taboo subject in the past.

The most commonly used solution in schools appears to be universal suicide prevention services, which usually focus on raising suicide awareness, offering knowledge about risk factors and warning signs, dispelling suicide myths, teaching appropriate responses to peers who may come into contact with someone who may be suicidal, and eventually recognizing adolescents who may be suicidal or at risk for suicidal behavior (**Mazza & Reynolds, 2008**).

In recent years, technological advancements have occurred in the Western world. Internet use is becoming increasingly necessary in educational institutions to develop various learning skills, which has become a prerequisite for university students in today's dynamic world. Scholars, on the other hand, have voiced concerns about the overuse of this technology as well as the hidden threats that internet users face, such as physical and mental health issues. The Internet is a convenient and quick way to obtain information and connect with people all over the world. Excessive internet use, on the other hand, can destabilize people's living standards and family relationships, as well as cause emotional instability (**Reshadat et al., 2015; Zhang, 2018**).

Internet addiction disorder, pathological internet usage, or dysfunctional internet usage are words used to characterize a person's questionable or compulsive use of the Internet that causes substantial decline in their role in various life domains over time. Internet

addiction, as well as other connections between digital media use and mental health, are hotly debated topics among a wide range of experts and researchers. In the scientific, medical, and technical cultures, this compulsive behaviour has prompted discussion. Internet addiction is a multidisciplinary condition that has been researched by experts in medicine, computer science, sociology, law, and psychology. Some scholars have called internet addiction a social epidemic, and it has drew the attention of a number of researchers and experts. Since it is affected by a number of factors, this problem is a biological, psychological, social, economic, and cultural question that cannot be viewed as a simple matter (**Guillot et al., 2016**).

Excessive and pathological use of the Internet is referred to as Internet addiction. As a result, given the growing number of internet users and the widespread psychological and sociological effects of internet addiction, identifying and comprehending the role of predictive factors in internet addiction is crucial. **Fonia et al., (2016)** stated in a previous study that there was a negative relationship between students' mental health and internet addiction, and that their internet addicted behavior was unimportant. The gender and marital status variables among the students were different. It differed from the gender and marital status variables among the students. **Nastizai et al. (2009)** found that students who were addicted to the internet had a higher risk of mental illness than normal Internet users in another study. **Fonia et al (2016)** according to the survey, there was a significant difference in internet addiction between male and female students. The connection between internet addiction and users' mental health has also received a lot of attention, and previous research has emphasized this, such as **Fallah 2007; Alavi et al., 2012; Mirzaian et al., 2011, and Taheri Mobarakeh et al., (2017)**. Students have a higher proclivity for using the Internet and are more prone to becoming addicted to it. As a result, more attention should be paid to students' mental health needs for their future as well as the nation's development. Universities must prioritize mental health, personal growth, and well-being for students. Since internet addiction is a worldwide problem (**Xu, Liu, 2020**).

### **Aim of the study:**

Measure levels of literacy about depression, suicide and internet addiction among university students, Assess both positive and negative outcomes of awareness induction program for university students

### **Research Hypothesis:**

1. There was no statistically significant difference between the mean scores between the theoretical and clinical faculty after the application of the educational program for the literacy of depression.
2. There was no statistically significant difference between the mean scores between the theoretical and clinical faculty after the application of the educational program for the literacy of suicide.
3. There was no statistically significant difference between the mean scores between the theoretical and clinical faculty after the application of the educational program for the literacy of internet addiction.

### **Subjects and Methods:**

#### **Research Design:**

This study was conducted using a quasi-experimental research design.

#### **Setting:**

The study was conducted in Assiut University, one of the largest universities in Egypt and the most developed in Upper Egypt. During the period from 1<sup>st</sup> November 2020 to 30<sup>th</sup> January 2021, the study done between two faculties one theoretical, the another was clinical faculty. The clinical faculty was the faculty of science and the theoretical faculty was the faculty of commerce.

#### **Subjects:**

The study included 100 students in the first academic year, 50 from the faculty of science and 50 from the faculty of commerce, who agreed to participate in the study and gave informed oral and written consent over a three-month period. A total of 64 males and 36 females from both faculties were included in the study.

### **Tools of the study:**

Data was collected using five different tools:

- (1) **Demographic data sheet:** The researcher created this worksheet. It contains personal data included student's (Name, Age, Gender, Academic year, Residence and the marital status).
- (2) **Socio Economic Status Scale:** developed by **El-Gilany et al., (2012)** to determine the family's socioeconomic status It scores the family's situation using a seven-term scoring system. It takes into account the father's education, employment, and monthly revenue, as well as crowding and sanitation. The scale's scoring is divided into four categories: high, middle, medium, and very low socioeconomic status.
- (3) **Literacy of suicide scale (LOSS):** A 27-item Literacy of Suicide Scale (LOSS) developed by **Calear et al., (2014)** (unpublished) was also included in the survey to assess respondents' levels of suicide literacy. This scale includes 12 items from the Hubbard and McIntosh Revised Facts on Suicide (RFOS), as well as additional items to measure the four domains of suicide literacy identified by **Jorm, (2000):** (a) signs and symptoms, (b) causes of the existence of sociality, (c) risk factors, and (d) care and prevention. Each of the 27 items in the LOSS is answered with the words "True," "False," or "I don't know." Correct answers receive a 1, while incorrect or "I don't know" responses receive a 0 score. The number of correct items determines suicide literacy, with higher scores suggesting higher suicide literacy. The LOSS was previously validated using an item-response theory methodology, in which objects on the scale have correct or incorrect responses. Despite this, the scale's Cronbach's alpha in the current sample was 0.71.
- (4) **Depression Literacy Questionnaire (D-Lit):** **Griffiths et al., (2016)** developed the Depression Literacy Scale (D-Lit) to measure mental health literacy in the context of depression. It consists of 22 things to which participants can respond with "true," "false," or "don't know." Each

