# THE STUDY OF RELATIONSHIP BETWEEN DEPRESSION AND ACADEMIC ACHIEVEMTN IN GRADUATE AND POSTGRADUATE STUDENTS

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# Abstract

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This study was undertaken to find out the relationship between depression and academic achievement among graduate and postgraduate students. This explored to obtain the relationship between levels of depression and academic achievement according to variables of sex, age, marital status, fathers' and mothers' education. Study also aimed to find out the prevalence of depression and its three levels (low, middle and high) according to mentioned variables.

To prove these objectives data were collected from 1000 graduate and postgraduate students of Arts faculty in University of Pune and its affiliated colleges in Pune city in academic year 2005 – 2006.

Study was used BDI (Beck Depression Inventory) for depression assessment (included three levels) among college students. Study also was used chi-square test to obtain relationship between categorized variables. Furthermore study used correlation coefficient to obtain measure of relationship between the variables.

The major findings showed that there was a significant negative relationship between depression and academic achievement in:

- BA and MA female students
- MA male students
- BA and MA students with age of 18-22
- MA students with age of 23 and above
- BA and MA single students
- MA students who had fathers with graduate education

- BA students who had mothers with postgraduate education
- MA students who had mothers with graduate education
- In relation to association between depression and demographical variables study found:
- The high prevalence of depression among BA and MA students
- Gender difference with domination of male students in depression
- A significant relationship between depression and fathers' education in MA students
- A significant relationship between depression and mother' education in BA and MA students
- No significant relationship between depression and marital status in BA and MA students
- No significant relationship between depression and age in BA and MA students
- No significant relationship between depression and fathers' education in BA students

# Chapter I

## Introduction

# Chapter I

## 1.1 Introduction

Academic achievement is the fundamental goal in the education area, and recognizing all barriers of academic achievement is one of the most important duties for each education center. Experts believe that if we can obtain a strong quality of education for students, and save their readiness and ability for learning, we will be able to increase academic achievement among students. Obviously, the absence of those factors reduce academic achievement, hence all barriers must be fought against learning and academic achievement.

There are many studies which have linked to the barriers to academic achievement. These studies cover an extended range of academic years from primary school to college. Some of them have documented that student achievement is affected by many factors in a child‟s life, including what happens in the earliest stages of life (before a student enters school) the student‟s school environment, the student‟s health, the student‟s home environment, and the student‟s community. Some others emphasized on school‟s climate. These studies argued that a school‟s climate which included low teacher expectations and low grading standards can have a dramatic affect on student performance, and may be a contributor to the underachievement.(According to research performed by Dr. Sandra Dickerson, 2004)

There are some studies which suggest that academic achievement is greatly affected by out-of-school time, and is perhaps shaped more by

what happens outside of the school than what goes on in the classroom. Disengaged parents, low quality child care, a lack of activities during non-school hours, such as before and after-school programming and summer school, all contribute to lower student achievement.

On the other hand, there are many studies about the barriers to academic achievement in terms of mental disorders. These studies linked to serious emotional disturbance conclude that any diagnosable mental disorder severely disrupts social, academic, and emotional functioning. Over the last ten years researches have proved that adolescent students in high schools or in upper ages in colleges who are suffering from serious mental disorders (such as depression, anxiety disorders, suicidal behavior, psychosocial stress, substance and alcohol use and abuse, and post-traumatic stress disorder) do not have good academic competence as compared to their normal peers (President‟s New Freedom Commission on Mental Health, 2003)

With a look at the studies in relation to mental disorder and academic problem among students, we can see some of them reported a reciprocal interaction between mental disorder and academic achievement. It seems that lack of academic performance increases behavioral problems or mental disorder and unfortunately, this situation creates a vicious cycle.

It seems that against some wrong judging of parents and professional teachers, quality of teaching, good schools or colleges, educational programs, and every factor related to education by itself is not enough to ensure high levels of academic achievement for all students .Hence, so many students enter the classroom without getting full benefit of educational opportunities, owing to numerous barriers that adversely affect learning beyond the classroom. Amongst all educational agents for reaching to optimal education, students‟ readiness and ability

for learning are most important. Disability in both forms of physical and mental state is the most important barrier for ability to learn. Regardless of the barriers to educational factors present study tended to pay attention to the barriers of academic achievement which are created by depression as a mental disorder, among students.

### 1.1.1 Depression as a mental disorder

Depression is described as a bunch of symptoms portrayed by sadness and "a loss of interest in everyday activities" (American Psychiatric Association, 1994) Depression is a mental disorder that involves body, mood, and thoughts. It is defined as a persistent mood disturbance, plus at least four of the following: sleep disturbance, changes in psychomotor activity, loss of ability to experience pleasure and interest, fatigue, feelings of worthlessness or guilt, difficulty in concentrating, and preoccupation with death or a wish to die (American Psychiatric Association, 1987) It affects the way one feels about him/her self and he/she can suffer from low-self esteem. The way of eating and sleeping can change in depressed people, too. He/she might have a hard time getting out of bed and sleep too much. Symptoms can last for months or years if not treated. The symptoms of depression might differ from one person to next. Someone with a sense of despair can have a difficult time with concentration and decision-making. Gloom and self-criticism are all common. With a more intense depression, people can have self-destructive thoughts.

Depression can make someone feel sad without reason at all. Activities that people found enjoyable are affected when they are depressed. There is a decline in motivation to do everyday routines. Feelings of tiredness and irritability are regular when in despair. Extreme

crying is frequent due to constant sadness; people may ignore their personal appearance, even avoiding necessary hygiene. The sadness takes over, so work ethics and household chores suffer. In addition to those features of depression, it also includes “a diminished ability to function in demanding and occupational roles” (American Psychiatric Association, 1994) Severe depression can lead to suicide if it does not threat. The rate of suicide is high among college students. This study has presented suicide among college students as a consequence of depression among them.

It is important that this issue is dealt with by mental health professionals at the college and community levels in order to provide, prevention and treatment programs for those in need.

### 1.1.2 Depression among college students

Many students experience mild or serious depression during their college years, which suppresses freedom and carefree personal growth. College age can be such a suitable condition for depression amongst college students. It is possible to claim that college is the age of depression. In late adolescence, depression, bipolar disorder, anxiety and other serious mental conditions are rising. In fact, depression vulnerability peaks in a person's late teen years, and experts estimate that many of college-aged young people may have some form of depressive illness. “Depression can affect individuals at any stage of the life span, although the incidence is highest in the middle ages. There is, however, an increasing recognition of depression during adolescence and young adulthood (Birmaher, B. et al., 1996)

According to Kadison (2002) many of college students experience their first onset of disorder especially depression. There is the

indisputable fact that age 18 to 25 is prime time for eruption of mental disorder (depression) making college, with its concentration of 18- to 25-year-olds, the prime place. Increasingly, mental health professionals recognize that depression is a condition that first arises in young adulthood. Catching them quickly is critical, as early management strongly influences how they play out of it over adulthood. (President‟s New Freedom Commission on Mental Health, 2003)

Depressed college students suffer from feelings of emptiness and inadequacy and are ill more often and receive poorer grades than students who are not depressed. Depressed college students also often experience anxiety symptoms, eating disorders and substance abuse problems. As in the general population, female college students are at particular risk (American College Health Association, 2002)

College students often experience the stress of a new environment without the safety net of family and an established social group. Genetics and family environment contribute to how well students wither these stresses, but so do individual factors too such as how they interpret negative life events and the extent to which they are socially adept.

Depression in college students may be more prevalent than in the general population (Daughtry, D. & Kunkel, M. A, 1993)

Depression often is complicated with anxiety, stress, low self concept, low self efficacy, substance use, drinking and so on. Hence, the reporting of incidence of depression is often coupled with related mental disorders among college students. The rate of prevalence of depression or a mental disorder related to depression among college students in western countries is attested by American College Health Association report (2004) The report indicated that about one-third of college students (32 percent) reported that stress (the one of major cause of depression) impedes their academic performance. On the basis of the report, fifteen

percent of students cited depression and anxiety as impediments to their academic performance.

According to Arbor, A., (2004) majority of the college juniors reported feeling depressed either “frequently” or “occasionally” during the past year.

### 1.1.3 The increasing depression among college students

According to World Health Organization (WHO, 2001) depression is a common mental disorder, causing a very high level of disease burden, and is expected to show a rising trend during the coming 20 years. W.H.O. is warning that depression is set to become the main cause of disability and second leading health problem by 2020. Today, more people are going to college, which is a place of privilege. Now colleges are more representative of the population as a whole, thus increasing depression and related mental disorder among college students shows many facts about the population as a whole.

Today, man involves with modernity productions. He has complex life, and machinist surrounds him. Speed and too much working confuse him. He has cumulative relationship while he has loneliness. There are enhancing social expectations from him. Stress, anxiety and so many factors which are created by modernity are his individual and social difficulties. He must face these problems and maybe he has to lose his mental health while solving them, and if some biological factors are added to this situation there is a possibility of losing mental health. Today mental health for many groups and subgroups is at risk more than the others. College students are a subgroup in each society who runs the risk of losing their mental health who especially suffers more from

depression, than the others. More and more young adults are entering into college today diagnosed with many different psychological disorders like depression and other mental disorders related to depression created by modernity, in addition they have to face with college life difficulties; hence they are at the increasing risk of depression.

It seems that the prediction of (WHO, 2001) about increase in depression by 2020 is taking place among college students. In a report about India‟s health profile the experts report that there is currently an increasing trend in smoking, substance abuse, and violence [related to depression] in adolescents. On the basis of this report, experts believe that due to changing lifestyles, mental disorders are likely to increase in the future (India, Press briefing by the Minister of Health, 2001)

The number of students who reported "having ever been diagnosed with depression" has increased by 4.6 percent over a four-year time span, according to the latest results from the American College Health Association's National College Health Assessment (ACHA-NCHA, 2004)

The increasing depression among college students confirmed in a longitudinal study involving 13257 students who sought help at a large Midwestern university counseling center over a 13-year period (1988 to 2001) In this study, Benton and Newton (2003) indicated that today‟s college students frequently have more complex problems than those experienced by students over a decade ago. Some of these increase dramatically. The number of students seen each year with depression doubled, while the number of suicidal students tripled. Other problem areas which showed a steady increase were grief, academic and developmental problems (related to depression)

There is an increasing depression among eastern college students too. In a survey that it is done among students of a premier South

Mumbai College showed that depression had a large prevalence among Indian teenagers. Dr Parikh, consulting neuro-psychiatrist at Jaslok Hospital said “there is a particularly higher incidence at adolescence. The challenges about relating to students‟ family, handling male-female relationships and dealing with feelings of inferiority were accounted by St Xavier's Counseling Centre, as the causes of depression in college students (Khan, 1998)

### 1.1.4 The causes of depression among college students

Today, for students, the world is more complex than the age of their parents. To face competitive pressures from birth and to endure cumulative burden of stress can lead to their depression. Self-esteem grows up in an excellent social environment and other situations right from Kindergartens. Failure happens whenever excellence does not exist. Many of college students already have not been able to pass the complex competitions successfully; and now, they enter college as a new situation, new expectations, and new challenges and so on. College is the time of transitions: leaving home, taking on new responsibilities, facing new academic and financial pressures, building different support systems, and awareness of their sexual identity and orientation. For the most students, the big issue is how to face successfully separation from their family, moving from dependence to independence. While some degree of stress is normal in times of transition, for some students, it can become overwhelming. Perhaps some of them are pessimist about their success, their future worse their life; they feel more pressure for their life. If some properties like lack of sleep and may be alcohol consumption are added to other factors, everything is ready for depression. In fact, all three of

those factors – stress, sleep, and alcohol - can make students more prone to developing depression or exacerbate existing symptoms.

Low self esteem can cause depression in college students and it is often flagged as a predictor of adolescent depression. This claim is supported by longitudinal research, which shows that children and adolescents who perceive themselves as academically, socially, or physically incompetent are more vulnerable to subsequent depression than are children who perceive themselves as competent. James Battle (1980) documented the close relationship between depression and self-esteem. He discovered that as depression rises, self-esteem tends to decline, and as self-esteem declines depression rises. Self-esteem develops during middle childhood and early adolescence, and arises from evaluations children receive from their peers, teachers or parents, and from the experience of negative events. There is also accumulating evidence that positive self-esteem can be an antidote to depression. Self-esteem serves as a buffer from the onslaught of anxiety, guilt, depression, shame, criticism and other internal attacks. Having a high self-esteem has many positive effects and benefits, especially among college students. Students who feel positive about themselves have fewer sleepless nights, succumb less easily to pressures of conformity by peers, are less likely to use drugs and alcohol, are more persistent at difficult tasks, are happier and more sociable, and most pertinent to this study is that they tend to perform better academically.

On the other hand, college students with a low self-esteem tend to be unhappy, less sociable, more likely to use drugs and alcohol, and are more vulnerable to depression, which are all correlated with lower academic achievement (Wiggins, 1994)

The existence of difficulties in interpersonal relationships, especially with the opposite sex, can be a related factor with depression

in college students. Researchers found lonely and isolated individuals to be particularly vulnerable to depression (Brown & Harris, 1978) Rich and Scovel (1987) in a longitudinal study of college freshmen, found that loneliness measured at the beginning of a semester predicted levels of depression later in the semester. It seems, the reasons of depression among college students are more than other subgroups, and regardless all cause of depression existed for all people, college students are a special prone to depression.

Personality variables play a role in predisposition to depression in college students. Early clinical observations suggested that depressive patients are very concerned about what others think of them, and they also appear to be somewhat obsessive, anxious, and self-deprecatory. There is some evidence that low level of extraversion or positive effectiveness may also serve as a vulnerability factor for depression. Positive effectiveness involves a disposition to feel joyful, energetic, bold, proud, enthusiastic, and confident. People low on this disposition tend to feel unenthusiastic, unenergetic, dull, flat, board, it is therefore not surprising that this might make them more prone to depression.

### 1.1.5 Consequences of Depression among college students

Depressed college students are at risk for a wide variety of consequences, some of which can be debilitating or even fatal. On the most severe end of the spectrum, depression significantly hikes the risk of suicide. Less severe, although still of tremendous concern, depression can seriously affect a student‟s health, increase the risk for risky sexual behavior, hamper academic performance and interfere dramatically with a student‟s quality of life, self-esteem and interpersonal relationships.

**a) Suicide -** Major depression accounts for up to 35 percent of all deaths by suicide (National Strategy for Suicide Prevention, 2003) Less severe manifestations of depression, including dysphoria and reported depressed mood, account for up to 60 percent of all deaths by suicide (National Strategy for Suicide Prevention, 2003) Although suicide is more common among 20-24 year olds not in college than in those enrolled in college (Silverman, et al,. 1997) One in ten college students had seriously considered suicide in the previous year (Brener, et al,. (1999) and 1.6 percent admitted to attempting suicide (National Center for Chronic Disease Prevention and Health Promotion, 2003) Perhaps not surprisingly, due to higher rates of depression in females (Nolen-Hoeksema, 2001) female college students are at greater risk for suicidal thoughts and attempts than male college students (CASA analysis of the National American College Health Assessment, 2002)

However, males are more likely to complete a suicide attempt college males, ages 20 to 24 years, are roughly twice as likely to successfully commit suicide as female college students of the same age (Silverman, et al,. 1997)

**b) Illness -** Depression may contribute to physical illness by triggering changes in immunological function, lowering the body‟s natural defenses against illness (Herbert & Cohen, 1993) One study of medical students found that students with higher levels of depression and poor coping skills reported more symptoms of illness, including body pains, allergies, frequent colds, sleep problems, nausea and headaches (Hojat, et al., 2003) Some research suggests that preventing depression may prevent ill health. In one study, students identified as being at risk for depression experienced better health--as measured by fewer self-

reported symptoms of illness, fewer doctors‟ visits and fewer visits to the student health center after a therapeutic intervention designed to prevent depression compared to at risk students who did not receive an intervention (Buchanan, et al., (1999)

**c) Quality of Life -** Depression can dramatically compromise the quality of life of a depressed individual. Depression is characterized by sadness, anxiety and feelings of emptiness (Shrier, et al., 2001) Sufferers may experience decreased energy and fatigue, as well as sleep disturbances and weight changes (Haines, et al., 1996) Those with depression may stop taking pleasure in usual activities, and experience feelings of hopelessness, guilt and worthlessness (Haines, et al., (1996) Among college students, depression is linked to feelings of inadequacy, distress and disinterest in school (Heiligenstein, et al., 1996)

**d) Academic Problems -** Depression in college students is associated with lower grade point average (Haines, et al., 1996) and lower levels of ability to concentrate (Haines, et al., 1996) Ninety-two percent of depressed college students show signs of academic impairment such as missed class time, decreased academic productivity and interpersonal problems at school (Heiligenstein, et al., 1960)Students recognize the adverse effects of depression on their 15 percent report that their depression and/or anxiety have been an academic performance; impediment to their academic performance in the past school year (American College Health Association, 2002)

### 1.1.6 Depression as a barrier to academic achievement among college students

Depression creates some disturbance in learning, at least by declining concentration, and memory. Some studies indicated that depression can interfere considerably with students‟ studies by hampering concentration and productivity and, at times, causing students to miss classes (Haines, Norris, & Kashy, 1996, and Heiligenstein, Guenther, Hsu & Herman, 1996) Some other studies demonstrated that symptoms of depression, such as low motivation, can lead to poorer school performance and achievement scores (Fauber et al., 1987; Strauss et al., 1982)

Learning occurrence happens in a healthy mind, and it needs to efficient memory, concentration, motivation, emotion and all function of cognition as a whole. The numerous studies have showed some dysfunctions of cognitive abilities in depressed people; and many of them have relation with cognitive improvements after treatment of depression. Fann and colleagues (2001) found treatment of depression caused improvements in psychomotor speed, recent verbal memory, recent visual memory, and general cognitive efficiency. The improvements also, were seen in self-perception of cognitive symptomatology. On the basis of those studies, it is evident that depression disturbs the process of learning by disturbing memory, concentration, motivation and emotion. The ability of paying attention is the fundamental potential for increasing academic achievement, while, distractibility blocks it, and distractibility is one of the effects of depression. When a student is not able to function properly and concentrate on specific course material, then the most likely consequence is that the grades of this particular student will indeed drop. But difficulty in concentrating is only one of several symptoms. There are many symptoms in depressed students, which interfere in learning

process, like lack of motivation to pay attention to new matters, negative thought and emotion, indifference to all things, lack of energy and finally, lack of all factors needed for learning. According to American Psychiatric Association (1994) depression puts individuals at risk for lessened school success, if not for school failure.

### 1.1.7 The vicious cycle that exists between depression and academic achievement

There are some studies linked to depressive disorders or symptoms due to underachievement (Rossen, 1997) (Patterson & Capaldi, 1990; Patterson & Stoolmiller, 1991)

Some of them showed a reciprocal interaction between depressive symptoms and academic achievement (Fosterling and Binser, 2002) these findings demonstrate the vicious cycle that exists between depression and low grades. It had created a downward spiral towards worsening mental health and failing grades.

### 1.1.8 Present study

Present study pays attention to breaking the above-mentioned cycle, by considering academic achievement status in students either as the most important goals in education area or as the clearest variable for investigating students‟ mental health. In fact, the problem of present study has a mutual perspective. This topic has relevance from an educational perspective that views depression as serious impediments to optimal education. On the basis of educational perspective, we can claim that estimation of depression among college students is necessary, because academic achievement is the most important objective for educational system in all educational centers.

On the other hand, from a psychology perspective, low academic achievement represents a significant risk factor for poor behavioral outcomes including depression. In addition, academic under achievement is a sufficient indicator for recognizing depression among college students. A systemic viewpoint posits that depression and academic problems exert reciprocal influences on one another, which, over time, can negatively affect the development of college students as the future human resources and parents, and their environments. Regardless of perspective, a clear understanding of the relationship between depression and academic achievement will help generate appropriate assessment, prevention, and intervention strategies for at-risk or troubled college students.

All those above mentioned studies in relation to prevalence of depression among college students and also its relationship with academic achievement, show that except a few of them done in Asian countries , approximately all of them have been conducted in western countries. Obviously, many appropriate social and individual difficulties exist in these countries, which can cause high prevalence of depression. The point is all those difficulties belong to western societies, and naturally judging about them must be done in context of western culture.