correct answer is worth one point, and higher scores mean that the participants have a higher level of depression literacy. Cronbach's  $\alpha = 0.77$  indicates that it is internally consistent. Cross-Cultural Adaptation and Translation The D-Lit translation procedures were based on **Beaton et al., (2000)** recommendations's for translation and cross-cultural adaptation. The consistency and appropriateness of the wording of the Depression Literacy Questionnaire (D-Lit) were confirmed through translation and back translation. The instrument was simultaneously translated from English to Arabic by two different people. The intention and goals of the study were known to one of them, but not to the other. Both translators had addressed their differences in translations in order to overcome any discrepancies before they reached an agreement on the Arabic wording of each item. Two independent people completed two back translations into English. With no previous knowledge of the English-language edition of the questionnaire, the back translation was completed. The Expert Committee Review was then carried out. Any inconsistencies found between the original D-Lit and things and the back-translated versions of the questionnaire were examined by the principal investigator, translators, Arabic language specialist, social expert, and psychiatrist. The instrument's suitability for use with adolescents was also evaluated by the committee, and it was determined to be acceptable. The final translation was in classic Arabic, which can be used in other Arab countries with different dialects to prevent any limitations in the applicability of this version of the scale.

- (5) **Internet Addiction Literacy Scale (IALS):** This scale developed by the researcher who took its items from the internet addiction scale which adapted from **Nichols & Nicki (2004)** and applied by **Tacyldiz, (2010)** the questionnaire has been adopted according to the objectives of this study. The Internet Addiction Literacy Scale was created to measure internet addiction-related mental health literacy. It

consists of 15 things to which participants can respond with "true," "false," or "don't know." Each correct answer is worth one point, and higher scores mean that the participants have a better understanding of internet addiction. The internet addiction Questionnaire (IALS) wording was translated and back translated to ensure consistency and appropriateness. The instrument was simultaneously translated from English to Arabic by two different people. The intention and goals of the study were known to one of them, but not to the other. Both translators had addressed their differences in translations in order to overcome any discrepancies before they reached an agreement on the Arabic wording of each item. Two independent people completed two back translations into English. With no previous knowledge of the English-language edition of the questionnaire, the back translation was completed. The Expert Committee Review was then carried out. Any inconsistencies found between the original IAS and things and the back-translated versions of the questionnaire were examined by the principal investigator, translators, Arabic language specialist, social expert, and psychiatrist. The instrument's suitability for use with adolescents was also evaluated by the committee, and it was determined to be acceptable. The final translation was in classic Arabic, which can be used in other Arab countries with different dialects to prevent any limitations in the applicability of this version of the scale.

#### **Methods of data collection:**

1. An official letter from the dean of the faculty of nursing at Assiut University requesting permission to perform the study from the deans of the faculties of science and commerce.
2. Conducted the research with the support of faculty members and supervisors from the faculties of science and commerce.
3. At the start of the research, a pilot study was performed. It included 10% of the overall sample to look at the effectiveness and clarification of data collection methods. The results of the pilot study showed that

the tools used accurately assessed the students' literacy levels. Students who took part in the pilot study were not included in the main study.

4. Before beginning data collection, the student should be informed about the study's intent. Everything will be done for them will be communicated to the students.
5. All students gave their consent after being informed about the confidentiality of the information gathered in order to prevent misunderstandings.
6. Using a method created for the analysis, collect data on the student's demographic characteristics.
7. The socioeconomic level was assessed using the socioeconomic evaluation scale.
8. The following scales were used to evaluate each student's literacy:
  - The suicide literacy questionnaire
  - Depression literacy scale
  - The internet addiction scale
9. During the interview, the time spent with the student varies from 20 to 30 minutes, and each student was interviewed separately.
10. The training curriculum was implemented for students who met the study's requirements. The program lasted three months, and the students were interviewed three times a week for two hours each day.
11. The program's application provides material on depression, suicide, and internet addiction.
12. The depression literacy scale, suicide literacy questionnaire, and internet addiction scale were used to test students shortly after the program was implemented.

#### **Development of the interaction program:**

Based on the experts' opinions, the software material was revised by a panel of experts for content validity and relevancy. To

implement the software, the following steps were taken:

#### **First: Assessment phase:**

- The aim of this process is to use resources to recognize the most common aspects of literacy.

#### **Second: Planning phase:**

- The program strategy was part of the preparation process (time, and number of session, interaction methods). The total number of sessions was 8, with two sessions a week lasting two hours each. The program's engagement session took place in a separate space in each of the two faculties.

#### **Third: Implementation phase:**

- The researcher interviewed the subjects to collect their sociodemographic data and to apply the pre-test tools, which took about one month, and then the program was implemented for 100 students a week, lasting two hours. The program's total hours are 16 hours, so implementation took about 2 months; the post-test, which took 15 days, used tools to assess success. After that, a contrast was made between the pre- and post-test to see how far the literacy reach had progressed.

The content of the program as following:

- Session 1-3: health education about depression for improving the literacy of depression (6 hour).
- Session 4-6: health education about suicide for improving the literacy of suicide (6 hour).
- Session 7-8: health education about internet addiction for improving the literacy of internet addiction (4 hour).

#### **Statistical analysis:**

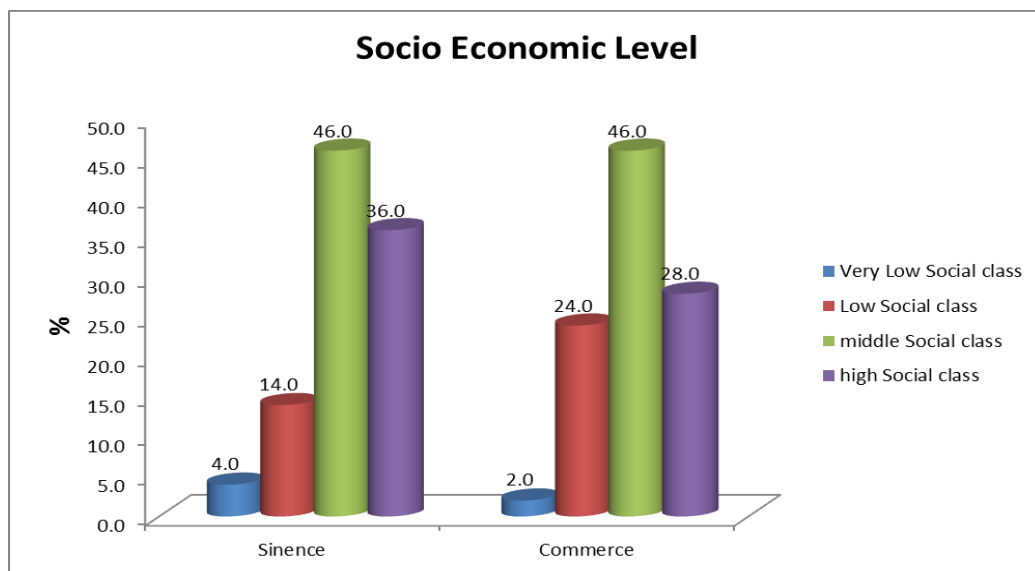
To computerize and validate the results, they were tabulated and statistically analyzed using SPSS version 11.5 (Statistical Package for Social Science). The mean and standard deviation were used to identify quantitative variables, while frequency and percentages were used to characterize qualitative variables. The knowledge obtained was analyzed using a variety of statistical tests.

**Results**

**Table (1):** Distribution of demographic characteristics of studied sample

Demographic characteristics	Faculty of Science (n=50)		Faculty of Commerce (n=50)		P. value
	No	%	No	%	
<b>Age</b>					
Mean ±SD (range)	21.70±1.02(20-22)		21.42±0.76(20-21)		0.121
<b>Gender</b>					
Male	28	56.0	36	72.0	0.144
Female	22	44.0	14	28.0	
<b>Residence</b>					
Rural	41	82.0	44	88.0	0.577
Urban	9	18.0	6	12.0	
<b>Religion</b>					
Muslim	41	82.0	46	92.0	0.234
Christen	9	18.0	4	8.0	
<b>Marital</b>					
Single	48	96.0	40	80.0	0.028*
Married	2	4.0	10	20.0	

**Table (1)** Shows the demographic characteristics of the studied sample in which most of the studied sample with age group ranged from (21-25), male, in the second and third academic year, resided in rural areas, Muslim and single. There is non-significant statistical difference between the two faculties related to the demographic characteristics except marital status.



**Fig (1)** Distribution of socioeconomic level of the studied sample

**Fig (1)** illustrate that 46% of studied sample in both faculties in the middle socioeconomic level

**Table (2):** The main scores of the studied samples answers regarding depression, suicide & internet addiction literacy subscales before educational program

Subscale	Max Score	Before education			
		Faculty of Science(n=50)		Faculty of Commerce(n=50)	
		Mean $\pm$ SD	Range	Mean $\pm$ SD	Range
<b>Suicide Literacy Scale</b>	<b>26</b>	<b>10.92<math>\pm</math>2.42</b>	<b>5-15</b>	<b>11.12<math>\pm</math>2.2</b>	<b>7-16</b>
Causes & Triggers	10	4.04 $\pm$ 1.38	1-7	4.46 $\pm$ 1.11	2-7
Risk Factors	7	3.26 $\pm$ 1.17	0-6	3.14 $\pm$ 1.32	1-6
Signs	5	1.82 $\pm$ 0.87	0-4	1.74 $\pm$ 0.94	0-3
Prevention & treatment	4	1.8 $\pm$ 0.93	0-4	1.78 $\pm$ 0.95	0-4
<b>Depression Literacy Scale</b>	<b>22</b>	<b>8.2<math>\pm</math>2.12</b>	<b>4-13</b>	<b>7.8<math>\pm</math>2.29</b>	<b>4-14</b>
Symptomatology	11	3.9 $\pm$ 1.58	1-8	3.52 $\pm$ 1.59	0-7
Impact	3	1.62 $\pm$ 0.83	0-3	1.44 $\pm$ 0.88	0-3
Management	8	2.68 $\pm$ 1.02	1-6	2.84 $\pm$ 1.04	1-6
<b>Internet Addiction Literacy Scale</b>	<b>15</b>	<b>5.82<math>\pm</math>1.3</b>	<b>3-9</b>	<b>6.36<math>\pm</math>1.84</b>	<b>3-10</b>
Sign & symptoms	14	5.54 $\pm$ 1.3	2-8	5.98 $\pm$ 1.76	3-10
Risk Factors	1	0.28 $\pm$ 0.45	0-1	0.38 $\pm$ 0.49	0-1

**Table (2)** reveals that lowest score of literacy before the educational program of suicide subscale in the part of causes and triggers, for depression literacy subscale in symptomatology, for internet addiction subscale in signs and symptoms.