In this regard, the present study sought to further analyze the relationships between depression and academic achievement among Indian college students as eastern College students. This study determined the prevalence of depression and its three levels among students, for examination as researcher believed these would have a critical negative impact on academic achievement. The present study also investigated the role of demographic variables in relation to impact of depression on academic achievement.

In this regard, the study could confirm results obtained in western studies about high prevalence of depression among College students. Additionally, it could show that depressed students had low academic achievement. The close results in western and eastern countries can lead to point that in spite of cultural difference between western and eastern societies, college students suffer from same difficulties. It can be named "college students difficulties". They include same physiologic problems like hormonal changing, the pike age of onset of depression, and same environmental problems like academic competence, academic expectations, and same psychological problems like sleep-ness, exams stress, anxiety, loved relationships, and adjustment problems. Since obtained results were achieved in the University context, present study can not generalize them to general population, and it can be generalized only to Indian college students.

## 1.2 Theoretical frame

Theoretical framework of the present study deals with concept of depression, History of depression, Types of depression, Causes of depression, duration and recovery of depression, therapy of depression, diagnosis of depression and depression in different psychological perspectives.

### 1.2.1 Concept of depression

The term depression refers to a feeling of being extremely unhappy (Macmillan English Dictionary, 2002) In psychological approach, it is a mood or emotional state that is “characterized by sadness, loss of interest in activities, and decreased energy, loss of confidence and self-esteem, inappropriate guilt, thoughts of death and suicide, diminished

concentration, and disturbance of sleep and appetite. A variety of somatic symptoms may also be present. Though depressive feelings are common, especially after experiencing setbacks in life, depressive disorder is diagnosed only when the symptoms reach a threshold and last at least two weeks. Depression can vary in severity from mild to very severe" (World Health Organization, 2001)".

## 1.2.2 History of depression

Through the 19th century, the specialists prescribed spa water for remedying depression. They believed that depression is influenced by deficit of minerals, so spa water can remedy it. Emil Kraeplin (1899) began his investigate about depression in the last twenty years of the nineteenth century. He introduced the term „manic–depressive" insanity in 1899, and clarified the clinical picture. Kraeplin described the disorder as a series of attacks of elation and depression, with periods of relative normality in between and a generally favorable prognosis. Today, American psychiatrics Association"s Diagnostic and Statistical Manual of Mental Disorders (DSM IV) calls this illness bipolar disorder, which is distinguished from major depression by at least one episode of mania. He also, explained specific depressions that arise after menopause in women and in last of adult in men. Later; this disorder was named as evolutional melancholia.

In early $20^{th}$ century, psychoanalysis became an extremely popular treatment across Europe and then, as thousands flew before, during and after WWII, in the USA. This method influenced the work of Sigmund Freud, who believed that buried childhood memories were the cause of neurosis and depression in adult life. These could be treated, without drugs, through a lengthy process of psychoanalysis. It proved so popular that some doctors even believed more serious conditions, such as manic depression and schizophrenia could be understood and treated in the same way. During third decade of twentieth century, two kinds of investigations were studied about cause and treatment of depression. In 1938, doctors found they could lessen the effects of depression, by the use of electricity. Electro-convulsive therapy (ECT) is still used as a treatment for severe depression. The other study was related to an

extended understanding of brain chemistry. First neurotransmitter in the brain, acetylcholine was discovered in 1928, 24 years later scientists discovered the presence of other neurotransmitter substances in the brain, such as serotonin, noradrenaline and dopamine. Their discovery was made to obtain antidepressant drugs to overcome depression. Advances in the understanding of brain chemistry happened at the same time as the popularity of psychoanalysis began to fall. Among analysts themselves, Freud's ideas began to be seen as old-fashioned and often inappropriate to modern needs. As more and more drugs became available, psychoanalysis began to feature less and less as a feature of treatment in hospitals and health centers. It was seen as time-consuming and costly while its results were unpredictable. Since the 1960's, herbal and homeopathic remedies have also gained popularity. Till 1970 drug therapy dominated in the treatment of depression, however new Freudians continue the psychoanalysis therapy in a new method as interpersonal therapy. Around 1970, cognitive- behaviorists pointed out a new theory about depression. That psychotherapy concentrates, not on past experiences, but on alerting the patient to negative and destructive patterns of thought, and on providing them with alternative, 'positive' models of thinking. Cognitive behavioral (psycho) therapy is also being used increasingly for people with depression, often alongside anti-depressant medication. That approach had predominated until the last part of $20^{th}$ century and the first part of this century too**.**

## 1.2.3 Types of depression

There are the types of depression which is identified by American psychiatric association (DSM IV, 1994):

## Unipolar and bipolar mood disorders

Classified depression falls into two categories, Unipolar and Bipolar mood disorders.

## a. Unipolar mood disorders

These consist of mild to moderate depressive disorder and major depression.

**a - 1) Mild to moderate depressive disorder-** (DSM- IV) includes two main categories for depressions of mild to moderate severity, dysthymia and adjustment disorder with depressed mood.

**a - 2) Dysthymia-** To qualify for a diagnosis of dysthymia, a person must have a persistently depressed mood, more days than not, for at least two years. In addition, dysthymics must have at least two of the following six symptoms when depressed - poor appetite or overeating, sleep disturbance, low energy level, low self-esteem, difficulties in concentration or decision making, and feeling of hopelessness.

**a - 3) Adjustment Disorder with Depressed Mood-** basically, adjustment disorder with depressed mood is behaviorally indistinguishable from dysthymia. It differs from dysthymia in that it does not exceed six months in duration, and it requires the existence of an identifiable psychosocial stressor in the client‟s life within three months before the onset of depression.

**a - 4) Major depressive Disorder-** An affected person must experience either markedly depressed mood or marked loss of interest in pleasurable activities most of every day for at least two weeks. In addition, the person must experience at least four more of the following symptoms during the same period: fatigue or loss of energy; insomnia or hypersominia (that is, too little or too much sleep); decreased appetite

and significant weight loss without dieting (or, much more rarely, their opposites); psychomotor agitation or retardation (a slowdown of mental and physical activity); diminished ability to think or concentrate; self-denunciation to the point of claiming worthlessness or guilt out of proportion to any past indiscretions; and recurrent thoughts of death or suicidal ideation.

## b. Bipolar disorders

**b - 1) Depression and mania**: - despite their seeming opposition – are sometimes closely related and some people experience both states. As with the unipolar disorders, the severity of disturbance in bipolar disorder ranges from mild to moderate to severe. In the mild to moderate range, the disorder is known as cyclothymia and in the moderate to severe range, the disorder is known as bipolar disorder.

**b - 2) Cyclothymia-** Mania is in some ways the opposite of depression. It is a state involving excessive levels of excitement, elation, or euphoria, often liberally mixed with inflated self-esteem or grandiosity and the assumption of great powers. In its milder forms it is known as hypomania. It has long been recognized that some people are subject to cyclical mood changes with relative excesses of hypomania and depression that, though substantial, are not disabling; these are the symptoms of cyclothymia.

**b - 2) Bipolar disorder-** Bipolar disorder is distinguished from major depression by at least one episode of mania. Any given episode is classified as depressive, manic, or mixed according to its predominant features. The depressed or manic classification is self-explanatory. A mixed episode is characterized by symptoms of both manic and major depressive episodes, whether the symptoms are either intermixed or alternately rapid every few days.

## c. Normal depression

After pointing the kinds of depression according to DSM IV, it should be mentioned that the capacity to experience depression might be normal even desirable -if the depression is brief and mild. Normal depressions are almost the result of recent stress. (Carson, 1998) defined some milder forms of normal depression as follows:

**c - 1) Grief and the grieving process-** Grief is considered as the psychological process one goes through following the death of a loved one- a process that appears to be more damaging for men than women (strobe & strobe, 1983)

**c - 2) The other normal depression variations**: Many situations other than obvious loss can provoke depressive feelings. Some people seem especially prone to develop depression. It is a common observation, for example, that some doctoral candidates become depressed after completing their final oral exams. Other kinds of "success" depression have also been observed following election to public office after a difficult campaign and in successful novelists and actors.

**c - 3) Postpartum depression-** A seemingly similar phenomenon is the so-called postpartum depression of some new mothers (and sometime fathers) on the birth of a child. Until recently, it was believed that postpartum depression was a relatively common form of clinical depression. However, recent evidence suggests that some depressive feelings in the postpartum are within the normal range of mood variation. O"Hara and colleagues (1990-1991) conducted an important prospective study on this topic in which nearly 200 pregnant women, each with a matched partner who was one of their not pregnant close friends, were followed for nine weeks following delivery. O"Hara and colleagues (1990) found that as many as 42 percent of the pregnant women

experienced at least a mild attack of "the blues" following childbirth. Similar to the 50 percent rate observed by Pitt (1982)

**c - 4) Students' depression-** Many students experience mild or serious depression during their college years.

## 1.2.4 Causes of depression

There is no single cause for depression. Many factors play a role including genetics, environment, medical conditions, life events, and certain thinking patterns that affect a persons‟ reaction to events. At time, however, depression occurs for no apparent reason.

**a) Biological factors-** Some researchers have revealed that depression runs in families and suggests that some people have it in their genes that make it more likely for them to get depressed, but not everyone who has the genetic makeup for depression actually gets depression. For some people, undiagnosed learning disabilities or physical illness can set the stage for depression.

**b) Chemical factors**- Substance abuse can cause chemical changes in the brain that affect mood-alcohol and some drugs are known to have depressant effects.

**c) Biochemical Factors**- Hormonal changes and certain medical conditions can affect hormone balance and therefore have an effect on mood. Some conditions, such as hypothyroidism, are known to cause a depressed mood in some people**.**

**d) Sleep and biological rhythms**- Some findings suggest that disturbance in sleep rhythm can set the stage for depression (Goodwin & Jamison, 1990; Shelton et al., 1991) In addition some other findings also show that circadian rhythm (including body temperature and secretion of cortisol, thyroid, stimulating hormone, and melatonin, a hormone secreted by the pineal gland during the dark) dysfunction is responsible for many of the clinical features of depression. (Healthy & Wiliams, 1988, Sack et al, 1987, Shelton et al, 1991)

**e) Psychological causal factors**- Psychological make – up can also play an important role in vulnerability to depression. People who have low self-esteem, who consistently view themselves and the world with pessimism, or are readily overwhelmed by stress may be especially prone to depression.

Family and social environment also play a role. For some people, a negative, stressful, or unhappy family atmosphere can affect their self-esteem and lead to depression. The negative social and personal consequences of substance abuse can also lead to severe unhappiness and depression. Many investigators have been impressed with the high incidence of stressful life events that apparently serve as precipitating factors for depression. Dohrenwend et al., (1986) found that depressed patients had more negative life events of three types in the year before the onset of their depression than did non-depressed controls: physical illness and injury, fateful loss events, and events that disrupted their social network. Lewinsohn, Hoberman, and Rosenbaum (1988) also found that both major and minor life events and chronic strains such as marital or employment problems were predictors of the onset of depression in a community sample that was followed for a year. Given the dozens of studies in this area, it is perhaps best to rely on finding from a recent

review of the literature that concluded that chronic stressors (poverty, homelessness, and community violence) and minor events might be associated with an increase in depressive symptoms but probably not major depression (Monroe & Simons, 1991)

### 1.2.5 Duration and recovery of depression

No one can prevent the onset of depression, but early diagnosis and therapy can reduce duration and severity of depression among sufferers. Understanding the nature of depression with different types, and its recovery and factors associated with it must be perceived in order to answer questions such as why, when, and how we can help college students who are affected by depression. It is very likely that depression has some recurrent episodes after the onset. For example Major depression disorder is a type of depression which has recurrent episodes. According to Carson and colleagues (1998) when a diagnosis of Major depression disorder is made, it is usually specified whether this is a single (initial) episode or a recurrent episode (one or more previous episodes have already occurred) This reflects the fact that depressive episodes are usually time-limited with the average duration of an untreated episode being about six months according to DSM-IV (American Psychiatrics Association's Diagnostic and Statistical Manual of Mental Disorders) but often recur following a period of remission of symptoms for at least two months. There are many studies about duration and recovering of major depression as moderate to severe depression (MLD and HLD) which had an effect on highlighting the critical situation of depressed people.

### a. Duration of depression

Solomon, D. A., et al., (1997) examined recovery from major depression which follow-up across multiple episodes. Results showed that the median duration of illness was 22 weeks for the first recurrent mood episode, 20 weeks for the second, 21 weeks for the third, and 19 weeks for the fourth and fifth recurrent mood episodes. From one episode to the next, the proportion of subjects who recovered by any one time point was similar. For subjects with 2 or more recoveries, the consistency of duration of illness from one recovery to the next was low to moderate.

It is notable that mild type of depression also can have a long duration. Dysthymia is a type of mild depression (LLD) in which a person has a persistently depressed mood, more days than not, for at least two years. (DSM IV, 1994)

### b. Recovery of depression

Scott B Patten, (2006) investigated a major depression prognosis calculator based on episode duration. Author found that during the early weeks of an episode, recovery probabilities are high. The model predicts that approximately 20% will recover in the first week after diagnostic criteria for major depression are met. However, after six months of illness, recovery during a subsequent week is less than 1%.

## 1.2.6 Therapy of depression

Treatment of depression is performed in three methods:

**a) Drug therapy**- In this way, chemical body balance is revived by prescribing the suitable drugs.

**b) Electro-shock therapy (E.C.T)-** Electroconvulsive therapy (ECT) is a treatment for severe mental illness especially severe depression in which a brief application of electric stimulus is used to produce a generalized seizure.

**c) Psychotherapy**- In this method a specialist establishes an informed and vocational relationship with a patient, in order to reduce his symptoms and his pattern of destructive behavioral, and prepares the way for development of patient‟s personality.

The most commonly used treatments are psychotherapy, and drug therapy, or a combination of the two. Which is the best treatment for an individual depends on the nature and severity of the depression.

## 1.2.7 Diagnosis of depression

There are many tests and scales for diagnosing depression which can help detect depression in adult patients with a reliable measure of accuracy. Some of them are administrated more as Beck Depression Inventory (BDI) Hamilton Depression Scale (Ham-D) Montgomery & Asberg Depression Rating Scale (MADRS) Raskin Depression Scale, Zung Depression Self/Rating Scale and the Center for Epidemiological Studies Depression Scale (CES-D)

## 1.2.8 Depression in psychological perspectives

In 20$^{th}$ century, depression was studied by the different psychological perspectives. Some of the most important of them are:

**a. Depression in Psychodynamic perspective-** Freud established theory of depression in 1917 by writing “Mourning and Melancholia”, but he gave some new suggestion in “The Ego and the Id”

in 1923. In “Mourning and Melancholia” he compared the normal reaction of grief with pathological melancholia. He argued that “mourning comes to a decisive end when the subject severs its emotional attachment to the lost one and reinvests the free libido in a new object” (Clewell, T., 2002) On the base of this theory” he hypothesized that when a loved one dies; the mourner regresses to the oral stage of development (when the infant can not distinguish self from other) and introjections or incorporates the lost person, feeling all the same feelings toward the self as toward the lost person” (Carson, et al., 1998) He said that “The loss of an object structurally necessary for the definition of a subject normally provokes a reaction known as mourning. In some people the same influence produces melancholia instead of mourning. Freud suggests that melancholia is in some way related to an object loss which is withdrawn from consciousness “(Blake, 1978)

Melanie Klein (1882-1960) a child psychoanalyst believed that every child goes through two positions, the schizoid position in the first half and depressive position in the second half of the first year in his life. Klein felt that people who have not successfully resolved the depressive position as babies were vulnerable to experience severe depressions as an adult if they experienced a significant loss. Klein theorized that the child harbors feelings of love for the parents and eventually the “good objects” is internalized. Individuals who never receive adequate love are insecure in their internalization of the “good objects”, and therefore are predisposed to return to the depressive position.

Edward Bibring (1895-1959) also focused on lack of self- esteem in his discussions of melancholia and depression. He wrote, "A loss of self-esteem is common to all types of depression." Bibring viewed depression as an affective state, which was characterized by a lack of self-esteem.

Blatt, S.J. (1974) theorized that the most of patients fall into two major psychodynamic forms of depression. They are known as the anaclitic and introjective types. In the anaclitic type the patients fails to emancipate themselves from their former familial role or from latency stage functioning. Introjective depression is typified by more individuated adolescents who are able to separate from his family and to function on his own in most areas, however he carries within himself the unrealistic demands and expectations that were internalized from his familial relationships.

**b) Depression in Behavioral perspective**- Behavioral theories of depression proposed that depression could be equated with a state of extinction from positive reinforcements, the failure to receive positive reinforcement contingent on one‟s responses, or an increase in the rate of negative reinforcements (Carson, 1998)

**c) Depression in cognitive-behavioral perspective**-

"Starting in the 1970s, however, a number of behavior therapists began to reappraise the importance of "private events" – thoughts, perceptions, evaluations, and self-statements- seeing them as processes that mediate the effects of objective stimulus conditions and thus help determine behavior and emotions (Borkovec, 1985; Mahoney & Arnkoff, 1978)". On the other hand in that time cognitive theorists such Aaron Beck, pointed out their view about cognitive theories. In this manner, behaviorists and cognitive theorists gradually went to each other and created a new theory as cognitive-behavior perspective. It is either objective, with attention to conditional stimuli and responses or emphasize on mediate variables such as values, expectations, self- image and so on. "The cognitive or cognitive behavioral perspective on abnormal behavior focuses on how thoughts and information processing

can become distorted and leads to maladaptive emotions and behavior. Unlike behaviorism‟s focus on overt behavior, the cognitive view treats thoughts as “behaviors” that can be studied empirically and that can become the focus of attention in therapy. In addition, by studying the patterns of distorted information processing exhibited by people with various forms of psychopathology, the mechanism that may be involved in the maintenance of certain disorders have been illuminated” (Carson, 1998)

**d) Beck's cognitive-behavioral perspective**- Cognitive-behavioral perspective has given the most influential theories about roots, causes and treating of depression in recent years. The cognitive model of depression was developed by Aaron Beck, a psychiatrist who became disenchanted with psychodynamic theories of depression early in his career and developed his own cognitive theory of depression. Whereas the most prominent symptoms of depression have generally been considered to be the affective or mood symptoms, Beck hypothesized that the cognitive symptoms of depression may often precede and cause the affective or mood symptoms rather than vice versa.

**e) Description of depression according to Beck**- Beck, et.al. (1993) describe individuals suffering from depression: “Individuals who see themselves trapped in a situation in which they have no control, believe they are helpless or socially undesirable, and can only see a wall of difficulties and disappointments ahead are likely to the only solution, experience a subjective loss of energy, lose motivation to attempt any constructive activity (“because it is useless and I will only fail”) and lose satisfaction from sex, eating, or other formerly pleasurable activities.” Dysfunctional beliefs in the addicted individual have a strong negative effect on the individual‟s thinking, feeling, motivation, and behavior.

Some of these negative feelings may be manifested in statements like; “I am helpless,” “I am weak,” “I am worthless” (Beck, et al 1993)

According to this perspective, depressed people, whenever the events happen, consistently perceive causes of those in a way that is unfavorable to them. Cognitive theorists believe that unjustified negative interpretations as a way of coding and interpreting behavior or schemata can be the cause of depression. These schemata are thought to have arisen early in life, but they continue their influence into adulthood. Cognitive perspective presents the techniques which change these schemata and to help the client create new approaches about thinking, acting and alter schemata to make them more adaptive.

Beck as a theorist of cognitive perspective believed that “depression can best be described as a cognitive triad of negative thoughts about oneself, the situation, and the future” (Beck, et al,. 1993) According to Beck, a person who is depressed sees only negative aspects of events; he or she has a misinterpretation of facts, also has no hope about his or her future, and has pessimism about his or her life. Beck accounted that these cognitions are specific to depression.