**Table (3):** The main scores of the studied samples answers regarding depression, suicide & internet addiction literacy subscales after education

Subscale	Max Score	After education			
		Faculty of Science(n=50)		Faculty of Commerce(n=50)	
		Mean $\pm$ SD	Range	Mean $\pm$ SD	Range
<b>Suicide Literacy Scale</b>	<b>26</b>	<b>22.36<math>\pm</math>1.76</b>	<b>18-26</b>	<b>21.98<math>\pm</math>1.82</b>	<b>17-25</b>
Causes & Triggers	10	8.42 $\pm$ 1.03	6-10	8.28 $\pm$ 1.09	5-10
Risk Factors	7	6.16 $\pm$ 0.82	4-7	5.78 $\pm$ 0.79	4-7
Signs	5	4.34 $\pm$ 0.82	2-5	4.4 $\pm$ 0.76	2-5
Prevention & treatment	4	3.44 $\pm$ 0.64	2-4	3.52 $\pm$ 0.54	2-4
<b>Depression Literacy Scale</b>	<b>22</b>	<b>18.14<math>\pm</math>1.82</b>	<b>14-22</b>	<b>17.06<math>\pm</math>2.47</b>	<b>11-22</b>
Symptomatology	11	9.14 $\pm$ 1.34	6-11	8.72 $\pm$ 1.54	4-11
Impact	3	2.6 $\pm$ 0.57	1-3	2.12 $\pm$ 0.82	0-3
Management	8	6.4 $\pm$ 1.11	4-8	6.22 $\pm$ 1.27	2-8
<b>Internet Addiction Literacy Scale</b>	<b>15</b>	<b>12.58<math>\pm</math>1.31</b>	<b>10-15</b>	<b>12.7<math>\pm</math>1.28</b>	<b>9-15</b>
Sign & symptoms	14	11.76 $\pm$ 1.22	9-14	11.88 $\pm$ 1.29	8-14
Risk Factors	1	0.82 $\pm$ 0.39	0-1	0.82 $\pm$ 0.39	0-1

**Table (3)** reveals that the highest score of literacy after the educational program of suicide subscale in the part of causes and triggers, for depression literacy subscale in symptomatology, for internet addiction subscale in signs and symptoms. Overall the range of all subscales improved after the educational program.



**Table (4):** Comparison between the studied sample related to Suicide, Depression and Internet Addiction Literacy Before and After educational program

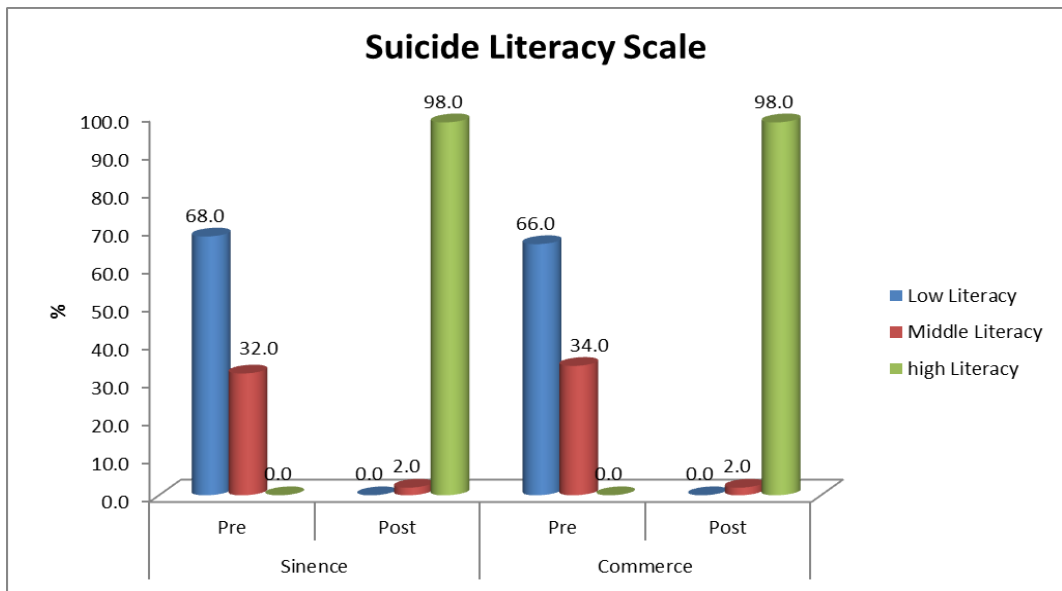
Items	Before educational program				After educational program			
	Faculty of Science	Faculty of Commerce	T	P. value	Faculty of Science	Faculty of Commerce	T	P. value
	(n=50)	(n=50)			(n=50)	(n=50)		
	Mean $\pm$ SD	Mean $\pm$ SD			Mean $\pm$ SD	Mean $\pm$ SD		
<b>Suicide Literacy Scale</b>	10.92 $\pm$ 2.42	11.12 $\pm$ 2.2	-0.432	0.667	22.36 $\pm$ 1.76	21.98 $\pm$ 1.82	1.061	0.291
Causes & Triggers	4.04 $\pm$ 1.38	4.46 $\pm$ 1.11	-1.673	0.097	8.42 $\pm$ 1.03	8.28 $\pm$ 1.09	0.66	0.511
Risk Factors	3.26 $\pm$ 1.17	3.14 $\pm$ 1.32	0.479	0.633	6.16 $\pm$ 0.82	5.78 $\pm$ 0.79	2.364	0.02
Signs	1.82 $\pm$ 0.87	1.74 $\pm$ 0.94	0.44	0.661	4.34 $\pm$ 0.82	4.4 $\pm$ 0.76	-0.38	0.705
Prevention & treatment	1.8 $\pm$ 0.93	1.78 $\pm$ 0.95	0.106	0.915	3.44 $\pm$ 0.64	3.52 $\pm$ 0.54	-0.671	0.504
<b>Depression Literacy Scale</b>	8.2 $\pm$ 2.12	7.8 $\pm$ 2.29	0.906	0.367	18.14 $\pm$ 1.82	17.06 $\pm$ 2.47	2.49	0.014*
Symptomatology	3.9 $\pm$ 1.58	3.52 $\pm$ 1.59	1.197	0.234	9.14 $\pm$ 1.34	8.72 $\pm$ 1.54	1.455	0.149
Impact	1.62 $\pm$ 0.83	1.44 $\pm$ 0.88	1.049	0.297	2.6 $\pm$ 0.57	2.12 $\pm$ 0.82	3.384	0.001
Management	2.68 $\pm$ 1.02	2.84 $\pm$ 1.04	-0.778	0.438	6.4 $\pm$ 1.11	6.22 $\pm$ 1.27	0.757	0.451
<b>Internet Addiction Literacy Scale</b>	5.82 $\pm$ 1.3	6.36 $\pm$ 1.84	-1.694	0.093	12.58 $\pm$ 1.31	12.7 $\pm$ 1.28	-0.463	0.644
Sign & symptoms	5.54 $\pm$ 1.3	5.98 $\pm$ 1.76	-1.426	0.157	11.76 $\pm$ 1.22	11.88 $\pm$ 1.29	-0.478	0.634
Risk Factors	0.28 $\pm$ 0.45	0.38 $\pm$ 0.49	-1.059	0.292	0.82 $\pm$ 0.39	0.82 $\pm$ 0.39	0.000	1.000

Table (4) Shows that there was no statistically significant difference between studied sample in the two faculties related to suicide, depression and internet addiction literacy scales and its subscales before application of the program and after application of the program except for the depression literacy scale in the post- test with p value =( 0.014\*).

**Table (5):** Comparison between Before and After educational program for each faculty related to Suicide, Depression and Internet Addiction Literacy Scale

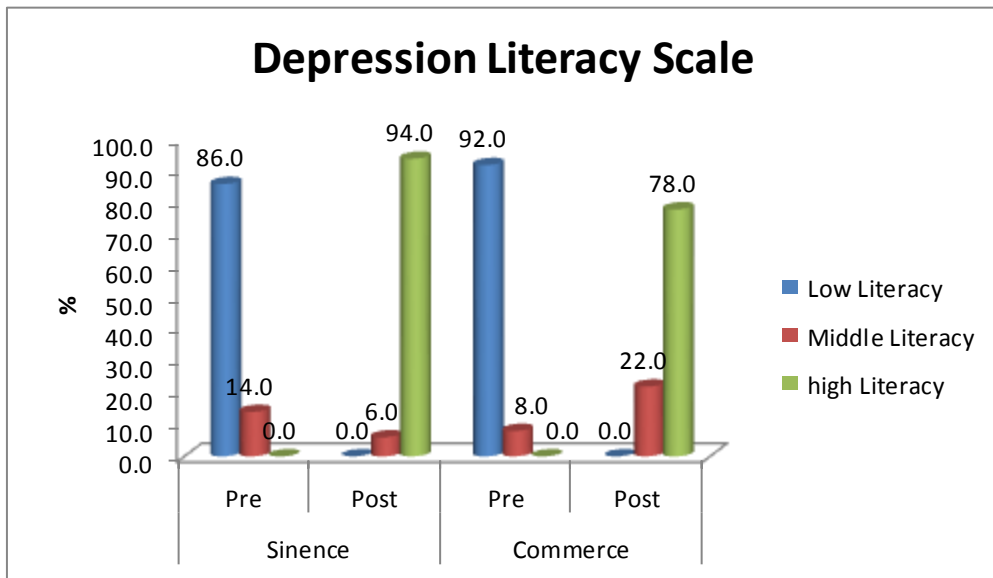
Items	Faculty of Science				Faculty of Commerce			
	Before	After	T	P. value	Before	After	T	P. value
	Mean $\pm$ SD	Mean $\pm$ SD			Mean $\pm$ SD	Mean $\pm$ SD		
<b>Suicide Literacy Score</b>	10.92 $\pm$ 2.42	22.36 $\pm$ 1.76	-27.020	<0.001**	11.12 $\pm$ 2.2	21.98 $\pm$ 1.82	-26.868	<0.001**
Causes & Triggers	4.04 $\pm$ 1.38	8.42 $\pm$ 1.03	-17.936	<0.001**	4.46 $\pm$ 1.11	8.28 $\pm$ 1.09	-17.369	<0.001**
Risk Factors	3.26 $\pm$ 1.17	6.16 $\pm$ 0.82	-14.330	<0.001**	3.14 $\pm$ 1.32	5.78 $\pm$ 0.79	-12.101	<0.001**
Signs	1.82 $\pm$ 0.87	4.34 $\pm$ 0.82	-14.845	<0.001**	1.74 $\pm$ 0.94	4.4 $\pm$ 0.76	-15.558	<0.001**
Prevention & treatment	1.8 $\pm$ 0.93	3.44 $\pm$ 0.64	-10.283	<0.001**	1.78 $\pm$ 0.95	3.52 $\pm$ 0.54	-11.207	<0.001**
<b>Depression Literacy Score</b>	8.2 $\pm$ 2.12	18.14 $\pm$ 1.82	-25.173	<0.001**	7.8 $\pm$ 2.29	17.06 $\pm$ 2.47	-19.424	<0.001**
Symptomatology	3.9 $\pm$ 1.58	9.14 $\pm$ 1.34	-17.876	<0.001**	3.52 $\pm$ 1.59	8.72 $\pm$ 1.54	-16.595	<0.001**
Impact	1.62 $\pm$ 0.83	2.6 $\pm$ 0.57	-6.875	<0.001**	1.44 $\pm$ 0.88	2.12 $\pm$ 0.82	-3.978	<0.001**
Management	2.68 $\pm$ 1.02	6.4 $\pm$ 1.11	-17.486	<0.001**	2.84 $\pm$ 1.04	6.22 $\pm$ 1.27	-14.600	<0.001**
<b>Internet Addiction Literacy Score</b>	5.82 $\pm$ 1.3	12.58 $\pm$ 1.31	-25.849	<0.001**	6.36 $\pm$ 1.84	12.7 $\pm$ 1.28	-20.007	<0.001**
Sign & symptoms	5.54 $\pm$ 1.3	11.76 $\pm$ 1.22	-24.686	<0.001**	5.98 $\pm$ 1.76	11.88 $\pm$ 1.29	-19.162	<0.001**
Risk Factors	0.28 $\pm$ 0.45	0.82 $\pm$ 0.39	-6.397	<0.001**	0.38 $\pm$ 0.49	0.82 $\pm$ 0.39	-4.976	<0.001**