## 1.3 Statement of the problem

The Study relationship between depression and academic achievement in graduate and postgraduate students

## 1.4 Operational Definitions of terms

### 1.4.1 Depression

It is a condition evidenced by symptoms as identified by the Beck Depression Inventory (original BDI, Beck, et al. , 1961) These symptoms are as followed: Sadness, Pessimism, Sense of failure, Dissatisfaction, Guilt, Expectation of punishment, Dislike of self, Self Accusation, Retardation, Suicidal ideation, Insomnia, Episodes of crying, Fatigability, Irritability, Loss of appetite, Social withdrawal, Indecisiveness Loss of Weight, Somatic preoccupation, Change in body image, Low level of energy.

Depression is measured by BDI which is a self report instrument and researcher did not interfere in diagnosis of depression by observations and interviews.

### 1.4.2 The levels of depression

The present study explores three levels of depression as reflected in numbering of "Beck depression inventory". All scores from 0 to 9 indicate that a person is not depressed. In the first level as low level, the measure of depression is mild and it contains scores from 10 to 18 of Beck depression Inventory. In the second level as middle level, it is moderate and it contains scores from 19 to 29 in the Beck depression Inventory. In the third level of the measure of depression as high level, it is high and it contains all scores from 30 to 63 of Beck depression Inventory.

### 1.4.3 Academic achievement

It refers to three categories of percentage of marks of first semester examinations. The first category is second class and consists of percentage of marks between 50 to 59, the second category is first class and consists of percentage of marks between 60 to 69, the third category is distinction and consists of percentage of marks between 70 to 100.

### 1.4.4 Graduate students

It refers to Bachelor of Arts students who were studying in Ferguson, S.P, Wadia, Modern, Poona and Symbiosis College in Pune city during the academic year 2005-2006.

### 1.4.5 Post graduate students

It refers to Masters of Arts students who were studying in Ferguson, S.P, Wadia, Poona College and University of Pune in Pune city during the academic year 2005-2006.

## 1.5 Objectives of the study

To prove the hypothesis of the study, the following objectives were formulated

1) To find out the percentage of depressed graduate and post graduate students taking into account the variables of average of marks in examinations of first semester, sex, age, marital status, father's and mother's education.

2) To determine the levels of depression among graduate and post graduate students taking into account the variables of average of marks in examinations of first semester, sex, age, marital status, father's and mother's education .

3) To find out whether significant relationship exists between the different levels of depression and academic achievement taking into account the variable of sex.

4) To find out whether significant relationship exists between different levels of depression and academic achievement taking into account the variable of age.

5) To find out whether significant relationship exists between the different levels of depression and academic achievement taking into account the variable of marital status.

6) To find out whether significant relationship between different levels of depression and academic achievement of students; exists in relation to their father's education.

7) To find out whether significant relationship between different levels of depression and academic achievement of students; exists in relation to their mother's education.

## 1.6 Hypothesises

1) Whenever depression increases academic achievement decreases, in students.

2) There is a significant difference in depression between male and female students.

3) In both male and female students a significant relationship exists between levels of depression and academic achievement.

4) Students with age of 18-22 suffer more from depression than students with age of 23 and above.

5) In both age groups of students a significant relationship exists between levels of depression and academic achievement.

6) Single students suffer more from depression than married students.

7) In single students a significant relationship exists between levels of depression and academic achievement.

8) Whenever education of students' fathers increases depression decreases, in students.

9) As regards to fathers' education a significant relationship exists between levels of depression and academic achievement in students.

10) Whenever education of students' mothers increases depression decreases, in students.

11) As regards to mothers' education a significant relationship exists between levels of depression and academic achievement in students.

## 1.7 Assumption of the study

1) College students as participants fall within the general range of healthy people and are not mentally ill.

2) All participants are from the general population and they are in the age group of 18 and above.

## 1.8 Limitations of the study

1) The students were selected from only Master of Arts and Bachelor of Arts courses (M.A & B.A) of the University of Pune and some of its affiliated Colleges in Pune city.

2) The students selected were from second and third years of B.A course, also, first year and second year students of MA course. In this regard, first year students of BA course did not contribute to sampling.

3) The samples were selected only among Arts M.A and B.A students in English medium in those colleges.

4) The variable of academic achievement is considered as average of examinations' marks in first semester, and it does not consist of other factors of academic achievement.

5) For this study only Beck Depression Inventory, was used.

## 1.9 Significance of the study

Current study has many valuable advantages in various arenas of social science.

## a- Education

**a.1 -** The results of present study emphasize significant influence of mental health on academic achievement as the most important goals for education systems. Present study proves that high levels of academic achievement cannot be achieved in students with depression. And college students can not reach their full potential without academic achievement. In this manner, education by paying attention to mental health in college students can improve both the level of academic achievement attained by young college students and the quality of life in their community.

**a.2 -** Present study shows significance of establishing the consulting centers in Indian colleges to diagnose, care, therapy and prevention of depression in college students.

**a.3 -** Present study shows significance of guidance and counseling to parents (especially with the mothers) whose children suffer from depression. This guidance and counseling can help parents having depressed children to care of them.

The result is a warning for parents having low or high education level. Because it has proved that majority of depressed students had illiterate or low-educated parents, and also depression had negative influence on academic achievement of students with higher-educated parents, in this regard the role of the mothers was more critical than the fathers.

## b - Psychology

This study has brought many contributions to psychological areas. The results of current study are similar to result of studies done in western countries about high prevalence of depression among college students.

It is found that in spite of cultural difference, in eastern and western societies, college students are affected by psychological, environmental and biological factors equally, and students are affected more by depression than general population.

## c - College students

### c.1 - College students as individuals

Human rights have established the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. (Office of the United Nations high commission of human rights, 2003) College students are individuals before they are mentioned as a subgroup in societies, thus, they must be benefited by human rights which belong to all individuals. On the basis of human rights, societies must provide and enhance mental health care for young college students. Depression like every other mental disorder has a large impact on individuals, families and communities. Individuals suffer the symptoms of depression, which usually make them sad and hopeless. They have pessimism about themselves, and they feel guilty. All these symptoms make their life unbearable. They also suffer because they are not successful in their work and they cannot take part in joyful leisure activities. They are worried about failure in shouldering their responsibilities towards family and friends, and are fearful of being a burden on other people. College students are the people who need help and care. According to human

rights, recognizing depression in college students can be an effort towards care, help and development of mental health among them.

**c.2 - College students as future parents**

The third significance of this study is an issue of relationship between parents or other caregivers to children. This relationship is crucial during childhood, especially for children who are affected by environmental, individual and psychological factors. From the point of view of the training, the mental health status of parents is one of the main psychological factors. Mental or behavioural problems in parents disturb the trend of training in children which influence children‟s life directly and indirectly.

In this manner, depression in parents increases risk of depression among children. Children with depressed parents are more likely (four times) to be influenced by depression; they have a 40 percent chance of experiencing depression by the age of 20 years, and a 60 percent chance by the age of 25 years. Maternal depression is associated with depression in young people after controlling other factors, including socioeconomic status. History of parental depression not only increases the risk of failure in adulthood depression recurring but also increases the suicide attempts. In addition, some behavioral problems such as child adjustment problems and more impaired parent-child communication are result of parental depression. It is proved that depression is transmitted through decreased parental support and reinforcement however depressed parents are unable to support their children properly.

Poor coping in depressed parents causes many disturbances in cognitive and behavioural function of children such as emotional problem-solving styles and negative attributions.

Thus, prevention of developing depression in college students as future parents provides mental health status in families which in turn leads to social mental health.

## d - Experts, specialists and managers in the highest levels of decision making

College students are geniuses in every country, and they are part of future productive human resources. They have the highest intellect and talent. In addition, they have the highest scientific motivation. Today productive human resources, experts, Scientists and technologists arise from college students, and they handle social, economical, and other planning and programs in societies. In this regard, every mind disability in that social stratum disturbs aforementioned programs, and it can harm the processes of developing of societies. The underachievement related to prevalence of depression as a mental disability amongst college students is injurious to future proficient human resources, and future society, which in turn, causes delay of development. Recognizing, preventing, and providing therapy of depression to college students, for helping the trend of developing human resource in all countries, especially in eastern countries; is essential.

## e - National and international health organizations

Since India is included in the countries which have health programs, Present study is usable for national health care institutes and international organizations (WHO) which are active about health issues, because findings of this study can help them for investigation of mental health situation among Indian college students as a subgroup in Indian society.

## f - Interdisciplinary studies

Present study is useful for humanistic interdisciplinary areas such as sociology, psychology and socio-psychology, which creates some questions on the quality and quantity of the role of cultural and socio-economic variables as incidence of mental disorders in the eastern and western countries.

# Chapter II

## Review of literature

# Chapter II

## Review of literature

## 2.1 Studies on relationship between depression and academic achievement among college students

 Haines, M. E , Norris, M. P, & Kashy, D .A. (1996) assessed college students on measures of depression, concentration, and academic performance. Depression was negatively related to academic performance.

 Heiligenstein E, Guenther G, Hsu K, and Herman K (1996) reported the results of an evaluation of depression and academic impairment in university students, using standardized measures. Sixty-three students completed the Beck Depression Inventory and the work role section from the Social Adjustment Scale-Self Report. Academic impairment, manifested as missed time from class, decreased academic productivity, and significant interpersonal problems at school, was seen in 92% of the students. More severe depression was related to a higher level of impairment. At all levels of depression, affective impairment-inadequacy, distress, and disinterest in school-was more prevalent than

was academic impairment. The risk of academic impairment became likely at only moderate-to-severe levels of depression.

- Hysenbegasi, A., Hass, S.L, & Rowland, C.R., (2005) investigated the relationship between depression and its treatments and the academic performance of undergraduate students. Results indicated that diagnosed depression was associated with a 0.49 point, or half a letter grade, decreased in student GPA (Grade Point Average) while treatment was associated with a protective effect of approximately 0.44 points. The self-reported data regarding the impact of depression on the performance of academic tasks was consistent with these findings. Depressed students reported a pattern of increasing interference of depression symptoms with academic performance peaking in the month of diagnosis and decreasing thereafter with the lowest levels reported in months 4 through 6 post-diagnosis, each of which is significantly less than the month of diagnosis.

- Andrews, B., & Wilding, J.M., (2004) studied the relation of depression and anxiety to life-stress and achievement in college students. 351 UK-domiciled undergraduates completed questionnaires one month before university entry and mid-course. Results showed that depression and financial difficulties mid-course predicted a decrease in exam performance from first to second year college students.

- Beer, J., & Beer, J., (1992) linked to depression, self-esteem, suicide ideation, and GPA (grade point average) of high school students at risk. The subjects were 131 high school students completed the Beck Depression Inventory, Coopersmith's Self-esteem Inventory-Short Form, the first 11 questions of the Beck Scale of Suicide Ideation, and gave some background information. Findings showed that students who had been absent more than 15 times scored higher on depression and suicide

ideation and had lower GPA than students who were not absent as often but had similar scores on self-esteem.

- Makaremi (2000) examined relation of depression and anxiety to personal and academic problems among Iranian college students. Analysis confirmed the relation and showed that off-campus students were significantly less depressed and anxious. These college students were worried about jobs and marriage. Feelings of anxiousness and worry were reported; sex differences on depression scores were not significant.

- Fazio, N.M., & Palm, L. J., (1998) linked to Attributional style, depression, and grade point averages of college students. 91 upper-level undergraduates completed the Attributional Style Questionnaire and the Center for Epidemiologic Studies Depression Scale; scores on these inventories were correlated with students' cumulative grade point averages. Students with pessimistic attributional style scores had higher depression scores than students with optimistic attributional style scores and those with higher depression scores had lower grade point averages.

❖ Betsy &Finger (2006) examined the relationship between depression and academic performance among college students. The study followed a negative correlation between depression and grade point average; it wanted to know that participants who had a higher score on the BDI would be more likely to view their current academic performance as unsatisfactory, regardless of a high or low grade point average (GPA) The first hypothesis regarding participant‟s scores on the BDI and their GPA was not supported.

❖ Rossen (1997) examined the relationship among depression, behavioral problem and academic achievement in adolescents. In the area

of academic achievement, results showed that several academic subjects, proved to be significantly negatively colorations with level of adolescent depression.

❖ Fosterling and Binser (2002) investigated the link between depression and school performance among high school students. High depression scores were associated with low overall grades. The authors found that pupils with low grades and pupils who are depressed attributed failure to internal, stable and global cause‟s more than high achievers and non-depressed pupils did. These findings demonstrated the vicious cycle that exists between depression and low grades, creating a downward spiral towards worsening mental health and failing grades.

❖ Marmorstein (2001) looked at the association between major depressive disorder and/or conduct disorder and school adjustment. The subjects were twin adolescent girls. The results of this study suggested that both depression and conduct disorder were related to significant difficulties in functioning and school adjustment. Each disorder alone was related to increased number of negative school related events such as suspension and failure of classes. A dual diagnosis of MDD and CD was associated with the highest level of school impairment.

 Barriga & Doran & Newell & Morrison & Barbetti & Robbins (2002) examined relationships between 8 teacher-reported problem behavior syndromes (withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, aggressive behavior) and standardized measures of academic achievement (overall, reading, spelling, arithmetic, performance) in adolescents. Findings demonstrated the

anxiety/depression did not correlate significantly with the academic achievement measures.

### 2.1.1 Summary of Studies on relationship between depression and academic achievement among college students

A brief review of related studies about relationship between depression and academic achievement in college students and also students in late adolescents showed that except two studies, all of them have demonstrated depression was negatively related to academic performance, and also one study indicated the vicious cycle that existed between depression and low grades, creating a downward spiral towards worsening mental health and failing grades.

One study found the risk of academic impairment became likely at moderate-to-severe levels of depression, and more severe depression was related to a higher level of academic impairment.

Treatment of depression had a positive effect on students' academic performance. In this regard students reported a pattern of increasing interference of depression symptoms with academic performance peaking in the month of diagnosis and decreasing thereafter with the lowest levels reported in months 4 through 6 post-diagnosis, each of which is significantly less than the month of diagnosis˙. Absent more than 15 times was another variable relation to higher depression and suicide ideation and lower GPA (Grade point average) Personality factors were significant variables in relation to association between depression and academic achievement. Students with pessimistic attributional style scores had higher depression scores than students with optimistic attributional style

scores and those with higher depression scores had lower grade point averages.

One study suggested that both depression and conduct disorder were related to significant difficulties in functioning and school adjustment. Each disorder alone was related to increased number of negative school related events such as suspension and failure of classes. A dual diagnosis of major depressive disorder and conduct disorder was associated with the highest level of school impairment.

## 2.2 Prevalence of depression among college students

### 2.2.1 Abroad studies on

- Furr., S.R., et al. (2001) studied Suicide and depression among college students in 939 college students. They found that 14.9 percent of those students were depressed.

- Furr, S., et al. (2001) investigated the rate of self-assessed depression and Suicide among college students. Results of their study indicated that 53% of the sample stated that they experienced depression since beginning college.

- American College Health Association's National College Health Assessment (ACHA-NCHA) (2000) reported that 10.3% of students had ever been diagnosed with depression, and according to ACHA-NCHA Reference Group Report ( 2004) 14.9% of students reported that they had ever been diagnosed with depression, out of a sample of 47,202 students at 74 campuses from across the America. Of the 14.9% of students who reported having ever been diagnosed with depression, 25.2% said they

are currently in therapy for depression, and 38% said they are currently taking medication for depression. Almost 40% of men and 50% of women reported feeling so depressed that they had difficulty functioning one or more times during the last school year.

❖ American College Health Association (2002) in a survey study found that 11.8 percent of college students have received a diagnosis of depression in their lifetimes.

❖ Arbor, R., (2004) reported that 19 percent of college students 12.8 percent of women and 6.2 percent of men -- had been diagnosed with depression sometime in their lives.

❖ Josephine G.W.S. et al (2006) examined the prevalence of depression, anxiety and stress in 7915 first-year tertiary education students in Hong Kong. Depression was found in 21 percent in study.

❖ Arbor, A., (2004) found that 77 percent of the college juniors reported feeling depressed either "frequently" or "occasionally" during the past year, compared to 61 percent who reported those feelings when they first entered college.

 Adewuya A.O., (2006) aimed to estimate the prevalence of major depressive disorder (MDD) among Nigerian college students with alcohol-related problems (ARP) and compare the estimated prevalence with their counterparts without ARP. Study was a cross-sectional survey of a representative sample of students (n=2658) in six colleges in Osun state, Western Nigeria. Results showed that prevalence of MDD in college students with alcohol dependence was 23.8%.

❖ American College Health Association's National Health (2005) in the most recent Assessment reported that 19.6% of college students experienced depression.

❖ Bostanci, M., et al., (2005) determined overall and subgroup prevalence of depressive symptomatology among university students in Denizli, Turkey, and to investigate whether socio-demographic factors were associated with depressive symptoms in university students. Results showed out of all participants, 26.2% had a BDI score 17 or higher. The prevalence of depressive symptoms increased to 32.1% among older students, 34.7% among students with low socioeconomic status, 31.2% among seniors, and 62.9% among students with poor school performance.

 Mkize, L.P,. et al., (1998) determined the prevalence of depression in a university student population attending the Unitra Health Service and further compare the prevalence rate according to gender, age group and presenting complaint. The results of the study demonstrated a high prevalence of depression among the selected student population. BDI scores showed a total percentage of mild to severe depression to be 53%. BDI scores also showed that depression affects all age groups in this population with females being more affected than males at the ratio 3:1. The percentage of all moderately and severely depressed students was (14%)

## 2.2.2 India studies

❖ Khan, S. (1998) reported that a survey and counseling among students of a premier south Mumbai College showed that depression has a large prevalence among Indian teenagers. Almost 21 percent of the

students of Mumbai's ST Xavier's college were found to be depressed. Seven percent of students were identified as being suicidal.

❖ Parikh, R.M., and colleagues (2001) conducted a study in Bangalore. They looked at the prevalence of depression in the college-age population (mean age 18.2 years) This population showed a 20.7% prevalence of depression, which is remarkably similar to the prevalence observed in Chinese-American individuals.

### 2.2.3 Summary of prevalence of depression among college students

Related literature about prevalence of depression among college students showed that it was high among them. These studies indicated that college students in western countries had higher prevalence of depression as compare with eastern countries.

According to in some studies there was an increase of depression among University students from year2000 to 2005. Statistics indicated that American college students had depression in 2005 two times more as compared to 2000.

In one study students with poor school performance and low socioeconomic status had the highest percentage of depression respectively.

## 2.3 Gender difference in prevalence of depression among college students

### 2.3.1 Abroad studies on

❖ Boggiano, A. K. & Barrettm M. (1991) examined gender differences on the BDI among college students, and found that females reported more depressive symptoms than males.

❖ Alfeld-Liro C. & Sigelman C.K. (1998) studied a longitudinal investigation of sex differences in symptoms of depression during the transition to College in a sample of 287college students. Survey data were collected at a summer orientation and one semester into freshman year. Results indicated that females were more depressed than males at both times, although depressive symptom scores increased in both sexes.

❖ Waelde, L. C. & Silvern , L & Hodges, W. F( 1994) studied the Stressful life events: moderators of the relationships of gender and gender roles to self-reported depression and suicidality among college students. Participants in this study were 537 undergraduates (290 women, 247 men) It was found Females had significantly higher self-reported depression scores than males.

❖ Blatt, D"Afflitti and Quinlan (1976) investigated Experiences of depression in normal young adults. Results showed that there was no a gender difference in depression among college students.

❖ Padesky, C. A. & Hammen C. L (1981) linked to sex differences in depressive symptom expression and help-seeking among college students. The subjects were a large sample of young, unmarried college student. They found no sex differences in degree of depression as

measured by the Beck Depression Inventory, and yet significant sex differences emerged in the patterns of symptoms expressed by the most depressed sub-sample. The results confirmed the previous finding that depressed men in a college population are more likely to express social withdrawal, cognitive and motivational deficits, and somatic concerns. Depressed women are characterized by a lack of confidence, a lack of concern for what happens to them, and being hurt by criticism. Men and women did not differ in willingness to report depression. However, there were clear sex differences in both help-seeking attitudes and reported behaviors, with men more reluctant to seek help.