**Table (5)** reveals that there was a statistically significant difference for the studied sample in each faculty in pre and post-test related to suicide, depression and internet addiction literacy scales and its subscales.



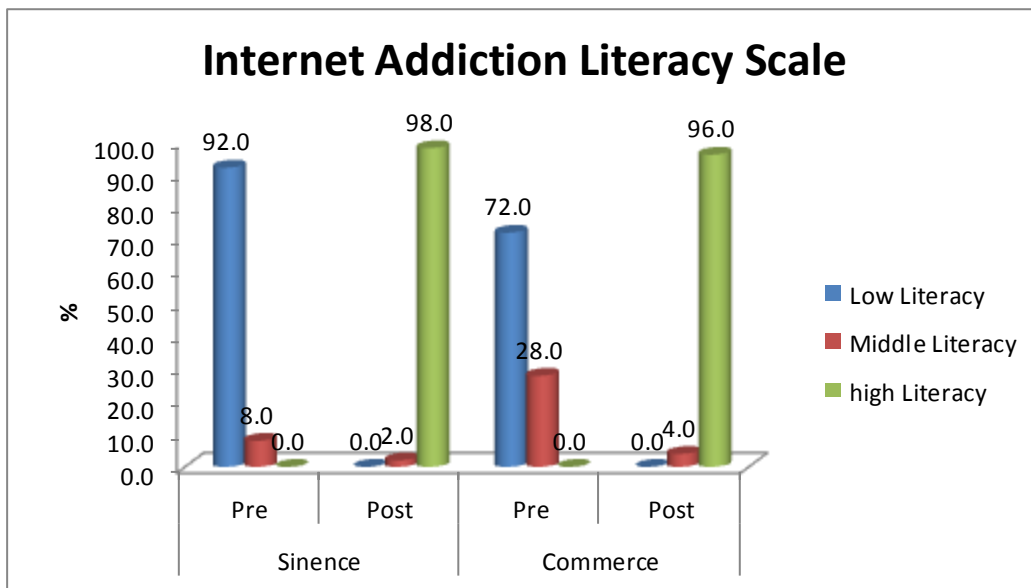
**Fig (2):** Levels of suicide literacy scale in pre and post- test for the studied sample in the two faculties

**Fig (2)** shows that most of studied sample in both faculties have low literacy in suicide literacy scale in pre-test and have high literacy of suicide in post-test.



**Fig (3):** Levels of depression literacy scale in pre and post- test for the studied sample in the two faculties

**Fig (3)** shows that most of studied sample in both faculties have low literacy in depression literacy questionnaire in pre-test and have high literacy of depression in post-test.



**Fig (4):** Levels of internet addiction literacy scale in pre and post- test for the studied sample in the two faculties

**Fig (4)** shows that most of studied sample in both faculties have low literacy in internet addiction literacy scale in pre-test and have high literacy of internet addiction in post-test.

**Table (6):** Correlation between Suicide, depression and internet addiction Literacy Scale with Socio demographic characteristics Before and After application of the educational program for the studied sample

Correlations		Faculty of Science (n=50)						Faculty of Commerce(n=50)					
		Before education			After education			Before education			After education		
		Suicide	Depression	Internet Addiction	Suicide	Depression	Internet Addiction	Suicide	Depression	Internet Addiction	Suicide	Depression	Internet Addiction
Age	r	-0.159	-0.038	0.112	-0.247	-0.253	-0.066	-0.116	-0.068	-0.155	0.257	0.139	-0.099
	P	0.269	0.794	0.437	0.084	0.076	0.649	0.421	0.639	0.284	0.072	0.336	0.495
Gender	r	-0.105	0.184	-0.001	-0.276	-0.203	0.007	-0.014	0.016	0.097	0.155	.313*	.288*
	P	0.469	0.200	0.993	0.052	0.157	0.959	0.924	0.914	0.503	0.283	0.027	0.043
Academic year	r	0.141	-0.015	-0.150	0.246	0.269	0.162	0.137	0.141	0.123	-0.254	-0.039	0.063
	P	0.330	0.915	0.298	0.085	0.059	0.262	0.344	0.328	0.393	0.076	0.786	0.663
Residence	r	-0.158	0.055	0.227	-0.037	-0.065	0.031	-0.105	-0.266	-0.242	0.175	0.167	-0.155
	P	0.273	0.706	0.114	0.798	0.652	0.829	0.468	0.062	0.090	0.225	0.246	0.282
Religion	r	0.037	0.030	-0.015	-0.127	0.021	-0.049	0.051	-0.169	-.423- <sup>**</sup>	0.207	0.264	0.186
	P	0.797	0.837	0.916	0.380	0.883	0.736	0.723	0.241	0.002	0.148	0.064	0.196
Marital	r	-0.078	-0.019	0.028	-0.042	-0.129	0.066	-0.050	0.000	-0.044	.393 <sup>**</sup>	0.172	0.039
	P	0.589	0.893	0.844	0.771	0.371	0.648	0.728	1.000	0.762	0.005	0.233	0.786

**Table (6)** reveals that there was a negative (NO) significant correlation between the sociodemographic characteristics and suicide, depression and internet addiction scales for the studied sample before and after application of the program.

**Table (7):** Overall achievement of Suicide, Depression and Internet Addiction Literacy Scale Before and After educational program for each Faculty

Items	Max Score	Faculty of Science (n=50)				Faculty of Commerce(n=50)			
		Before		After		Before		After	
		Achieved Points	Level of Knowledge	Achieved Points	Level of Knowledge	Achieved Points	Level of Knowledge	Achieved Points	Level of Knowledge
<b>Suicide Literacy Score</b>	<b>26</b>	10.9(42)	Low	22.4(86)	high	11.1(42.8)	Low	22(84.5)	high
Causes & Triggers	10	4(40.4)	Low	8.4(84.2)	high	4.5(44.6)	Low	8.3(82.8)	high
Risk Factors	7	3.3(46.6)	Low	6.2(88)	high	3.1(44.9)	Low	5.8(82.6)	high
Signs	5	1.8(36.4)	Low	4.3(86.8)	high	1.7(34.8)	Low	4.4(88)	high
Prevention & treatment	4	1.8(45)	Low	3.4(86)	high	1.8(44.5)	Low	3.5(88)	high
<b>Depression Literacy Score</b>	<b>22</b>	8.2(37.3)	Low	18.1(82.5)	high	7.8(35.5)	Low	17.1(77.5)	high
Symptomatology	11	3.9(35.5)	Low	9.1(83.1)	high	3.5(32)	Low	8.7(79.3)	high
Impact	3	1.6(54)	Low	2.6(86.7)	high	1.4(48)	Low	2.1(70.7)	high
Management	8	2.7(33.5)	Low	6.4(80)	high	2.8(35.5)	Low	6.2(77.8)	high
<b>Internet Addiction Literacy Score</b>	<b>15</b>	5.8(38.8)	Low	12.6(83.9)	high	6.4(42.4)	Low	12.7(84.7)	high
Sign & symptoms	10	5.5(39.6)	Low	11.8(84)	high	6(42.7)	Low	11.9(84.9)	high
Risk Factors	5	0.3(28)	Low	0.8(82)	high	0.4(38)	Low	0.8(82)	high

**Table(7)** shows that there was a high achievement for the level of knowledge after application of the program for the studied sample in the two faculties related to scores of Suicide Literacy, Depression Literacy and internet literacy.

## Discussion:

Half of all mental illnesses start before the age of 14, but the majority of cases go unnoticed and untreated. Depression is the third leading cause of adolescent illness in terms of prevalence. Suicide is the second leading cause of death in people aged 15 to 29. Furthermore, while the growing use of online technology certainly provides many advantages, it can also add to the stresses, as access to virtual networks at all hours of the day and night increases, which is one of the key predisposing factors for many psychological disorders (WHO, 2018). Knowing and recognizing the early warning signs and symptoms of mental illness is the first step toward prevention and early detection. So this study aimed to provide and examine the effect of an educational program on improving the extent of mental health literacy about depression, suicide, and internet addiction among university students.

Regarding the sociodemographic the researchers selected university students who study on non-medical curriculum or specialty (science & commerce faculties) as those two faculties contain a large proportion of students on non-medical faculties on Assuit university. In addition to, the studies sample had completed about 12 academic years, so they complete basic education, and their age ranged from (21-25) from 2<sup>nd</sup> & 3<sup>rd</sup> grades so they are in late adolescents and early adulthood period. Actually, the researchers select those demographic characteristics for 2 reasons; first: depression, suicide are a major mental disorder with a wide global distribution that typically, start in early to mid-20s (WHO, 2017) similarly, as student use of the Internet grows, so do concerns that for some students, excessive Internet use leads to depression, anxiety, and poor mental health, negatively impacting their academic performance (Lebni et al., 2020).

Another reason for the researchers' selection for this study sample; they were young, had not been in any specialized training or study for mental health problems, and thus, were unlikely to have an exposure to depression, suicide or internet addiction

information or knowledge before so they are in need for such educational programs. These characteristics for the current studied sample were consistent with Ibrahim, 2019 who assess the suicide literacy among university students reported that vast majority (91%) of his studied sample were between the ages of 18-22 and about half of them from 2<sup>nd</sup> and 3<sup>rd</sup> grades similar to, Arafat et al., 2019 conduct his study for depression literacy on 1<sup>st</sup> year university students with age ranging from 18 to 23 years.

The current study most of studied sample in both faculties in pre-test have low literacy in suicide literacy scale regarding triggers and causes subscales and in depression literacy scale regarding symptomatology and management of depression subscales before education while they presented high literacy in both suicide and depression literacy scales in post-test after education. This may be due to lack of emphasizes on mental health concepts and issues on the curriculums taught to students throughout the basic education and extended to non-medical faculties, which should be a cause for concern as it brings special attention to poor recognition of warning signs and understanding of suicide and depression risk factors, causes, triggers, symptoms, and management which may lead to a lower likelihood of early detection and seeking help. This explanation was supported by the noticed improvement of the studied samples literacy after the educational program of this study.