❖ Oliver S. J & Toner B. B (1990) investigated the influence of gender role typing on the expression of depressive symptoms. Undergraduates (99 men, 360 women) were divided into masculine and feminine groups according to the Bem Sex Role Inventory. Depressive symptoms were measured by the Beck Depression Inventory (BDI) Gender role typing differences emerged on the BDI with feminine subjects reporting more emotional symptoms than masculine subjects ($p<.05$) and masculine subjects reporting more withdrawal and somatic symptoms than feminine subjects ($p<.05$)

❖ Gladstone, T. R., & Koenig, L. (1994) studied sex differences in depression across the high school to college transition. Results indicated that there was no gender difference in depression.

❖ Lloyd, C. & Miller, P. (1997) studied gender difference in depression among college students. Results showed that medical students at the University of Texas shared similar rates of depression, while medical students at the University of Edinburgh showed higher rates of depression in females.

❖ Hammen, C. L., & Padesky, C. A. (1977) investigated sex differences in the expression of depressive responses on the Beck Depression Inventory, among University sample. Findings showed that there was no gender difference in depression among these students.

## 2.3.2 Indian Studies

❖ Khan, S (1998) reported that a survey and counseling among students of a premier south Mumbai College showed that depression has a large prevalence among Indian teenagers. Almost 21 percent of the students of Mumbai's ST Xavier's college were found to be depressed, with more male students (25 per cent) than female students (18 per cent).

## 2.3.3 Summary of studies on gender difference in depression among college students

Gender differences in depression were not consistently exhibited among samples of university students. A brief review of studies focusing on depressive symptomatology (not on clinical diagnosis of depression) among university samples revealed this inconsistency.

In some studies gender differences were not found (Gladstone & Koenig, 1994; Hammen & Padesky, 1977, Blatt D"Afflitti and Quinlan 1976) whereas in other studies gender differences were found with domination of females in depression (Boggiano & Barrett, 1991, Alfeld-Liro C. & Sigelman C.K. , 1998, and Waelde, L. C. & Silvern , L & Hodges, W. F., 1994) and in a third study, gender differences were or were not found depending on different Universities (Lloyd & Miller ,1997) and, finally, in forth study gender difference were found with domination of males in depression ( khan,1998).

Furthermore, in a study gender difference in depression revealed fact that depressed men in a college population were more likely to express social withdrawal, cognitive and motivational deficits, and somatic concerns. Depressed women were characterized by a lack of confidence, a lack of concern for what happens to them, and being hurt by criticism. Also there were clear sex differences in both help-seeking attitudes and reported behaviors, with men more reluctant to seek help.

In the other study gender role typing differences emerged on the BDI with feminine subjects reporting more emotional symptoms than masculine subjects and masculine subjects reporting more withdrawal and somatic symptoms than feminine subjects.

## 2.4 Studies on age difference in prevalence of depression

❖ Birmaher, B. et al., (1996) studied qualitatively review the literature of the past decade covering the epidemiology, clinical characteristics, natural course, biology, and other correlates of early-onset major depressive disorder (MDD) and dysthymic disorder (DD)It was made a computerized search for articles published during the past 10 years and selected studies were presented. The part of results showed, major depressive disorder (MDD) lifetime prevalence rates begin at 3% at age 13 years, surge to 14.6% by age 15 years, and swell to 21.2% by age 21 years.

 Weissman, M.M, et al., (1997) investigated risk for major depressive disorder (MDD) and impairment in offspring of depressed parents. One hundred eighty-two offspring from 91 families, in which 1 or more parents had MDD (high risk) or in which neither parent was

depressed (low risk) were blindly reassessed in the third follow-up, using a structured diagnostic instrument 10 years after their initial identification. The part of results showed the peak age at onset for MDD in both high- and low-risk offspring ranged from 15 to 20 years.

❖ Maximus (2001) studied Depression and Other Mental Health Barriers among Welfare Recipients. It was conducted with more than 3,400 welfare recipients in the age range of 18-61 .Study was based on telephone surveys in three states: New Mexico, North Carolina, and California (San Bernardino County) Results showed that depression varied considerably by age group. Older recipients were more likely than younger recipients to have experienced depression during the past year. Of the respondents aged 40 and older, between 57 and 61 percent reported experiencing problems with depression. In contrast, only 35 to 38 percent of 18-24 year olds reported problems. Across the sites, 43 percent and 50 percent of all recipients had problems with depression. Results also indicated that older recipients were much more likely than younger recipients to report that they were currently being treated for depression. Of the recipients aged 40 and older, between 25 percent and 30 percent were currently in treatment. In contrast, only 2 to 4 percent of 18-24 year olds were currently being treated.

❖ Australian Bureau of Statistics (1998) conducted survey of mental health and wellbeing, Profile of adults. Subjects were 10,600 people aged 18 years or over participated in the survey. Results showed Young adults aged 18 - 24 years had the highest prevalence of mood disorders conclude depression (27%)

❖ Christensen Co H.,et al., (1999) assessed the effects of age on depression, and examines whether age has direct effects on self-report of

individual symptoms independent of its effect on the underlying dimensions of depression. The sample of 2622 participants aged between 18 and 79 years from Canberra (Australia) was drawn from the Electoral Roll. Results indicated that age correlated negatively with depression. After controlling for the effects of gender, marital status, education and financial difficulty, direct effects of age were found on items from both instruments, indicating that certain depression items were associated with a differential probability of endorsement in older people, even when the level of depression was equal to that of younger people. Items with direct age effects reflected physical (feeling slowed down; waking early) and psychological (hopeless about the future) components of depression.

- Zisook, S., et al., (2004) linked to the relationship between age of first onset of major depression and other demographic and clinical features in the first 1500 patients entering the Sequenced Treatment Alternative to Relieving Depression (STARD) study. Outpatients, 18–75 years of age, with non-psychotic major depressive disorder (MDD) from either primary care or psychiatric practices constitute the population. Age of onset was defined at study intake by asking patients to estimate the age at which they experienced the onset of their first major depressive episode. This report divides the population in terms of pre-adult (before age 18) onset and adult (age 18 or later) onset. The results suggest that MDD that begins before age 18 has a distinct set of demographic (female gender) and clinical correlates (longer duration of illness; longer current episodes; more episodes; more Suicidality; greater symptom severity; and more sadness, irritability, agitation and atypical symptom features) and it appears associated with significant psychosocial consequences (lower educational attainment and marriage rates) Thus, pre-adulthood onset MDD is a particularly severe and chronic condition.

 Gollana J, et al., ( 2005) investigated symptom level and course trajectories of with early- and adult-onset of major depression were followed prospectively over 2 years in 62 adult outpatients who recovered from DSM-III-R unipolar major depression after cognitive behavior therapy. Subjects were individuals with depression onset before age 20 (n=31) with those with onset after age 20 (n=310) .Results indicated: (a) on average, the early-onset group experienced consistently more depressive symptoms than the adult-onset group, (b) early age of onset was associated with higher rate of depressive relapse.

❖ Department for Women (2001) reported that the rates of depressive disorders are three times higher for young women than for young men and depression among 18-24 year old women (10%) is higher than the overall female rate of 7%.

 Buerger JL, et al., (1996) explored the role of self-reported value of health as a moderator between age and scores on the Beck Depression Inventory. 157 undergraduate students completed the Health Value Scale and the Beck inventory. There was no significant main effect for age with scores on the Beck inventory.

 Brown DR, et al., (1995) examined demographic, socio-cultural, familial background, and health-related risk factors for major depression in a community sample of African Americans. Data came from a probability sample of 865 urban African American adults, 20 years of age and older, who were given the structured National Institute of Mental Health Diagnostic Interview Schedule. The findings indicated age, residential mobility, health status, and stressful life events were significantly associated with major depression. The strongest predictors

of major depression were poor or fair health and being 20-29 years of age.

## 2.4.1 Summary of studies on age difference in depression

This section has dealt with prevalence of depression in different range of age. In a study, the part of results showed, in case of major depressive disorder (MDD) lifetime prevalence rates began at 3% at age 13 years, surge to 14.6% by age 15 years, and swell to 21.2% by age 21 years.
Other study showed the peak age at onset for MDD in both high- and low-risk off springs ranged from 15 to 20 years. Results in the other study showed that depression varied considerably by age group. Older recipients were more likely than younger recipients to have experienced depression during the past year. Results also indicated that older recipients were much more likely than younger recipients to report that they were under treating for depression. Of the recipients aged 40 and above, between 25 percent and 30 percent were under treatment. In contrast, only 2 to 4 percent of 18-24 year olds were under treatment. A study indicated that age correlated negatively with depression.

Other study found that pre-adulthood onset MDD was particularly severe and developed to chronic condition. These results were similar to other studies that indicated: (a) on average, the early-onset group (before 20) experienced consistently more depressive symptoms than the adult-onset group (after 20) (b) early age of onset was associated with higher rate of depressive relapse. A study reported that the rates of depressive disorders were three times higher for young women than for young men and depression among 18-24 year old women (10%) was higher than the

overall female rate of 7%. One of the strongest predictors of major depression was being 20-29 years of age.

## 2.5 Studies on marital statues in depression

❖ Allan, V., et al., (1996) examined Becoming Married and Mental Health. They used a sample of 18-, 21-, and 24-year-old men and women who either remained unmarried or got married and remained married over a 7-year period to examine whether, after controlling for premarital rates of disorder, marriage enhances mental health. In addition, they considered whether or not females derive more mental health benefits from marriage than males. The results indicated that, with controls for premarital rates of mental health, young adults who get and stay married did have higher levels of well-being than those who remain single. In addition, although men -but not women- who become married reported less depression, women -but not men- who become married reported fewer alcohol problems. Thus, when both male-prevalent and female-prevalent outcome measures were used, both men and women benefited from marriage.

❖ Ross, C. E. (1995) examined the effect of marital status on well-being. Study Used data from a national probability sample of 2,031 adults aged 18 to 90, four levels on a continuum of social attachment are compared: no partner, partner outside the household, living with partner in the household, living with married partner in the household. Adjusting for age, sex, and race, results indicated the higher the level of social attachment, the lower the level of psychological distress, although living with a partner and being married are not significantly different. Social attachment, emotional support, and economic support significantly reduced distress and explained the positive effect of being married and

the negative effect of being single or divorced on psychological well-being, although recent widows exhibited high levels of distress that were not explained.

❖ Johns Hopkins University School of Public Health (2001) set out to investigate the effects of employment stress on mental health. The psychosocial data collected from 905 men and women employed full-time. The authors found that among the employed men in their study, marital status was "the most important factor" for predicting all three forms of depression analyzed. The likelihood of a "major depressive episode" ran an astounding nine times higher (Odds Ratio of 8.98) among the unmarried men than among the married men in the study. Among women, "not being married also increased the odds ratio for the association with depression," although less dramatically than among men.

## 2.5.1 Summary of studies on marital status in depression

This section dealt with prevalence of depression through marital status. Allan, V, (1996) showed that young adults both men and women benefited from marriage and they had higher levels of well-being than those who remained single. In addition, although men--but not women--who become married reported less depression, women--but not men--who become married reported fewer alcohol problems. Other study has determined the variables effect on psychological well-being. Social attachment, emotional support, and economic support significantly reduced distress and explained the positive effect of being married and the negative effect of being single or divorced on psychological well-being, and finally, Johns Hopkins University School of Public Health

(2001) found the likelihood of a "major depressive episode" was astounding nine times higher among the unmarried men than among the married men. Among women, "not being married also increased depression," although less dramatically than among men.

## 2.6 Studies on relationship between depression and other mental disorders

- Paykel, E.S., (1994) investigated role of social stress and support in clinical depression. Comparisons of recent life events at depressive onset and in general population controls showed consistently raised event rates. Events were also related to outcome and to relapse. Absence of social support appeared to be associated with onset and relapse of depression, both acting independently and modifying effects of life events. Social stress findings have implications for prevention.

❖ DeSimone, A., Murray, P., Lester, D., (1994) examined associations of alcohol use, self-esteem, depression, and suicidality in high school (n=140) and college students (n=86) who were both under and over the legal drinking age of 21. For college students, depression was associated with the frequency of alcohol use for students below and above the legal drinking age. For students aged 18-20 depression was positively associated with frequency of alcohol use, and that males used alcohol more frequently than did females; for students 21 years of age and older, none of the variables were associated with frequency of use.

- Battle, J. (1980) investigated relationship between self-esteem and depression among high School students. Twenty-six male and female

students who had been referred to the school psychologist completed a self-esteem checklist and two measures of depression. The correlations between self-esteem, especially the personal as opposed to the social facet, were significant for both measures of depression.

❖ Blatt D‟Afflitti and Quinlan (1976) investigated Experiences of depression in normal young adults. They viewed that depression in college students mainly involved three psychological variables: (a) dependency, the sense that one is in dire need of help and support from others; (b) self-criticism, the tendency to exaggerate one‟s faults and to engage in self-devaluation; and (c) inefficacy, the sense that important events in the world are happening independent of-not contingent on-one‟s own actions or efforts. In addition results showed that there was no a gender difference in depression among college students.

❖ Deykin, E. Y., Levy, J.C., & Wells, V.(1987) ascertained the prevalence of major depressive disorder (MDD) alcohol and substance abuse in a sample of 424 college students aged 16 to 19 years. Results

showed that alcohol abuse and substance abuse were associated with MDD.

❖ Among the college students responding to a survey by Furr, McConnell, Westefeld & Jenkins (2001) who stated they had experienced depression since entering college, the most frequent causes of depression were grade problems (53%) loneliness (51%) money problems (50%) and relationship problems with boyfriend/girlfriend (48%) In addition, students in the survey were asked if they had ever thought about committing suicide since coming to college. Nine percent responded that they had. When asked if they had ever attempted suicide while at college, approximately 1% stated that they had attempted suicide. Hopelessness

was the most frequent contributing factor to suicidal ideation or behavior by students who identified themselves as having suicidal thoughts (49%) followed by loneliness (47%) and helplessness (37%)

❖ Reifman, A., & Windle, M. (1995) studied adolescent suicidal behaviors as a function of depression, hopelessness, alcohol Abuse, and social support. Findings indicated that alcohol use was a strong predictor of later suicidal ideation and behavior.

❖ Cornelius, J.R., et al., (1996) investigated Patterns of Suicidality and Alcohol Use in Alcoholics with Major Depression. Findings revealed that there was a significant association between suicidability and diagnosis of major depression and alcoholism. Those with major depression and alcoholism display a high level of suiciality.

❖ Ehrenberg, Cox, and Koopman (1990) reported that self efficacy correlated the strongest with depression.

❖ Patterson, G., R., & Stoolmiller, M., (1991) Examined depressed mood in relation to academic and social failures for three samples of boys (n=317) from at-risk families. Findings showed that academic and social failures were two major sources of negative life experiences, which could cause depression.

❖ Andrews, G., et al., ( 2004) Conducted a systematic review of studies published since 1990 about adolescent's depression (symptoms/disorder) prevention, attribution, and risk factors, which focused on prospective rather than retrospective studies. Findings showed that:

a) Negative life events predict the onset of depression.

b) Pessimistic attributional style coupled with negative life events lead to depression.

c) Ruminative response style plus negative life events leads to depressive illness.

d) Self perceived social and academic (in) competence predicts depression.

e) Ehrenberg, Cox, and Koopman's (1990) assessed a relation between coping and depression was certainly a possibility.

## 2.6.1 Summary of studies on causes of depression and mental disorders combined with depression

This section presented studies related to causes of depression, and also some mental disorders combined with depression.

### a) Causes of depression

1) Recent life events, Absence of social support, Pessimistic attributional style coupled with negative life events, Ruminative response style plus negative life events, were related to onset, outcome and to relapse of depression.

2) Self perceived social and academic (in) competence, Dependency, Self-criticism, Inefficacy, and Self-esteem: especially the personal as opposed to the social facet, coping, and self efficacy predicted depression.

3) In one study that was done by Furr, McConnell, Westefeld & Jenkins (2001) the most frequent causes of depression were grade problems, loneliness, money problems, and relationship problems with boyfriend/girlfriend respectively. Hopelessness was the most frequent contributing factor to suicidal ideation or behavior by students who identified themselves as having suicidal thoughts followed by loneliness, and helplessness.

## b) Mental disorders combined with depression

The review of literature demonstrated the connection between alcohol abuse, depression, hopelessness, and suicide. Depression was associated with the frequency of alcohol use for students aged 18-20 and that males used alcohol more frequently than did females. In students aged 16 to 19 years alcohol abuse and substance abuse were associated with MDD. Other findings showed that alcohol use was a strong predictor of later suicidal ideation and behavior. Alcohol abuse was shown to be a major contributor to depression, which, in turn, led to feelings of hopelessness. If left undiagnosed, this led to higher risk of suicidal ideation and suicidal behavior in young adults.

## c) Underachievement

One study linked to depressive disorders or symptoms due to underachievement.

## 2.7 Studies on relationship between academic achievement and the two variables, mental disorders and psychological factors

❖ Bankston & Zhou, (2002); Lockett & Harrell, (2003) Schmidt & Padilla, (2003) studied relationship between self-esteem and academic achievement .All those different studies have reached the conclusion that academic achievement and self-esteem are positively correlated.

❖ Diaz, et al., (2001) studied cognition, anxiety, and prediction of performance in college students. They found a significant relationship between academic achievement and anxiety.

 Anzi, E., Owayed, F., (2005) investigated academic achievement and its relationship with anxiety, self-esteem, optimism, and pessimism in Kuwaiti students. Results indicated that there was a positive correlation between academic achievement and optimism, and a negative correlation between academic achievement and both pessimism and anxiety.

❖ Malik, S., & Rehman, G., (2000) explored the relationship of academic achievement with the optimism/pessimism on College Students' vulnerability to physical and psychological stress. Results indicated that optimistically oriented people are less susceptible to stress or stressors and they are academically high achievers.

❖ Holly, (1987) Compiled a summary of all the studies and indicated that most supported the idea that self-esteem was more likely the result than the cause of academic achievement. However, he acknowledged that a certain level of self-esteem is required in order for a student to achieve

academic success and that self-esteem and achievement go hand in hand. They feed each other.

❖ Brookover (1965) investigated association between Self-Concept of Ability and School Achievement among high school students. Findings showed that there was a significant relationship between self-concept and academic achievement.

❖ Wylie, R.C. (1979) studied influence self –concept on academic achievement. He found that there is considerable empirical evidence that self-concept predicts and influences achievement in school, from the primary grades through undergraduate education.

 Mc Michael, A.J., & Hetzel, B.S, (1975) investigated mental health problems among university students, and their relationship to academic failure and withdrawal. Four factors found to be strongly related to first-year academic failure were mental illness at university a high level of life-stress, poor secondary school academic record, and an extroverted personality. Withdrawal from university during first year was frequently preceded by poor mental health, high life-stress and loneliness. Withdrawal during second year was strongly associated with first-year academic failure and mental illness.

 Wood, P.K, et al. (1997) examined the relation of problematic alcohol use to collegiate academic problems based on a systematic assessment of problematic alcohol use and college transcript data. Results revealed that problematic alcohol use during the freshman year correlated +.32 with collegiate academic problems.

❖ In a study, Barriga, A. Q. and her colleagues studied the relationships between 8 teacher-reported problem behavior syndromes

(withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, aggressive behavior) and standardized measures of academic achievement (overall, reading, spelling, arithmetic, performance. They found that aggressive and delinquent behaviors, withdrawal and somatic complaints were associated with academic underachievement.

### 2.7.1 Summary of studies on relationship between academic achievement and the two variables, mental disorders and psychological factors

This section presents studies related to association between academic achievement and some mental disorders or psychological factors.

#### a) Academic achievement and mental disorders

All research on academic achievement and mental disorders had shown that mental disorders had a negative influence on academic achievement in college students. Mental disorders which were related to underachievement were anxiety in all students, a high level of life-stress, an extroverted personality, and withdrawal during second year, problematic alcohol use during the freshman year and aggressive, delinquent behaviors, withdrawal and somatic complaints in late adolescents.

#### b) Academic achievement and psychological factors

Review of studies about association between academic achievement and psychological factors indicated that some psychological factors were related to underachievement.