This result was support with Elsheshtawy et al., 2020 although they applied their research on undergraduate medical students, they found that the mean depression and suicide literacy scores was lower for premedical students than students in their clinical years and they rationales this result by the absence of any educational resources focusing on mental health in the academic curricula taught to students. So, this finding may suggest that depression, suicide, and mental health literacy are poorly understood in general. This result was similar to, studies from other countries, such as in Saudi Arabia, India, and Vietnam (Darraj et al., 2016, Ram et al., 2017, Thai & Nguyen 2018). Also, the study done by Arafat et al.,

2019 consistent with current study as he reported in his comparative study between medical and non-medical students, that medical students revealed to have the highest literacy status among other studied groups. Nevertheless, the status should have more improved as they are supposed to have academic studies, as well as clinical exposure during their graduation. In addition to he reported that in multiple school-based involvements covering physical and mental health have been researched and found to improve the literacy as well as quality of life.

On the other words, **Elshestawy et al., 2020** reported that prior contact to psychiatric patients which may be one of family members or a friend was found to be a predictor of higher depression and suicide literacy while past individual experience predicted high suicide literacy. This could highlight the importance of students being exposed to health information at early age has having a positive impact on their levels of literacy, which would also support our findings. In line with this finding the current study reveals that there was a statistically significant difference for the studied sample in both faculties in pre and post-test related to suicide & depression literacy scales and its subscales in addition to the high achievement for the level of knowledge after application of the program for the studied sample in the two faculties related to scores of suicides and depression literacy. Also, this consistent with many studies that have established that educational intervention focused on the facts about depression, suicide and stigmatization enhances knowledge and may decrease stigma (**Griffiths et al., 2014**). Which grasp our attention to the need for such educational program in the field of mental health in our country to improve the awareness of mental health problem.

In relation to internet addiction literacy the current study shows that most of studied sample in both faculties have low literacy in internet addiction literacy scale in pre-test before education and have high literacy of internet addiction in post-test after education. This result can be explained in 2 ways; first, the prevalence of Internet use has increased rapidly and continue in rising especially under the current pandemic issue of Covid 19 and

applying of online learning at home beside the introduction of the Internet in the classrooms in almost all educational institutions (schools, colleges, and universities) and the courses that are offered to university students give students the opportunity to use the Internet more often. Moreover, the availability of Internet in almost all homes and ease of accessibility of the Internet increase the contribute to internet addiction of students. Second, lack of the students' awareness regarding internet addiction symptoms and preventive measures required. So, from the researchers' point of view increasing the students' literacy regarding internet addiction consider a cornerstone in prevention, early detection, and treatment of internet addiction.

This finding consistent with **Shahrbabak et al., 2017** results that indicated some of his studied samples do not know about the effects of over-involvement with or pathological use of the internet and internet overuse was not a disorder and/or main problem. The same author reported that students need to go to counseling centers where professional help and necessary information is delivered to them, but he found that students are hesitant to reduce hours of Internet usage; they need to train to reduce addiction disorders, so he pointed to the importance of educational programs to reduce Internet overuse similarly **Al Gamal et al., 2016** stressed on the role of teachers/educators could include awareness of internet addiction into their curriculum as a prevention strategy. Teachers should advise their students to use the Internet in an appropriate way. Which support our findings regarding high achievement for the level of knowledge after application of the program for the studied sample in the two faculties regarding internet addiction literacy.

In the same line with the current study the implementation of the educational program that applied by **Younis et al., 2020** for university students in Minia university regarding internet addiction which achieved improvements in the participants' level of knowledge about internet addiction, with high statistically significant differences between the pre, post-test and follow up tests. A Preceding study by **Zadeh et al., (2014)** reported that knowledge is critical for declaring healthy

behavior such as addiction defensive behaviors. Also, awareness about the negative effects of addictive behaviors can protect students against it. Thus, raising knowledge of university students about the addictive nature of the internet and the adverse effects of internet addiction is essential for modifying their internet addiction behavior.

Similarly, **Gholamian et al., (2019) & Khoshgoftar et al., (2019) & Joy and Rappai, (2017)** supported our finding by reporting that they after applying the educational intervention about internet addiction, the mean scores of knowledges regarding internet addiction demonstrated a significant growth. Moreover, the current study was congruent with **Chander (2019)** who noticed that after the structured educational program concerning the harmful effects of internet addiction, about two thirds of college students had very good knowledge and about one third of College students had good knowledge regarding internet addiction.

Finally, this study found that there was no statistically significant correlation between the sociodemographic characteristics of the studied sample regarding suicide, depression, and internet addiction scales before and after application of the program. This result congruent with **Arafat et al., 2019** who reported that there was insignificant discrepancy between the male and female students, which suggests that gender has an insignificant role in depression & suicide literacy among the university students in Bangladesh. A study in India reported that depression literacy was elevated in females and it was positively associated with treatment compliance (**Ram et al., 2016**). Another study of British sample also shown gender differences in health literacy status (**Swami 2012**). Previous comparative study in Bangladesh did not address the gender issue (**Arafat et al. 2018b**).

### Conclusion:

Based upon the study results, it is concluded that, There is widespread misunderstanding of mental health literacy about depression, suicide and internet addiction related to its causes; attitudes and

treatment of both the students of theoretical and clinical faculties but the induction program proved highly significant statistical difference for the three mental health problems

### Recommendations:

Based on the study results, it is recommended that:

- 1- A school curriculum should containing awareness of mental health and illnesses, particularly depression and the risk of suicide associated with depression, as well as the development of positive attitudes toward mental illnesses is required.
- 2- The need for psycho-education campaigns, is required. While more research is needed, the results of this study will help to inform future research and, hopefully, suicide prevention efforts in order to address this public health crisis.
- 3- Increase student knowledge of internet addiction in order to minimize the amount of time they spend on the internet, which has an effect on their academic performance.

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