A summary of all the studies in relation to role of self-esteem in academic achievement indicated that most supported the idea that self-esteem was more likely the result than the cause of academic achievement. However, a certain level of self-esteem was required for a student to achieve academic success and that self-esteem and achievement went hand in hand. They fed each other.

Some studies pointed to a considerable empirical evidence that self-concept predicted and influenced achievement in school, from the primary grades through undergraduate education. Personality factors were other psychological variables related to underachievement. In this regard, some studies showed that optimistically oriented people are less susceptible to stress or stressors and they were academically high achievers. These studies proved that there was a positive correlation between academic achievement and optimism, and a negative correlation between academic achievement and pessimism anxiety and stress in college students.

## 2.8 Studies on Parents' education and depression

❖ Goosby, B. (2002) investigated the Effects of Poverty Experiences on the Psychological Well-Being of Young Adolescents among 2855 subjects. Results showed that mothers having more education tend to have children with higher levels of self-worth, which prevent of depression among children.

❖ Inandia, T., et al. (2002) evaluated women from eastern Turkey in the postnatal one-year period in order to analyze the risk factors for depression. The subjects included 2514 women. Results showed that the

percentage of women with high depression scores was 27.2%. Excess risk of depression was associated with several factors including unemployment, low education, poverty, poor family relations, low marital age, lack of medical services, and mental health problems.

❖ Beardslee, W.R., Versage, E.M., Gladstone, T.R.G. (1998 ) and Essex, M., Klein, M., Miech, R., Smider, N. (2001) found that Children with a depressed parent are four times more likely to develop an affective disorder; they have a 40% chance of experiencing depression by age 20 years, and a 60% chance by age 25 years. Maternal depression is associated with depression in young people after controlling for other factors, including socioeconomic status.

❖ Data bank (2004) investigated parental symptoms of depression among parents with different levels of education. It reported that 2 percent of parents with a bachelor's degree or higher exhibited symptoms of depression, compared with 8 percent of those lacking a high school diploma.

❖ Goodman, S.H., and Ian Gotlib (1999) studied risk for psychopathology in the children of depressed mothers .They found that having a father who is also depressed predicts to worse outcomes for children and adolescents in addition to the effect of maternal depression.

❖ Licitra-Kleckler, D. M., Waas, G. A., (19 93) studied the moderating effects of perceived family and peer social support among a group of adolescents experiencing elevated levels of stress. Subjects were 505 students from the 11th and 12th grade. Findings indicated that adolescents with high perceived family support reported fewer depression and delinquency outcomes.

❖ Wodka , E.L. , and Barakat, L. P. , (2007) examined the role of family support and coping in the adjustment of adolescents with chronic illness (CI) transitioning into college. Subjects were 101 college freshmen and sophomores. Results showed that family support was negatively associated with depression and passive coping was positively associated with depression.

❖ Connell, Spencer, and Aber (1994) reported that family support and involvement were highly significant predictors of school-related outcomes among African-American students.

## 2.8.1 Summary of Studies on Parents' education and depression

A brief review of studies regarding parents' education and its relation with depression and academic achievement in child showed that parental especially maternal schooling was a very strong and consistent predictor of reduced children depression, in turn caused increase academic achievement among them. In this regard some studies showed that mothers having more education had children with higher levels of self-worth, which prevent of depression among children. Other studies pointed to low education as risk of depression among mothers. The negative influence of parents depression in child was noted by some studies, in which, children with a depressed parent were four times more likely to develop an affective disorder; they had a 40% chance of experiencing depression by age 20 years, and a 60% chance by age 25 years. Maternal depression was associated with depression in young people after controlling for other factors, including socioeconomic status. Furthermore, other studies showed that having a father who was also

depressed predicted to worse outcomes for children and adolescents in addition to the effect of maternal depression.

In some studies there were some factors in relation to parents that had caused reduction of depression, or increase in academic performance in children. In this regard adolescents with high perceived family support reported fewer depression and delinquency outcomes. In addition, family support was negatively associated with depression among college freshmen and sophomores.

The influence of Family support and parental involvement on academic achievement was also other finding, which was derived from review of literature of present study. In relation to this finding it was concluded that family support and parental involvement were highly significant predictors of school-related outcomes among students.

## 2.9 The similarities and differences of present study with previous studies

There were a few studies related to our investigation in the review of literature. Researcher could not access a considerable amount of resources for her research; especially she did not find related studies in India. However a few studies confirmed present study's findings**.** A brief comparison of previous studies' results with our study, and also an analysis about those results presented below:

### 2.9.1 The similarities of previous studies with present study

a) In both of our study and previous studies were found relationship between depression and academic achievement among college students.

b) The variables of sex and age in relation to depression were two variables that investigated by our study and some researches in college students.

c) Gender difference in depression was found in our study and some other studies among students.

d) The variable of age in college age was not a significant variable in relation to depression in our study and some other studies.

e) The high prevalence of depression and its increasing among college students was other similarity of some studies with our study.

f) In some studies GPA (Grade Point Average) was indicator for academic achievement, similar to our study.

g) Some previous studies stressed the importance of the role of social and educational planning in reduction of depression among college students, similar our study.

h) Some previous studies have emphasized on the importance of protection of mental health among youth, similar our study.

## 2.9.2 Differences of previous studies with our study

**a)** There were some different aspects of academic achievement in previous studies that differed from the concept of academic achievement in our study. In our study academic achievement was related to the percentage of marks in first semester's examinations which was classified in to three categories as second class, first class and distinction students. While, other studies have considered academic achievement as academic performance, academic impairment which manifested as missed time from class and failure to academic productivity, the performance of academic tasks, exam performance, academic problems, success in several academic subjects, negative school related events such as suspension and failure of classes and standardized measures of academic achievement (overall, reading, spelling, arithmetic, performance)

However the concept of academic achievement in previous studies were different from present study, but all of them showed a negative relationship with depression. These findings in relation to different aspects of academic achievement not only confirmed our results but also they have given sufficient foundation to our present study.

**b)** Our study was done in an eastern country, while approximately all other studies were done in western countries.

**c)** In our study the variables of sex, age, marital status and parents' education in relation to association between depression and academic achievement have investigated.

**d)** Our study not only dealt with the relationship between depression and academic achievement, but also it had an estimation of prevalence of depression according to variables of sex, age, marital status and parents' education, among college students.

**e)** Our study not only studied depression among college students but also dealt with levels of depression among them.

**f)** Regarding to marital status, in present study depression was examined only in single students, but in some previous studies depression was examined in both groups of single and married people.

**g)** Our study examined the negative influence of depression on academic achievement, while some researches have studied the reciprocal interaction of depression and academic achievement; also one study examined the influence of under achievement on depression.

**h)** This study specially throws light on the role of parents in diminishing the pressure of depression in their children.

## 2.10 How previous studies help our study

**a)** The findings of Previous studies about the high prevalence of depression and its increase among college students around the world, helped present study to highlight its conclusion about the point that in spite of cultural difference between western and eastern societies, college students suffer from same difficulties in terms of physiological problems, environmental problems and psychological problems.

**b)** By accessing to different results of previous studies about gender difference in depression and comparison of those findings, present study could conclude that gender difference in depression among university students was related to environmental factors such as kinds of colleges, countries, and cultures.

**c)** The results of previous study in relation to association of depression with other mental disorders and also with other psychological factors emphasized on critical role of depression on students' quality of life.

Present study used all those results for confirmation of its objectives and making a strong foundation for its theoretical frame.

**d)** The association of academic achievement with other mental disorders and also with other psychological factors mentioned in review of literature helped our study to highlight of the main objective of this study that was to pay attention the mental disorders as one of the most important barriers to academic achievement.

**e)** The directional and in-directional findings of previous studies about association between depression in children and education in parents, especially in mothers, helped our study in clarifying the effectiveness of variable of parents' education in depression among students.

**f)** The directional and in-directional results of previous studies about association between depression and academic achievement in children according to parents' education helped present study to describe the role of parents' support on mental health and academic achievement in children.

# Chapter III

## Methodology

# Chapter III

# Methodology

## 3.1 Introduction

This chapter is a description of the methods used in collecting data for a study that aimed establishing whether significant relationship existed between depression and academic achievement in graduate and post-graduate students, in Pune city. The chapter is organized on the basis of the following sub-headings:

- Method of the study
- Sample and sampling techniques
- Variables and tools for data collection
- Data collection procedures
- Data analysis techniques

## 3.2 Method of the study

### 3.2.1 Research Design

On the basis of the nature of research problem this study is a correlational study. Study tended to find out relationship between depression and academic achievement among Arts College students". Since the major purpose of study is the examination of relationship

between variables, the researcher had a sufficient justification to have a correlational method of her investigation. Radha, M. (2003) defined correlational studies "Correlational studies are concerned with determining the extent of relationship existing between variables. They enable one to measure the extent to which variation in one variable is associated with another. The magnitude of the relationship is determined through the use of the coefficient of correlation….The idea of such studies is exploration rather than theory testing."

The correlational study is one of the subcategories of descriptive research. Best (1977) defined descriptive research as " it describes and interprets what is concerned with conditions or relationships that exist; practices that prevail; beliefs, points of view, or attitudes that are held; process that are going on; effects that are being felt; or trend that are developing".

It is in the light of above definition present study established that academic achievement in BA and MA students was affected by their depression.

## 3.3 Sample and sampling technique

### 3.3.1 Target population

In present study, the target population constituted of all students who were in Arts field having medium of expression as English of the University of Pune, and its various affiliated colleges in Pune city during the academic year 2005-2006. The population size was near about 4000 students.

### 3.3.2 Sample size

The Sample size of this study was 1000 students consisting of 500 graduate students and 500 postgraduate students. Krejcie, R. V., Morgan, D.W. (1970) gave a population sample-size guideline based on its calculated representation of its population. They suggested that size of sample for population of 4000 -5000 should be 351 – 357**.** To minimize chances of a sampling error, researcher decided to increase sample size to 1000.

### 3.3.3 Sample

The sample used in this study consisted of 500 second and third -year Arts graduate students from Fergusson college, Wadia college, S.P college, Modern college, Symbiosis college and Poona College in Pune city, and also 500 first and second -year Arts post graduate students from the University of Pune, Fergusson college, Wadia college, S.P college, and Poona College. Graduate participants were 250 (50 percent) males and 250 (50 percent) females, and post graduate participants were 250 (50 percent) males and 250 (50 percent) females too.

### 3.3.4 Sampling procedure

The population of present study was all Arts students in English medium who were studying in University of Pune and its affiliated colleges in Pune city. Since no adequate list of all these students were available, researcher decided to choose cluster sampling. The main objective of cluster sampling is to reduce costs by increasing sampling efficiency. This contrasts with stratified sampling where the main objective is to increase precision In this regard, the total population was divided into some clusters and a sample of the groups was selected randomly. Then

the required information was collected from each selected group. The Cluster sample is a variation of the simple random sample that is particularly appropriate when the population of interest is infinite, when a list of the members of the population dose not exist, or when the geographic distribution of the individuals is widely scattered (best and khan, 2005) Regarding administration of sampling method, at first researcher prepared a list of colleges affiliated to university of Pune, which had arts fields and whose medium of instruction was English language. Then she chose randomly 6 clusters out of all colleges from the list of colleges for sampling of BA students. The clusters were Fergusson College, Wadia College, S.P College, Modern College, Symbiosis College and Poona College from those Colleges. In the next stage researcher chose randomly some subjects (clusters) of arts faculty in each college, from only the English medium. In the next stage, the researcher identified the relevant classes and contacted with heads of departments and teachers for permission and assistance in administering the research questionnaire. Finally, the research questionnaires were distributed randomly among second and third year BA students in each class exactly after vacation of first semester, because it was assumed that students would be free of stress and anxiety which was due to examination. Naturally there was less possibility of depression due to academic pressures.

The same procedure was repeated for sampling of first and second year postgraduate students in University of Pune, Fergusson College, Wadia College, S.P College, and Poona College. In a nutshell, cluster sampling was used for choice of colleges and fields of study while random sampling was used for respondents from English medium Arts fields. All participants who contributed to sampling were approximately 30% of total population. Total sample size of present study was 1000

College students, and for minimizing chance of sampling error, the researcher used a large sample size.

### 3.3.4.1 Reason for selection Arts English medium

**a)** There are three faculties in Indian colleges at educational system, Arts, Science, and Commerce. Present study chose Arts faculty among other faculties for its investigation.

**b)** Since the questionnaire used for present study was in English, English medium College students were chosen, because of the need for enhancing the perception of required questions by responders.

**c)** Since researcher was foreigner and she understood English for communication with responses, she had to choose English medium college students as subjects.

### 3.3.4.2 Reason for selection of BA second and third year students

To take in to consideration the fact that transition from schools life to College life is very difficult, and lot of adjustments and changes take place in students' life, which may cause depression, researcher had purposely chosen students from second and third year in BA students, for getting good and reliable result of present investigation, as they were well adjusted to stress of transition of separation from family protection and adjustment with new College surroundings.

## 3.4 Variables and tools

### 3.4.1 Variables

In this study, the following were taken as the independent variables, levels of depression i.e. (a) low level of depression (LLD), (b) middle level of depression (MLD), and (c) high level of depression (HLD)

Furthermore, three categories of academic achievement were treated as dependent variable, i.e. (a) second class students, (b) first class students, and (c) distinction students.

There were the demographical variables as sex (male – female), age (18-22 - 23 and above), marital status (single – married), fathers' and mothers' education (illiterate- high school education- graduate- post-graduate)

The study was conducted among bachelor and master of Arts College students to obtain the statistical data for proving the hypothesises in relation to prevalence of depression and its three levels among college students, and relationship between depression and academic achievement among them, relation to demographical variables.

### 3.4.2 Tools

For collecting data, the researcher has used a standardized test called Beck Depression Inventory (original BDI, Beck et al., 1961) for diagnosis of depression and its levels. There were some demographic questions for assessing students' demographic information, above the first page of the questionnaire. Those demographic questions were related to sex, age, marital statues, and average of marks of examinations in first semester, fathers' education and mothers' education.

**a) Beck Depression Inventory (original BDI)**

A.T. Beck (1961) developed the BDI. BDI has been used over 40 years to identify and assess depressive symptoms, and has been reported to be highly reliable regardless of the population. It is able to differentiate depressed from non-depressed patients. In addition, BDI is able to assess the severity of depression, and it can diagnose mild, moderate and high levels of depression in depressed people. Vedamurthachar, N., et al., (2006) and Pilkingtonab, K (2005) used BDI for their studies in India.

Original BDI is a self-administered scale, and it takes approximately 15 minutes to complete, although clients require a fifth – sixth grade reading age to adequately understand the questions. The BDT consisted of twenty-one questions about how the subject has been feeling in the last week. Each question has a set of at least four possible answer choices, ranging in intensity. These 21-item scale including mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-dislike, self-accusation, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work difficulty, insomnia, fatigability, loss of appetite, weight loss, somatic preoccupation, and loss of libido.

It should be mentioned that instrument was used in study (BDI) is a self-reported instrument, and the researcher had no interference in self-observations.

**b) Validity**

The average correlation of the BDI total scores with clinical ratings of depression was > .90 for both psychiatric patients and normal adults. The BDI discriminates among subtypes of mood disorders, such as dysthymia and major depression, and symptoms, such as sadness and loss

of libido. The BDI also differentiates psychiatric outpatients who are diagnosed with major depression and generalized anxiety disorders.

**c) Reliability**

Internal consistency for the BDI ranges from .73 to .92 with a mean of .86 (Beck, Steer, & Garbin, 1988) The BDI demonstrates high internal consistency, with alpha coefficients of .86 and .81 for psychiatric and non-psychiatric populations, respectively (Beck et al., 1988)

**c) Scoring**

When the test is scored, a value of 0 to 3 is assigned for each answer and then the total score is compared to a key to determine the depression's severity. The standard cut-offs are as follows: 0-9 indicates that a person is not depressed, 10-18 indicates mild-moderate depression, 19-29 indicates moderate-severe depression and 30-63 signifies severe depression. Higher total scores indicate more severe depressive symptoms.

**d) Comments**

There are 21 items in the BDI which are seen in the following**;**

| | | | | | |
|---|---|---|---|---|---|
| **1** | Sadness | **8** | Self Accusation | **15** | Retardation |
| **2** | Pessimism | **9** | Suicidal ideation | **16** | Insomnia |
| **3** | Sense of failure | **10** | Episodes of crying | **17** | Fatigability |
| **4** | Dissatisfaction | **11** | Irritability | **18** | Loss of appetite |
| **5** | Guilt | **12** | Social withdrawal | **19** | Loss of Weight |
| **6** | Expectation of punishment | **13** | Indecisiveness | **20** | Somatic preoccupation |
| **7** | Dislike of self | **14** | Change in body image | **21** | Low level of energy |

## 3.5 Data collection procedure

The researcher administered and collected the questionnaires in person. All questionnaires were completed during one month. Data collection took place at classes in different colleges. The researcher presented a brief outline of the purpose of the study to potential participants. Issues of confidentiality, anonymity and consent were highlighted and an invitation to participate was issued to all students present, before data collection. The BDI took approximately 15 to 20 minutes to complete. All completed copies were returned in presence of the researcher during the instrument administration process.

After receiving the completed questionnaires, researcher verified that the participants had responded to demographical information and also all items of BDI. Any questionnaire that was incomplete was discarded and not included in the sample. The usable questionnaires from the list of the completed questionnaires were 1000.

## 3.6 Data analysis techniques

Since the variables of present study were in nominal and ordinal scale, the researcher decided to employing non- parametric statistics for examining the related hypothesises. Radha, M (2003) discriminated between parametric and non-parametric statistics "The terms parametric statistics and non-parametric statistics refers to the two major groupings of statistical procedures. The major distinction between these two groups of procedures lies in the underling assumptions about the data to be analyzed. When the data are interval or ratio-scaled and the samples size is large, parametric statistical procedure are appropriate. These procedures are based on the assumption that the data in the study are drawn from populations with normal (bell-shaped) distributions and/or normal sampling distribution.

When researchers do not make this assumption of normality, it is appropriate to use non-parametric methods. When data are either ordinal or nominal, it is generally inappropriate to make the assumption that the sampling distribution is normal (thus non-parametric statistics are referred to as distribution-free)

To choose an appropriate non-parametric test researcher paid attention to the type of question and the scale of measurement in present study. Since the type of question of the study were concerned with relationship between the categorical variables, and also the scale of measurement were nominal and ordinal , thus researcher chose the chi-square test amongst other non-parametric statistics as an appropriate statistical technique for testing of the hypothesises. Chi square ($X^2$) statistics was used for investigating whether distributions of categorical variables differ from one another. For a contingency table that has r rows and c columns, the chi square test can be thought of as a test of independence.

In addition, to estimate the strength of an association between variables, there was need for using the correlation coefficient. The measures of correlation coefficient tend to be close to zero when there is no association and close to the maximum (or minimum) value when there is perfect association.

In choosing measure of association for use in analyzing a contingency table created by chi-square test, we have to consider the study design (which indicates whether variables are directional or symmetric i.e. whether there are dependent and independent variable) the measurement scale of the variables (nominal, ordinal, or interval) the type of association that each measure is designed to detect, and any

assumptions required for valid interpretation of a measure. We have to take care about selecting measures that are appropriate for data. In this regard present study chose "phi" and "somers'd" correlation coefficients for measuring association between variables. Both "phi" and "somers'd" correlation coefficient describe the association between the two variables of the contingency tables, and both are considered whether the variable Y tends to increase as X increases. Phi correlation coefficient is an appropriate measure of association in a nominal scale for symmetric variables. It is used for tables with a dimension of 2.2, and also somers'd correlation coefficients is an appropriate measure of association in an ordinal scale. It is used when there is dependent and independent variables and for tables with a dimension bigger than 2.2. SPSS software was used for data analyzing in this study.

## 3.7 Justification of statistical recoding

Researcher saw that there were some cells in some contingency tables whose count was less than 5. In chi-square tests tables when some cells have expected count less than 5, significance of test decreases, so for prevention of wrong conclusions, the categories must be combined for enhancing the expected frequency. In this regard researcher had to recode the variable of academic achievement in tables 4.3 (for BA male and female, and also for MA female sub-tables), 4.9 and 4.11 (for all BA and MA sub-tables) She mixed two categories of first class and distinction students in above tables and created a new category as high grade students for percentage of marks in first semester examinations (PMFSE) for them i.e. (60 to 100) Thus, making such cells' count to be more than 5.

# Chapter IV

## Data Analysis

# Chapter IV

## Data Analysis

## 4.1 Introduction

This chapter is a presentation of analyzed data from a study that sought to find out the relationship between depression and academic achievement among graduate and postgraduate students. The study was conducted in university of Pune and its affiliated colleges in Pune city. The following sections provide an analysis of the work in form of tables as well as descriptions of the major findings of the study.

In all tables of this chapter, the terms Bachelor's degree of Arts students have been abbreviated as BA; Master‟s degree of Arts students has been abbreviated as MA. In addition, the terms Low Level of Depression have been abbreviated as LLD, Middle Level of Depression has been abbreviated as MLD, and High Level of Depression has been abbreviated as HLD, Illiterate, High school education, Graduate and Postgraduate Fathers have been abbreviated as (IF) (HF) (GF) and (PGF) respectively, and Illiterate, High school education, Graduate and Postgraduate Mothers have been abbreviated as (IM) (HM) (GM) and (PGM) respectively. Furthermore, the term percentage of marks in last semester examinations has been abbreviated as (PMFSE)

# 4.2 Tables of hypothesis one

Tables 4.1.1, 4.1.1.1., 4.1.2 and 4.1.2.1 deal with the first hypothesis of this study which is "Whenever depression increases academic achievement decreases, in students".

Table 4.1.1 presents the percentage of depressed students in BA and MA in relation to academic achievement.

**Table 4.1.1 - The percentage of depressed students in BA and MA students in relation to academic achievement**

| Percentage of marks in last semester examinations | Graduate Students | | | Postgraduate Students | | |
|---|---|---|---|---|---|---|
| | Non depressed Students | Depressed Students | Total | Non-depressed Students | Depressed Students | Total |
| **Second class students** | 100 (42.7%) | 156 (58.6%) | **256 (51.2%)** | 60 (25.9%) | 94 (35.1%) | **154 (30.8%)** |
| **First class students** | 111 (47.4%) | 102 (38.3%) | **213 (42.6%)** | 136 (58.6%) | 165 (61.6%) | **301 (60.2%)** |
| **Distinction students** | 23 (9.8%) | 8 (3.0%) | **31 (6.2%)** | 36 (15.5%) | 9 (3.4%) | **45 (9.0%)** |
| **Total** | **234 (100%)** | **266 (100%)** | **500 (100%)** | **232 (100%)** | **268 (100%)** | **500 (100%)** |
| **Chi-square Test value** | **$X^2$ =17.914, df=2, p=0.000** | | | **$X^2$ =24.033, df=2, p=0.000** | | |

**Table 4.1.1.1 – The measure of correlation coefficient for relationship between depression and academic achievement among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | - .287 | .000 | - .265 | .000 |

**BA students-** As it is seen in table 4.1.1, Amongst BA students (N= 500) there are 266 depressed students and 234 non-depressed students. There are 51.2% second class students, 42.6% first class students, and 6.2% distinction students in total sample. (We have divided by total sample according to their percentage of marks in first semester examinations. In all tables the academic caliber is shown as second class, first class and distinction students)

According to table 4.1.1, in total sample of BA students, the highest percentage belongs to second class students (51.2) which is 58.6% in depressed students‟ and it is 42.7% in non-depressed students. It means among second class students depressed students are more than non-depressed students.

Moreover, the percentage of first class students out of total sample is (42.6%) which is 38.3% in depressed students and it is 47.4% in non-depressed students. It means among first class students, depressed students are less than non-depressed students.

In addition, in total sample, the lowest percentage belongs to distinction students. As we can see, the percentage of distinction students (6.2%) is 3.0% in depressed students and it is 9.8% in non-depressed students. It means among distinction students, depressed students are less than non-depressed students.

On the other hand, amongst depressed students whenever academic achievement increases, percentage of depression decreases, thus we can see a negative correlation between percentage of depressed students and their academic achievement.

**MA students-** As table 4.1.1 reflected, amongst MA students (N= 500) there are 268 depressed students and 232 non-depressed students. There are 30.8% second class students, 60.2% first class students, and 9.0% distinction students in total sample.

As we can see, in MA students, the highest percentage in total sample belongs to first class students (60.2%) which is 61.6% in depressed students and it is 58.6 % in non-depressed students. It means among first class students, depressed students are more than non-depressed students.

In addition, in total sample, there is a 30.8% second class student which is to 35.3% in depressed students and it is 28.2% in non-depressed students. It means the majority of MA second class students, suffer from depression. Moreover, the lowest percentage belongs to distinction students. As table 4.1.1 presents, the percentage of distinction students out of total sample (9.0%) which is **3.4%** in depressed students and it is 15.5% in non-depressed students. It means the majority of MA distinction students, are non-depressed students.

On the other hand, in MA students, the percentage of depressed first-class students shows an increase, but in MA students whenever academic achievement increases, the percentage of depression decreases among them, thus we can see a negative correlation between percentage of depression in MA students and their academic achievement.

As table 4.1.1 shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students (**$X^2$ =17.914, df =2, p=0.000)** as well as in MA students (**$X^2$ =24.033, df=2, p=0.000)**; On the basis of statistical analysis in BA and MA groups there is a significant negative relationship between percentage of depression and academic achievement in both groups of sample. In this regard, both groups of BA and MA, students with high academic achievement suffer less from depression than students with low academic achievement.

In addition, the measures of "Somers'd correlation" in BA students (-.287, p=.000) and in MA students (-.265, p=.000) confirm above results and show a significant measure of relationship between variables of

depression and academic achievement; however both measures are below expectation but are acceptable.

Table 4.1.2 presents percentage of depressed students in levels of depression in BA and MA students according to academic achievement.

**Table 4.1.2 – percentage of depressed students in levels of depression in BA and MA students in relation to academic achievement**

| | BA Students | | | | MA Students | | | |
|---|---|---|---|---|---|---|---|---|
| DepressionofLevel | Studentsclass sSecond | Studentsclass First | StudentsDistinction | **Total** | Studentsclass Second | Studentsclass First | StudentsDistinction | **Total** |
| **ND** | 100 (42.9%) | 110 (47.2%) | 23 (9.9%) | **233 (100%)** | 60 (25.9%) | 136 (58.6%) | 36 (15.5%) | **232 (100%)** |
| **LLD** | 91 (54.5%) | 71 (42.5%) | 5 (3.0%) | **167 (100%)** | 41 (30.6%) | 88 (65.7%) | 5 (3.7%) | **134 (100%)** |
| **MLD** | 47 (67.1%) | 21 (30.0%) | 2 (2.9%) | **70 (100%)** | 32 (36.0%) | 54 (60.7%) | 3 (3.4%) | **89 (100%)** |
| **HLD** | 18 (60.0%) | 11 (36.7%) | 1 (3.3%) | **30 (100%)** | 21 (46.7%) | 23 (51.1%) | 1 (2.2%) | **45 (100%)** |
| **Total** | **256 (51.2%)** | **213 (42.6%)** | **31 (6.2%)** | **500 (100%)** | **154 (30.8%)** | **301 (60.2%)** | **45 (9.0%)** | **500 (100%)** |
| **Chi-square Test value** | **$X^2$ = 20.916, df = 6 , p= 0.002** | | | | **$X^2$ = 28.180, df = 6 , p=0.000** | | | |

**Table 4.1.2.1 – The measure of correlation coefficient for relationship between levels of depression and academic achievement among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | - .253 | = 0.002 | - .245 | = .000 |

**BA students-** As table 4.1.2 shows, amongst BA students (N= 500) there are 167 students who suffer from LLD, 70 students who suffer from MLD, and 30 students who suffer from HLD. There are 233 non-depressed students among BA students. Furthermore, there are 51.2% second class students, 42.6% first class students, and 6.2% distinction students in total sample.

As table 4.1.2 reflects, there are 67.1% students who suffer from MLD, 60.0% students who suffer from HLD, and 54.5% students who suffer from LLD amongst second class students. As it is seen, percentage of depression at all levels in second class students is more than other students. If we can neglect of LLD as mild form of depression among these students, we should focus on percentage of MLD and HLD as two serious forms of depression among BA second class students.

There are 42.5% students who suffer from LLD, 36.7% students who suffer from MLD, and 30.0% students who suffer from HLD amongst first class students. Percentage of depression in MLD and HLD as two serious forms of depression is considerable among first class students.

There are 3.3% students who suffer from HLD, 3.0% students who suffer from MLD, and 2.9% students who suffer from MLD amongst distinction students. As table 4.1.2 presents, percentage of distinction students at all levels of depression is much less than other groups of students.

**MA students-** As table 4.1.2 shows, among MA students (N= 500) there are 232 non-depressed students, and in depressed students there are 134 students who suffer from LLD, and 89 students who suffer from MLD, and 45 students who suffer from HLD. Furthermore, there are 30.8% second class students, 60.2% first class students, and 9.0% distinction students in total sample.

As table 4.1.2 indicates, there are 46.7% students who suffer from HLD, 36.0% students who suffer from MLD, and 30.6% students who suffer from LLD amongst second class students. As we can see in these students the percentage of depression in HLD is more than other levels and it is critical among them.

There are 65.7% students who suffer from LLD, 60.7% students who suffer from MLD, and 51.1% students who suffer from HLD amongst first class students. As we can see depression at all levels has influenced on first class students more than other students. If we can pass over LLD as mild form of depression among students, we should consider percentage of MLD and HLD as two serious forms of depression among them.

There are 3.7% students who suffer from LLD, 3.4% students who suffer from MLD, and 2.2% students who suffer from HLD amongst distinction students. As Based on table 4.1.2, less than four percent of students who suffer from all levels of depression exist among these students.

It is obviously, percentage of HLD and MLD as two serious form of depression amongst second class and first class students is high, in BA students as well as MA students, and especially in both groups' second class students which is critical.

As table above shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students (**$X^2$ = 20.916, df = 6, p=0.002)** as well as in MA students (**$X^2$ = 28.180, df = 6, p=0.000)** and on the basis of statistical analysis in BA and MA groups, there is a negative significant relationship between levels of depression and percentage of marks in last semester examinations in BA and MA students. From table whenever the percentage of levels of depression increases, academic achievement decreases in BA students as well as MA students.

The measures of "Somers'd correlation" in BA students (-.253, p=0.002) and (- .245, p=.000) in MA students prove above results and show significant measure of relationship between two variables of levels

of depression; however both measures are below expectation but are acceptable.

## 4.3 Tables of hypothesis two

Tables 4.2.1, 4.2.1.1, 4.2.2, and 4.2.2.1 deal with the second hypothesis of this study which is "There is a significant difference in depression between male and female students".

Table 4.2.1 presents the percentage of depressed students in BA and MA in relation to sex

**Table 4.2.1: The percentage of depressed students in BA and MA students in relation to sex**

| | **Graduate Students (BA)** | | | **Post Graduate Students (MA)** | | |
|---|---|---|---|---|---|---|
| | **Male** | **Female** | **Total** | **Male** | **Female** | **Total** |
| **Non-Depressed Students** | 102 (40.8%) | 132 (52.8%) | **234 (46.8%)** | 92 (36.8%) | 140 (56%) | **232 (46.4%)** |
| **Depressed Students** | 148 (59.2%) | 118 (47.2%) | **266 (53.2%)** | 158 (63.2%) | 110 (44%) | **268 (53.6%)** |
| **Total** | **250 (100%)** | **250 (100%)** | **500 (100%)** | **250 (100%)** | **250 (100%)** | **500 (100%)** |
| **Chi-square Test value** | **$X^2$=7.230, df =1 , P=0.007** | | | **$X^2$=18.528, df =1 , P=0.000** | | |

**Table 4.2.1.1 – The measure of correlation coefficient for relationship between depression and sex among BA and MA students**

| | **Graduate Students** | | **Postgraduate Students** | |
|---|---|---|---|---|
| **The Measures of phi** | **Value** | **P value** | **Value** | **P value** |
| | .224 | < 0.01 | .278 | **=.000** |

**BA students-** Amongst BA students (N=500) there are 250 males and 250 females. There are 53.2% depressed students and 46.8% non-

depressed students in total sample. As Table 4.2.1 shows, amongst BA students, the percentage of depressed students is higher than the percentage of non-depressed students. In BA students the percentage of non-depressed students (46.8%) which is 40.8% in male students and it is 52.8% in female students. It means among female students the percentage of non-depressed students is higher than male students. Among male students the percentage of depressed students is 59.2% and among female students it is 47.2%. It means among male students the percentage of depressed students is higher than female students.

**MA students-** There are 250 males and 250 females among MA students. Likewise there are 53.6% depressed students and 46.4% non-depressed students in sample of MA students. As Table 4.2.1 reflects, amongst MA students the percentage of depressed students is higher than the percentage of non-depressed students. In addition, in MA students the percentage of non-depressed students (46.4%) which is 36.8% in male students and it is 56% in female students. It means among female students the percentage of non-depressed students is higher than male students.

Among male students the percentage of depressed students is 63.2% and among female students, it is 44%. It means among male students the percentage of depressed students is higher than female students

The chi-square value at a significant level, is grater than the chi-square value in "Table of Chi-square "in BA students (X2=7.230, df =1 , P=0.007) as well as MA students (X2=18.528, df =1 , P=0.000) (see appendix) On the basis of statistical analysis in BA and MA groups there is a significant relationship between percentage of depression and sex in both groups of sample, and male students suffer more from depression as compared to female students. In addition, the measures of "phi" in BA

and MA samples, (.224, p<0.01) (.278, p=.000) respectively, are significant, and they prove the relationship between variables of depression and sex; however both the measures are below expectation but are acceptable, and MA students' relationship is stronger than BA students.

Table 4.2.2 presents the percentage of depressed students in levels of depression in BA and MA students in relation to sex

**Table 4.2.2– the percentage of depressed students in levels of depression in BA and MA students in relation to sex**

| | BA Students | | | MA Students | | |
|---|---|---|---|---|---|---|
| **Level of Depression** | **Male** | **Female** | **Total** | **Male** | **Female** | **Total** |
| **ND** | 101 (40.4%) | 132 (52.8%) | **233 (46.6%)** | 92 (36.8%) | 140 (56.0%) | **232 (46.4%)** |
| **LLD** | 88 (35.2%) | 79 (31.6%) | **167 (33.4%)** | 63 (25.2%) | 71 (28.4%) | **134 (26.8%)** |
| **MLD** | 40 (16.0%) | 30 (12.0%) | **70 (14.0%)** | 55 (22.0%) | 34 (13.6%) | **89 (17.8%)** |
| **HLD** | 21 (8.4%) | 9 (3.6%) | **30 (6.0%)** | 40 (16.0%) | 5 (2.0%) | **45 (9.0%)** |
| **Total** | **250 (100%)** | **250 (100%)** | **500 (100%)** | **250 (100%)** | **250 (100%)** | **500 (100%)** |
| **Chi-square Test value** | **$X^2$ = 10.838 , df = 3 , p< 0.05** | | | **$X^2$ = 42.586 , df = 3 , p=0.000** | | |

**Table 4.2.2.1 – The measure of correlation coefficient for relationship between levels of depression and sex among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | -.204 | < 0.001 | -.301 | =.000 |

**BA students-** As it is seen in table 4.2.2, Amongst BA students (N= 500) there are 250 male students and 250 female students. Furthermore, the percentage of non-depressed students is 46.6%., and there are 33.4% students who suffer from LLD, 14.0% of students have MLD, and 6.0% students suffer from HLD in total sample. As table 4.2.2

shows, BA male students as compared with BA female students have the highest percentage in LLD, MLD, and HLD, while the highest percentage in non-depressed students belongs to females. It means BA male students suffer more from depression at all levels than BA female students.

**MA students-** As table 4.2.2 implies, amongst MA students (N= 500) there are 250 male students and 250 female students. Moreover, there are 26.8% students who suffer from LLD, 17.8 of students have MLD, and 9.0% students suffer from HLD in total sample. The percentage of non-depressed students is 46.4%.. As it is seen in table 4.2.2, MA male students as compared with MA female students have the highest percentage in, MLD, and HLD, while the highest percentage in LLD belongs to females, and also they have majority of non-depressed students. It means percentage of MLD and HLD, in MA male students is more than MA female students (especially males suffer from HLD eight times as much as females) In addition, majority of MA non-depressed students are females.

As table 4.2.2 implies, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students ($\mathbf{X^2 = 10.838, df = 3, p< 0.05)}$ as well as in MA students ($\mathbf{X^2 = 42.586, df = 3, p=0.000)}$ On the basis of statistical analysis in both groups of BA and MA, there is significant relationship between levels of depression and sex, and male students have more depression at all levels as compare with female students. That finding shows itself very clearly in two serious levels of depression, MLD and HLD, especially in HLD. In HLD, BA males suffer from depression twice as compared to BA females. Moreover, in MA students; males suffer from HLD eight times more than females.

The measure of "Somers'd correlation" in BA students (-.204, p<0.001) and (-.301, p=.000) in MA students, substantiate above results

at a significance level, and show a significant measure of relationship between two variables of levels of depression and sex. The measure of relationship in BA students is below expectation, and in MA students it is approximately in a moderate range.

## 4.4 Tables of hypothesis three

Tables 4.3 and 4.3.1 deal with the third hypothesis of this study which is "In both male and female students a significant relationship exists between levels of depression and academic achievement".

### 4.4.1 Recoding of data for table 4.3

The tabulation of data indicated that in BA male students, 4 cells (33.3% of total cells) had expected count less than 5. The minimum expected count was .50. Similarly in BA female students 4 cells (33.3% of total cells) had less than the expected count of 5. The minimum expected count was .90. In addition in MA female students 4 cells (33.3% of total cells) had less than the expected count of 5. The minimum expected count was .60. As such, in both genders in BA students, and in MA females, the variable of PMFSE was recoded to make the cell counts high. Two categories of first class and distinction students were merged creating a new category as "**high grade PMFSE**". Thus the empty cells were modified. Table 4.3 shows the new percentages in BA males and females and MA females by recoded variables.

Table 4.3 presents data about relationship between levels of depression and academic achievement in BA and MA students in relation to sex

**Table 4.3 - Relationship between levels of depression and academic achievement in BA and MA students in relation to sex**

| | | | Levels of Depression | | | | | Chi-Square Test value |
|---|---|---|---|---|---|---|---|---|
| | | | ND | LLD | MLD | HLD | Total | |
| | | **Second-class students** | 58 (57.4%) | 54 (61.4%) | 28 (70.0%) | 12 (57.1%) | **152 (60.8%)** | **= 2.033,** |
| | | **High-Grade PMFSE students** | 43 (42.6%) | 34 (38.6%) | 12 (30.0%) | 9 (42.9%) | **98 (39.2%)** | |
| | | **Total** | **101 (100%)** | **88 (100%)** | **40 (100%)** | **21 (100%)** | **250 (100%)** | |
| | | **Second-class students** | 42 (31.8%) | 36 (45.6%) | 19 (63.3%) | 6 (66.7%) | **103 (41.2%)** | **13.895** |
| | | **High-Grade PMFSE students** | 90 (68.2%) | 43 (54.4%) | 11 (36.7%) | 3 (33.3%) | **147 (58.8%)** | |
| | | **Total** | **132 (100%)** | **79 (100%)** | **30 (100%)** | **9 (100%)** | **250 (100%)** | |
| **Students** | **MALE** | **Second classes students** | 31 (33.7%) | 23 (36.5%) | 19 (34.5%) | 17 (42.5%) | **90 (36.0%)** | **=13.598** |
| | | **First classes students** | 49 (53.3%) | 39 (61.9%) | 35 (63.6%) | 22 (55.0%) | **145 (58.0%)** | |
| | | **Distinction students** | 12 (13.0%) | 1 (1.6%) | 1 (1.8%) | 1 (2.5%) | **15 (6.0%)** | |
| | | **Total** | **92 (100%)** | **63 (100%)** | **55 (100%)** | **40 (100%)** | **250 (100%)** | |
| | | **Second-class students** | 29 (20.7%) | 18 (25.4%) | 13 (38.2%) | 4 (80.0%) | **64 (25.6%)** | **12.376** |
| | | **High-Grade PMFSE students** | 111 (79.3%) | 53 (74.6%) | 21 (61.8%) | 1 (20.0%) | **186 (74.4%)** | |
| **MA** | | **Total** | **140 (100%)** | **71 (100%)** | **34 (100%)** | **5 (100%)** | **250 (100%)** | |

**Table 4.3.1 – The measure of correlation coefficient for relationship between levels of depression and academic achievement according to sex among BA and MA students**

| | Graduate Students | | | | Postgraduate Students | | | |
|---|---|---|---|---|---|---|---|---|
| | Male | | Female | | Male | | Female | |
| **The Measures of Somers'd** | **Value** | **valueP** | **Value** | **valueP** | **Value** | **valueP** | **value** | **valuep** |
| | - | - | -.267 | =.000 | -.235 | <0.05 | -.208 | <0.05 |

**BA students**- As table 4.3 shows, amongst BA male students (N= 250) there are 88 students who suffer from LLD, 40 students who suffer from

MLD, and 21 students who suffer from HLD. Moreover, there are 60.8% second class students and 39.2% high-grade students in total sample. In addition, there are 101 non-depressed students in BA male students.

As table 4.3 reflects, out of total sample, there are 70.0% male students who suffer from MLD, 61.4% students who suffer from LLD, and 57.1% students who suffer from HLD amongst second class students. As it is seen, majority of male students who suffer from all three levels of depression, are second class students, and they are more than fifty percent of BA male students. Furthermore, out of total sample, there are 42.9% male students who suffer from HLD, 38.6% students who suffer from LLD, and 30.0% students who suffer from MLD amongst high-grade students. We can see that percentage of depression in three levels among male students with high-grade of PMFSE is much less than male second class students.

As table 4.3 shows, amongst BA female students (N= 250) there are 79 students who suffer from LLD, 30 students who suffer from MLD, and 9 students who suffer from HLD. Furthermore, there are 41.2% second class students and 58.8% high-grade of PMFSE students in total sample. And also there are 132 non-depressed students in BA female students.

As table 4.3 shows, there are 66.7% female students who suffer from HLD, 63.3% students who suffer from MLD and 45.6% students who suffer from LLD amongst second class students. As it is seen, majority of female students who suffer from two serious levels of depression (HLD and MLD) are in second class group, and they are more than fifty percent of BA female students.

In addition, there are 54.4% female students who suffer from LLD, 36.7% students who suffer from MLD, and 33.3% students who suffer from HLD amongst high-grade of PMFSE students. We can see that among female students with high-grade of PMFSE, percentage of

depression in MLD and HLD as two serious levels of depression is much less than female second class students.

As table 4.3 shows, the chi-square value is smaller than the chi-square value in "table of chi-square" (see appendix) in BA male students ($X^2$ = 2.033, df = 3, p>0.05) And on the basis of statistical analysis in these students, there is not a significant relationship between levels of depression and academic achievement in BA male students. In this regard, BA male students who have higher academic achievement show high percentage in high level of depression. On the other hand, as table 4.3 implies, the chi-square value is grater than the chi-square value in "table of chi-square" (see appendix) in BA female students ($X^2$ = 13.895, df = 3, p<0.01) And on the basis of statistical analysis in these students there is a significant relationship between levels of depression and academic achievement. Among BA female students whenever depression in three levels decreases, academic achievement increases in them. In addition, the measure of "Somers'd correlation" in BA female students (-.267, p=.000) confirms above results and shows significant measure of relationship between two variables of levels of depression and academic achievement, however it is not strong.

**MA students**-As table 4.3 shows, amongst MA male students (N= 250) there are 92 non-depressed students, and also 63 students who suffer from LLD, 55 students who suffer from MLD, and 40 students who suffer from HLD. In addition, there are 36.0 % second class, 58.0% first class, and 6.0% distinction male students in total sample.

As table 4.3 shows, there are 42.5% male students who suffer from HLD, 36.5% male students who suffer from LLD, and 34.5% male students who suffer from MLD amongst second class students.

Furthermore, there are 63.6% male students who suffer from MLD, 61.9% male students who suffer from LLD, and 55.0% male students who suffer from HLD amongst first class students. We can see that majority of MA male students who suffer from three levels of depression are first class students.

In addition, there are 2.5% male students who suffer from HLD, 1.8% male students who suffer from MLD, and 1.6% male students who suffer from LLD amongst distinction students. We can see that minority of MA male students who suffer from three levels depression are distinction students.

As table 4.3 shows, amongst MA female students (N= 250) there are 71 students who suffer from LLD, 34 students who suffer from MLD, and 5 students who suffer from HLD. Furthermore, there are 25.6% second class students and 74.4% high-grade of PMFSE students in total sample. And also there are 140 non-depressed students in MA female students.

As table 4.3 shows, there are 80.0% female students who suffer from HLD, 38.2% female students who suffer from MLD and 25.4% female students who suffer from LLD amongst second class students. As it is seen, majority of female students who suffer from the most serious levels of depression (HLD) are in second class group.

In addition, there are 74.6% female students who suffer from LLD, 60.8% female students who suffer from MLD, and 20.0% female students who suffer from HLD amongst high-grade of PMFSE students. We can see that among female students with high-grade of PMFSE, percentage of depression in HLD as the most serious levels of depression is much less than female second class students, and in LLD and MLD they contribute much more than second class students.

As table 4.3 reflects, the chi-square value is grater than the chi-square value in "Table of Chi-square" in MA male students (**$X^2$ = 13.598, df = 6, p<0.05)** and female students (**$X^2$ = 12.376, df = 3, p <0.001)** (see appendix) hence on the basis of statistical analysis, there is a significant relationship between levels of depression and academic achievement according to sex, among MA students. In MA male and female students whenever levels of depression decreases, academic achievement increases among them. In MA students, the measures of Somers'd (-.235, $p < 0.05$) and (-.208, $p<0.05$) in males and females respectively, are significant, and they shows the measure of relationship between two variables of levels of depression and academic achievement, although, both of them are below expectation but acceptable.

# 4.5 Tables of hypothesis four

Tables 4.4.1, 4.4.2 deal with the fourth hypothesis of this study which is "Students with age of 18-22 suffer more from depression than students with age of 23 and above".

Table 4.4.1 presents data about the percentage of depressed students in BA and MA students in relation to age.

**Table 4.4.1 - the percentage of depressed students in BA and MA students in relation to age**

| | **Graduate Students (BA)** | | | **Post Graduate Students (MA)** | | |
|---|---|---|---|---|---|---|
| | **Age** | | **Total** | **Age** | | **Total** |
| | **18 - 22** | **23 & above** | | **18 - 22** | **23 & above** | |
| **Non depressed students** | 226 (%46.5) | 8 (57.1%) | **234 (46.8%)** | 122 (42.8%) | 110 (51.2%) | **232 (46.4%)** |
| **Depressed students** | 260 (53.5%) | 6 (42.9%) | **266 (53.2%)** | 163 (57.2%) | 105 (48.8%) | **268 (53.6%)** |
| **Total** | **486 (100%)** | **14 (100%)** | **500 (100%)** | **285 (100%)** | **215 (100%)** | **500 (100%)** |
| **Chi-square test value** | **$X^2$ = .619 , df = 1 , p > 0.05** | | | **$X^2$ = 3.440 , df = 1 , p > 0.05** | | |

**BA students-** Amongst BA students (N=500) there are 486 students in age group of 18-22 and 14 students in age group of 23 and above. There are 53.2% depressed students and 46.8% non-depressed students in total sample. From table the percentage of depressed students is higher than the percentage of non-depressed students. As table 4.1.1 reflects the count of students with age of 23 and above it is not sufficient to give a reliable percentage, hence we can describe the percentage of depression only in age of 18-22. It is high in that group.

**MA students-** There are 258 students in age group of 18-22 and 215 students in age group of 23 and above among MA students. Likewise there are 53.6% depressed students and 46.4% non-depressed students. Based on table 4.4.1, the highest percentage belongs to depressed students, and it increases to 57.2% in age of 18-22 and it decreases to 48.8%. In addition, in MA students the percentage of non-depressed students (46.4%) decreases to 42.8% in age of 18-22 and it increases to 51.2% in age of 23 and above.

As table 4.4.1 shows the chi-square value is smaller than the chi-square value in "Table of Chi-square" in BA students ($X^2$**= .619, df=1, p > 0.05)** as well as MA students ($X^2$**= 3.440, df = 1, p> 0.05)** (see appendix) hence, there is not a significant relationship between percentage of depression and age in both groups of sample. This finding has obtained because there is only one age group (18-22) in BA students and both age groups of MA students suffer from depression in same measure.

Table 4.4.2 presents data about the percentage of depressed students in three levels of depression among BA and MA students according to age.

**Table 4.4.2 - The percentage of depressed students in three levels of depression among BA and MA students, according to age**

| Depression Level | BA Students | | | MA Students | | |
|---|---|---|---|---|---|---|
| | 18-22 of Group Age | 23& above of Group Age | Total | 18-22 of Group Age | 23& above of Group Age | Total |
| **ND** | 225 (46.3%) | 8 (57.1%) | **233 (46.6%)** | 122 (42.8%) | 110 (51.2%) | **232 (46.4%)** |
| **LLD** | 165 (34.0%) | 2 (14.3%) | **167 (33.4%)** | 78 (27.4%) | 56 (26.0%) | **134 (26.8%)** |
| **MLD** | 67 (13.8%) | 3 (21.4%) | **70 (14.0%)** | 55 (19.3%) | 34 (15.8%) | **89 (17.8%)** |
| **HLD** | 29 (6.0%) | 1 (7.1% ) | **30 (6.0%)** | 30 (10.5%) | 15 (7.0%) | **45 (9.0%)** |
| **Total** | **486 (100%)** | **14 (100%)** | **500 (100%)** | **285 (100%)** | **215 (100%)** | **500 (100%)** |
| **Chi-square Test value** | **$X^2$ = 2.518 , df = 3 , p > 0.05** | | | **$X^2$ = 4.475 , df = 3 , p > 0.05** | | |

**BA students-** As table 4.4.2 implies, amongst BA students (N= 500) there are 486 students in age group of 18-22, and 14 students in age group of 23 and above. Obviously the count of students with age of 23 and above is very small (n=14) to give a reliable percentage of all variables. It means we can not have a comparison between two age groups of BA, and we can say that prevalence of depression in BA students with age of 18-22 is very much at all levels, especially, we must consider MLD and HLD as two serious form of depression among them.

**MA students-** As it is seen in table 4.4.2, amongst MA students (N= 500) there are 285 students 18-22, and 215 students in age group of 23 and above. Moreover, there are 26.8% students who suffer from LLD,

17.8% of students have MLD, and 9.0% students suffer from HLD in total sample. The percentage of non-depressed students is 46.4%.

However in a first looking at table 4.4.2 the percentage of depression at all levels in students with age of 18-22 is more than other age group, but the chi-square test dose not show a significant difference between two age groups of MA students. The chi-square value is smaller than the chi-square value in "Table of Chi-square statistics", (see appendix) in BA students ($\mathbf{X^2 = 2.518, df = 3, p> 0.05)}$ as well as in MA students ($\mathbf{X^2 = 4.475, df = 3, p> 0.05)}$ and on the basis of statistical analysis in BA and MA groups, there is not a significant relationship between levels of depression and age in both groups of sample.

# 4.6 Tables of hypothesis five

Tables 4.5 and 4.5.1 deal with the fifth hypothesis of this study which is "In both age groups of students a significant relationship exists between levels of depression and academic achievement".

Table 4.5 presents data about relationship between levels of depression and academic achievement in BA and MA students in relation to age.

**Table 4.5 - Relationship between levels of depression and academic achievement in BA and MA students in relation to age**

| | | | Levels of Depression | | | | | Chi-square Test value |
|---|---|---|---|---|---|---|---|---|
| | | | ND | LLD | MLD | HLD | Total | |
| BA Students | 18 - 22 | Second Class students | 97 (43.1%) | 89 (53.9%) | 46 (68.7%) | 17 (58.6%) | **249 (51.2%)** | , p< 0.01 |
| | | First Class students | 105 (46.7%) | 71 (43.0%) | 19 (28.4%) | 11 (37.9%) | **206 (42.4%)** | |
| | | Distinction students | 23 (10.2%) | 5 (3.0%) | 2 (3.0%) | 1 (3.4%) | **31 (6.4%)** | |
| | | Total | **225 (100.0%)** | **165 (100.0%)** | **67 (100.0%)** | **29 (100.0%)** | **486 (100%)** | |
| MA Students | 18 - 22 | Second Class students | 18 (14.8%) | 23 (29.5%) | 20 (36.4%) | 16 (53.3%) | **77 (27.0%)** | p= 0.000 |
| | | First Class students | 87 (71.3%) | 52 (66.7%) | 33 (60.0%) | 13 (43.3%) | **185 (64.9%)** | |
| | | Distinction students | 17 (13.9%) | 3 (3.8%) | 2 (3.6%) | 1 (3.3%) | **23 (8.1%)** | |
| | | Total | **122 (100%)** | **78 (100%)** | **55 (100%)** | **30 (100%)** | **285 (100%)** | |
| | 23 & above | Second Class students | 42 (38.2%) | 18 (32.1%) | 12 (35.3%) | 5 (33.3%) | **77 (35.8%)** | 0.05 |
| | | First Class students | 49 (44.5%) | 36 (64.3%) | 21 (61.8%) | 10 (66.7%) | **116 (54.0%)** | |
| | | Distinction students | 19 (17.3%) | 2 (3.6%) | 1 (2.9%) | 0 (.0%) | **22 (10.2%)** | |
| | | Total | **110 (100%)** | **56 (100%)** | **34 (100%)** | **15 (100%)** | **215 (100%)** | |

**Table 4.5.1 – The measure of correlation coefficient for relationship between levels of depression and academic achievement according to age among BA and MA students**

| | Graduate Students | | Postgraduate Students | | | |
|---|---|---|---|---|---|---|
| | Age of 18-22 | | Age of 18-22 | | Age of 23 and above | |
| The Measures of Somers'd | Value | P value | Value | P value | value | p value |
| | -.206 | =0.003 | -.281 | =.000 | -.228 | <0.05 |

**BA students-** As table 4.5 shows, amongst BA students in age of 18-22, (N= 486) there are 156 students who suffer from LLD, 67 students who suffer from MLD, and 29 students who suffer from HLD. Moreover, there are 51.2% second class, 42.4% first class students and 6.4%

distinction students in total sample. And also there are 225 non-depressed students amongst BA students.

As table 4.5 indicates, in that age group, there are 68.7% students who suffer from MLD, 58.6% students who suffer from HLD, and 53.9% students who suffer from LLD amongst second class students. As it is seen, the percentage of all three levels of depression in BA second class students with age of 18-22, is more than other students.

Furthermore, in BA students with age of 18-22 there are 46.0% students who suffer from LLD, 37.9% students who suffer from HLD, and 28.4% students who suffer from MLD amongst first class students. We can see that their percentage in HLD and MLD is high, although it is less than BA second class students in same age.

In addition, there are 3.4% students who suffer from HLD, 3.0% students who suffer from MLD, and 3.0% students who suffer from MLD amongst distinction students. As it is seen, the percentage of all three levels of depression in BA distinction students with age of 18-22, is much less than other students.

**MA students-** As table 4.5 shows, amongst MA students in age of 18-22, (N= 285) 78 students who suffer from LLD, 55 students who suffer from MLD, and 30 students who suffer from HLD. Moreover, there are 14.8% second class, 71.3% first class students and 13.9% distinction students in total sample. There are 122 non-depressed students amongst MA students in this age group.

As table 4.5 shows, in this age group, there are 53.3% students who suffer from HLD, 36.4% students who suffer from MLD, and 29.5% students who suffer from LLD amongst second class students. We can see, in MA students with age of 18-22, the percentage of second class students in HLD is more than other students.

Furthermore, in MA students with age of 18-22 there are 66.7% students who suffer from LLD, 60.0% students who suffer from MLD, and 43.3% students who suffer from HLD amongst first class students. We can see that their percentage in LLD and MLD is higher than other students.

In addition, there are 3.8% students who suffer from LLD, 3.6% students who suffer from MLD, and 3.3% students who suffer from HLD amongst distinction students. As it is seen, in MA age of 18-22, distinctions‟ percentage at all three levels of depression is much less than other students (less than four percent)

As table 4.5 shows, amongst MA students with age of 23 and above (N= 215) there are 56 students who suffer from LLD, 34 students who suffer from MLD, and 15 students who suffer from HLD. Furthermore, there are 35.8% second class students, 54.0% first class students, and 10.2% distinction students in total sample. There are 110 non-depressed students amongst these students.

As table 4.5 reflects, in MA students with age of 23 and above there are 35.3% students who suffer from MLD, 33.3% students who suffer from HLD, and 32.1% students who suffer from LLD amongst second class students. Moreover, in MA students with age of 23 and above, there are 66.7% students who suffer from HLD, 64.3% students who suffer from LLD and 61.8% students who suffer from MLD amongst first class students. We can see majority of MA students with age of 23 and above, who suffer from all levels of depression are in first class students.

As table 4.5 reflects, in MA students with age of 23 and above there are 3.6% students who suffer from LLD, 2.9% students who suffer from MLD amongst distinction students. As it is seen, their count in

HLD is zero, and they have minority of percentage in LLD and MLD among all MA students with age of 23 and above.

As table 4.5 shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students with age of 18-22 ($X^2$ = 21.358, df = 6, p= 0.002) and on the basis of statistical analysis in these students, there is a significant negative relationship between levels of depression and academic achievement in BA students who have 18-22 years old. In these students whenever levels of depression increases, academic achievement decreases among them. The measure of "Somers'd correlation" in BA students in age of 18-22 (-.206, p=.003) confirms above results and shows significant measure of relationship between two variables of levels of depression and academic achievement, although it is below expectation but acceptable.

As table 4.5 shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in MA students with age of 18-22($X^2$ = 28.695, df = 6, p=0.000) and on the basis of statistical analysis in these students, there is a negative significant negative relationship between levels of depression and academic achievement in MA students who have 18-22 years old. In these students whenever levels of depression increases, academic achievement decreases among them. The measure of "Somers'd correlation" in these students (-.281, p=.000) proves above results and shows significant measure of relationship between two variables of levels of depression and academic achievement; it is near to a moderate range.

From table 4.5, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in MA students with age of 23 and above (**$X^2$ =15.216, df = 6, p<0.05)** and on the basis of statistical analysis in these students, there is a negative significant relationship between levels of depression and academic achievement in

MA students with age of 23 and above. In these students whenever levels of depression increases, academic achievement decreases among them. In this regard, the measure of "Somers'd correlation" in these sample (-.225, $p<0.05$) is significant and it confirms the relationship between two variables of levels of depression and academic achievement, it is below expectation but acceptable.

# 4.7 Tables of hypothesis six

Tables 4.6.1 and 4.6.2 deal with the sixth hypothesis of this study which is "Single students suffer more from depression than married students".

Table 4.6.1 presents data about the percentage of depressed students in BA and MA students in relation to marital status.

**Table 4.6.1 – The percentage of depressed students in BA and MA students in relation to marital status**

| | **Graduate Students** | | | **Post Graduate Students** | | |
|---|---|---|---|---|---|---|
| | **Marital Status** | | | **Marital Status** | | |
| | **Single** | **Married** | **Total** | **Single** | **Married** | **Total** |
| **Non depressed students** | 230 (46.7%) | 4 (57.1%) | **234 (46.8%)** | 222 (46.9%) | 10 (37%) | **232 (46.4%)** |
| **Depressed students** | 263 (53.3%) | 3 (42.9%) | **266 (53.2%)** | 251 (53.1%) | 17 (63%) | **268 (53.6%)** |
| **Total** | **493(100%)** | **7(100%)** | **500(100%)** | **473(100%)** | **27(100%)** | **500(100%)** |
| **Chi-square test value** | **$X^2$ = .305, df=1 , p > 0.05** | | | **$X^2$ = 1.006, df = 1 , p > 0.05** | | |

**BA students**- As we have in table 4.6.1, amongst BA students (N=500) there are 493 subjects in single group and 7 subjects in married group. There are 53.2% depressed students and 46.8% non-depressed students in total sample. It is found that the percentage of depressed

students is higher than the percentage of non-depressed students. The count of BA married students is 7 and they do not have an acceptable count for analysis, therefore, we have to describe the percentage of depression only in BA singles. It is high in that group.

**MA students-** There are 473 students in single group and 27 students in married group amongst MA students. Likewise there are 53.6% depressed students and 46.4% non-depressed students. As Table 4.6.1 shows, depressed students have the highest percentage. MA married students' count is 27 and they do not have a reliable count for analysis, hence, we have to describe the percentage of depression only in MA singles. It is high in MA singles.

As table 4.6.1 reflects, the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students ($X^2$ **= .305, df=1, p > 0.05)** as well as MA students ($X^2$**= 1.006, df = 1, p> 0.05)** hence, there is not significant relationship between percentage of depression and marital status in both groups of sample. This finding has obtained because in both BA and MA students we had no married groups and there were only single groups.

Table 4.6.2 presents the percentage of depressed students in levels of depression in BA and MA students according to marital status.

**Table 4.6.2 - percentage of depressed students in levels of depression in BA and MA students in relation to marital status**

| | BA Students | | | MA Students | | |
|---|---|---|---|---|---|---|
| **Level of depression** | **Single students** | **Married students** | **Total** | **Single students** | **Married students** | **Total** |
| **ND** | 229 (46.5%) | 4 (57.1%) | **233 (46.6%)** | 222 (46.9%) | 10 (37.0%) | **232 (46.4%)** |
| **LLD** | 165 (33.5%) | 2 (28.6%) | **167 (33.4%)** | 122 (25.8%) | 12 (44.4%) | **134 (26.8%)** |
| **MLD** | 70 (14.2%) | 0 (0.0%) | **70 (14.0%)** | 85 (18.0%) | 4 (14.8%) | **89 (17.8%)** |
| **HLD** | 29 (5.9%) | 1 (14.3%) | **30 (6.0%)** | 44 (9.3%) | 1 (3.7%) | **45 (9.0%)** |
| **Total** | **493 (100%)** | **7 (100%)** | **500 (100.0%)** | **473 (100%)** | **27 (100%)** | **500 (100.0%)** |
| **Chi-square Test value** | **$X^2$ = 2.025 , df = 3 , p> 0.05** | | | **$X^2$ = 4.887 , df = 3 , p> 0.05** | | |

**BA students-** As table 4.6.2 shows, among BA students (N= 500) there are 493 single students and 7 married students. Furthermore, there are 33.4% students who suffer from LLD, 14.0% of students have MLD, and 6.0% students suffer from HLD in total sample. And also the percentage of non-depressed students is 46.6%.

As it is seen in table 4.6.2, amongst MA students (N= 500) there are 473 single students, and 27 married students. Moreover, there are 26.8% students who suffer from LLD, 17.8 of students have MLD, and 9.0% students suffer from HLD in total sample. The percentage of non-depressed students is 46.4%.

As it is observed, table 4.6.2 shows that in each of BA and MA students we cannot have a comparison between single and married students, because married students had absolute minimum of total sample count [in BA students is 7 and in MA students is 27] and their percentage

in all levels was too low to make conclusive and reliable major findings. In this regard, we can see that, in both groups of BA and MA, percentage of depression at all levels in single students is much (especially in MLD and HLD)

As table above shows, the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students (**$X^2$ = 2.025, df = 3, p> 0.05)** as well as in MA students (**$X^2$ = 4.887, df = 3, p> 0.05)** and on the basis of statistical analysis in BA and MA groups, we can see that none of the BA and MA students show a significant relationship between levels of depression and marital status. We obtained this result because regarding to marital status there were only single groups in both groups of BA and MA students.

# 4.8 Tables of hypothesis seven

Tables 4.7 and 4.7.1 deal with the seventh hypothesis of this study which is "In single students a significant relationship exists between levels of depression and academic achievement".

Table 4.7 presents data about relationship between levels of depression and academic achievement in BA and MA students in relation to being single.

**Table 4.7 - relationship between levels of depression and academic achievement in BA and MA students in relation to being single**

| | | | Levels of Depression | | | | | Chi-square Test value |
|---|---|---|---|---|---|---|---|---|
| | | | ND | LLD | MLD | HLD | Total | |
| BA students | Single students | Second class students | 98 (42.8%) | 90 (54.5%) | 47 (67.1%) | 17 (58.6%) | **252 (51.1%)** | $X_2 = 21.358$, df = 6 , p< 0.01 |
| | | First Class students | 108 (47.2%) | 70 (42.4%) | 21 (30.0%) | 11 (37.9%) | **210 (42.6%)** | |
| | | Distinction students | 23 (10.0%) | 5 (3.0%) | 2 (2.9%) | 1 (3.4%) | **31 (6.3%)** | |
| | | **Total** | **229 (100%)** | **165 (100%)** | **70 (100%)** | **29 (100%)** | **493 (100%)** | |
| MA students | Single students | Second class students | 56 (25.2%) | 38 (31.1%) | 31 (36.5%) | 21 (47.7%) | **146 (30.9%)** | $X_2 = 30.018$, df =6 , p= 0.000 |
| | | First Class students | 134 (60.4%) | 81 (66.4%) | 51 (60.0%) | 23 (52.3%) | **289 (61.1%)** | |
| | | Distinction students | 32 (14.4%) | 3 (2.5%) | 3 (3.5%) | 0 (.0%) | **38 (8.0%)** | |
| | | **Total** | **222 (100%)** | **122 (100%)** | **85 (100%)** | **44 (100%)** | **473 (100%)** | |

**Table 4.7.1 – The measure of correlation coefficient for relationship between levels of depression and academic achievement according to being single among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| | Single | | Single | |
| The Measures of | Value | P value | Value | P value |
| Somers'd | -.206 | =0.000 | -.209 | =0.000 |

**BA students-** As table 4.7 presents, amongst BA single students, (N= 493) there are 165 students who suffer from LLD, 70 students who suffer from MLD, and 29 students who suffer from HLD. In addition, there are 229 non-depressed students. Furthermore, there are 51.1% second class, 42.6% first class students and 6.3% distinction students in total sample.

As table 4.7 shows, in BA singles group, there are 67.1% students who suffer from MLD, 58.6% students who suffer from HLD, and 54.5% students who suffer from LLD amongst second class students. As it is seen, in BA singles, the percentage of second class students, at all three levels of depression is more than fifty percent of total sample. Furthermore, in BA single students; there are 42.4% students who suffer from LLD, 37.9% students who suffer from HLD, and 30.0% students who suffer from MLD amongst first class students. As it is seen, their percentage in HLD and MLD is high; however it is less than BA single second class students.

Moreover, in BA single students there are 3.4% students who suffer from HLD, 3.0% students who suffer from LLD, and 2.9% students who suffer from MLD amongst distinction students. We can see that the percentage of BA single distinctions at all three levels of depression is much less than other students (less than four percent of total sample)

**MA students-** As table 4.7 shows, amongst MA single students, (N= 473) there are 122 students who suffer from LLD, 85 students who suffer from MLD, and 44 students who suffer from HLD. Moreover, there are 30.9% second class, 61.1% first class students and 8.0% distinction students in total sample. In addition, there are 222 non-depressed students.

As table 4.7 reflects, in MA single group, there are 47.7% students who suffer from HLD, 36.5% students who suffer from MLD, and 31.1% students who suffer from LLD amongst second class students

Furthermore, in MA single group there are 66.4% students who suffer from LLD, 60.0% students who suffer from MLD, and 52.3% students who suffer from HLD amongst first class students. It is

remarkable that their percentage at all levels is higher than other students, (more than fifty percent of total sample)

In addition, in MA single group there are 3.5% students who suffer from MLD, 2.5% students who suffer from LLD, and 0.0% students who suffer from HLD amongst distinction students. As it is seen, in MA singles, the percentage of distinction students in MLD and LLD is very much less than other students (less than four percent of total sample) and in HLD is zero.

As table 4.7 shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA single students ($X^2$ = 20.800, df = 6, p=0.002) and on the basis of statistical analysis in these students, there is a significant relationship between levels of depression and academic achievement. In BA single students whenever levels of depression decreases, academic achievement increases among them. The measure of "Somers'd correlation" in BA single students (-.206, p=0.000) confirms above outcome and shows significant measure of relationship between two variables of levels of depression and academic achievement among them, however it is below expectation but acceptable.

Table 4.7 indicates that, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in MA single students (**$X^2$ = 30.825, df = 6, p=0.000)** And on the basis of statistical analysis, there is a significant negative relationship between levels of depression and academic achievement in MA single students. In MA single students, higher level of depression leads to lower academic achievement among them. The measure of "Somers'd correlation" in MA single students (- .209, p=0.000) substantiates the above result about them, and shows significant measure of relationship between two

variables of levels of depression and academic achievement, it is below our expectation but still acceptable.

# 4.9 Tables of hypothesis eight

Tables 4.8.1, 4.8.1.1, 4.8.2, and 4.8.2.1 deal with the eighth hypothesis of this study which is "Whenever education of students' fathers increases, depression decreases, in students".

Table 4.8.1 presents data about the percentage of depressed students in BA and MA students in relation to fathers' education.

**Table 4.8.1- The percentage of depressed students in BA and MA students in relation to fathers' education**

| | Graduate Students | | | | | Post Graduate Students | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Fathers' Education | | | | | Fathers' Education | | | | |
| | Illiterate | schoolHigh | Graduate | Post Graduate | Total | Illiterate | schoolHigh | Graduate | Post Graduate | Total |
| Studentsdepressed\Non | 14 2%).(41 | 62 8%).(37 | 85 8%).(52 | 71 2%).(52 | **232 9).(46** | 15 0%).(25 | 51 4%).(35 | 98 4%).(59 | 66 2%).(53 | **230 7).(46** |
| StudentsDepressed | 20 8%).(58 | 102 2%).(62 | 76 2%).(47 | 65 8%).(47 | **263 1).(53** | 45 0%).(75 | 93 6%).(64 | 67 6%).(40 | 58 8%).(46 | **263 3).(53** |
| **Total** | **34 (100%)** | **164 (100%)** | **161 (100%)** | **136 (100% )** | **495 (100%)** | **60 (100%)** | **144 (100% )** | **165 (100%)** | **124 (100% )** | **493 (100%)** |
| **Chi-square test value** | **$X^2$ = 9.679 , df = 3 , p< 0.05** | | | | | **$X^2$ = 31.523 , df = 3 , p = 0.000** | | | | |

**Table 4.8.1.1 – The measure of the correlation coefficient for relationship between depression and fathers' education among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures** | **Value** | **P value** | **Value** | **P value** |
| **of Somers'd** | - .093 | . < 0.01 | - .202 | .000 |

**BA students-** As it is seen in table 4.8.1, Amongst BA students (N= 495) there are 34 students with illiterate fathers, 164 students who have fathers with high-school education, 161 students with graduate fathers, and finally 136 students with post-graduate fathers. Furthermore, there are 53.1% depressed students, and 46.9 % non-depressed students in total sample.

As table 4.8.1 indicates, in BA students, the highest percentage belongs to depressed students (53.1) which is 62.2 % and 58.8% in students who have high-school educated and illiterate fathers; respectively, and it is 47.2% and 47.8% in students who have graduate and post-graduate fathers; respectively. It means percentage of depression among students who have high-school educated or illiterate fathers is more than students with graduate and post-graduate fathers.

Moreover, the percentage of non-depressed students **(46.9)** is 37.8% and 41.2% in students who have high-school educated and illiterate fathers; respectively, and it is 52.8% and 52.2% in students who have graduate and post-graduate fathers; respectively. It means percentage of depression among students with graduate and post-graduate fathers is less than students who they have high-school educated and illiterate fathers.

**MA students-** As table 4.8.1 perusals, amongst MA students (N= 493) there are 60 students with illiterate fathers, 144 students who have fathers with high-school education, 165 students with graduate fathers,

and lastly 124 students with post-graduate fathers. Furthermore, there are 53.3% depressed students, and 46.7 % non-depressed students in total sample.

Moreover, table 4.8.1 depicts that depressed students have the highest percentage (53.3) which is 75.0 % and 64.6% in students who have illiterate and high-school educated fathers; respectively, and it is 40.6% and 46.8% in students who have graduate and post-graduate fathers; respectively. It means students who have illiterate and high-school educated fathers suffer much more from depression than students with graduate and post-graduate fathers.

Furthermore, the percentage of non-depressed students **(46.7)** is 52.0% and 35.4% in students who have illiterate and high-school educated fathers; respectively, and it is 59.4% and 53.2% in students who have graduate and post-graduate fathers; respectively. It means percentage of depression among students with graduate and post-graduate fathers is much less than students who they have high-school educated and illiterate fathers.

As table 4.8.1 reflects, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students (**$X^2$ = 9.679, df = 3, p< 0.05)** as well as in MA students (**$X^2$ = 31.523, df = 3, p = 0.000)** On the basis of statistical analysis in BA and MA groups there is a significant negative relationship between percentage of depression and fathers‟ education in both groups of sample. In both groups of BA and MA, the higher level of fathers' education leads to lower percentage of depression among students. In BA students Somers'd correlation exists in a significant level (-.093, p<0.01) but it is too weak to be considered hence we can ignore it. The same measure of correlation in MA students is equal to (-.202, p =.000) which is at significant level, however it is below expectation but acceptable.

Table 4.8.2 presents the percentage of depressed students in levels of depression, in BA and MA students according to father‟s education.

**Table 4.8.2 - The percentage of depressed students in levels of depression among BA and MA students according to father's education**

| | BA Students | | | | | MA Students | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fathers' Education** | **DepressedNon** | **ofLevelLow Depression** | **oflevelMiddle depression** | **oflevelHigh Depression** | **Total** | **DepressedNon** | **ofLevelLow Depression** | **oflevelMiddle Depression** | **ofLevelHigh Depression** | **Total** |
| **Illiterate** | 13 2%).(38 | 9 5%).(26 | 6 6%).(17 | 6 6%).(17 | **34 (100%)** | 15 0%).(25 | 17 3%).(28 | 15 0%).(25 | 13 7%).(1 | **60 (100%)** |
| **High School** | 62 8%).(37 | 63 4%).(38 | 26 9%).(15 | 13 9%).(7 | **164 (100%)** | 51 4%).(35 | 37 7%).(25 | 37 7%).(25 | 19 2%).(13 | **144 (100%)** |
| **Graduate** | 85 8%).(52 | 48 8%).(29 | 19 8%).(11 | 9 6%).(5 | **161 (100%)** | 98 4%).(59 | 37 4%).(22 | 19 5%).(11 | 11 7%).(6 | **165 (100%)** |
| **Post Graduate** | 71 2%).(52 | 46 8%).(33 | 17 5%).(12 | 2 5%).(1 | **136 (100%)** | 66 2%).(53 | 41 1%).(33 | 16 9%).(12 | 1 8%).( | **124 (100%)** |
| **Total** | **231 7%).(46** | **166 5%).(33** | **68 7%).(13** | **30 1%).(6** | **495 (100%)** | **230 7%).(46** | **132 8%).(26** | **87 6%).(17** | **44 9%).(8** | **493 (100%)** |
| **Chi-Square Test value** | **$X^2$ = 22.570 ,df= 9 , P=.007** | | | | | **$X^2$ = 56.107 ,df= 9 , P=.000** | | | | |

**Table 4.8.2.1 – The measure of correlation coefficient for relationship between levels of depression and fathers' education among BA and MA students**

| | **Graduate Students** | | **Postgraduate Students** | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | -.130 | <.001 | - .282 | = .000 |

**BA students-** As table 4.8.2 shows, amongst BA students (N= 495) there are 34, 164, 161, and 136 students who have illiterate, high-school educated, graduate, and postgraduate fathers, respectively. In addition, there are 33.5%, 13.7%, and 6.1% students who suffer from LLD, MLD, and HLD respectively in total sample. Furthermore, there are 46.7% non-depressed students, too.

As table 4.8.2 shows, there are 38.4% students with high-school educated fathers, 33.8% students with post-graduate fathers, 29.8% students with graduate fathers, and 26.5% students with illiterate fathers, amongst students who have LLD. As it is seen, percentage of LLD in students with high-school educated fathers is more than other students.

Moreover, there are 17.6% students with illiterate fathers, 15.9% students with high-school educated fathers, 12.5% students with post-graduate fathers, and 11.8% students with graduate fathers, amongst students who have MLD.

Furthermore, there are 17.6% students with illiterate fathers, 7.9% students with high-school educated fathers, 5.6% students with graduate fathers, and 1.5% students with post-graduate fathers, amongst students who have HLD. As table 4.8.2 shows, among students who suffer from HLD, percentage of students who their fathers have lower education is much more than students who their fathers have higher education.

If we can neglect of LLD as mild form of depression among BA students with different groups of fathers‟ education, we should consider to high percentage of MLD and HLD as two serious forms of depression among BA students who have fathers with lower education.

As table 4.8.2 shows, amongst MA students (N= 493) there are 60, 144, 165, and 124 students who have illiterate, high-school educated, graduate, and postgraduate fathers, respectively. In addition, there are 26.8%, 17.6%, and 8.9% students who suffer from LLD, MLD, and HLD

respectively in total sample. Furthermore, there are 46.7% non-depressed students.

As table 4.8.2 reflects, there are 33.1% students with post-graduate fathers, 28.3% students with illiterate fathers, 25.7% students with high-school educated fathers, and 22.4% students who have graduate fathers, amongst students who have LLD. As it is seen, the percentage of LLD in students with post-graduate fathers is more than other students.

In addition, there are 25.7% students with high-school educated fathers, 25.0% students with illiterate fathers, 12.9% students with post-graduate fathers, and 11.5% students with graduate fathers, amongst students who have MLD. As we can see in table 4.8.2, In MLD the percentage of students who have fathers with lower education is more than students with fathers who have higher education.

Furthermore, there are 13.2% students with high-school educated fathers, 6.7% students with graduate fathers, 1.7% students with illiterate fathers and .8% students with post-graduate fathers, amongst students who have HLD. As table 4.8.2 shows, among students who suffer from HLD, percentage of students who have fathers with high-school education is much more than other students.

In spite of percentage of LLD as mild form of depression among MA students with different groups of fathers‟ education, percentage of MLD and HLD as two serious forms of depression among these students is considerable.

It is obviously, percentage of MLD and HLD as two serious form of depression amongst students who have fathers with lower education is more than students who have fathers with higher education, in BA students as well as MA students, however percentage of MA students in those levels is more than BA students, especially in HLD. Suffering from HLD in MA students is critical.

As table 4.8.2 presents, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” in BA students ($X^2$ = 22.570, df = 6, p=0.007) (See appendix) Hence on the basis of statistical analysis there is a significant negative relationship between levels of depression and fathers‟ education in BA students. However in these students the measure of "Somers'd correlation" (-.130, p<0.001) shows a weak correlation between above variables.

From above table, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students (**$X^2$ = 56.107, df = 9, p=0.007**, and on the basis of statistical analysis in these students there is a significant negative relationship between levels of depression and fathers' education among them. Among MA students, lower level of fathers' education leads to higher level of depression in them. In addition, the measure of "Somers'd correlation" in MA students (-.282, p= .000) substantiates above results and shows significant measure of relationship between two variables of depression and fathers' education. And it is near to the moderate range.

# 4.10 Tables of hypothesis nine

Tables 4.9 and 4.9.1 deal with the ninth hypothesis of this study which is "As regards to fathers' education a significant relationship exists between levels of depression and academic achievement in students".

## 4.10.1 Recoding of data for table 4.9

The first computation of data about BA students indicated that in those students with illiterate fathers 6 cells (75.0% of total cells) had expected

count less than 5 while the minimum expected count is 1.59, in students with high school educated fathers, 5 cells (41.7% of total cells) had expected count less than 5 while the minimum expected count is .32 to enable reliable chi-square computations, in students with graduate fathers 6 cells (50% of total cells) had expected count less than 5, while the minimum expected count is 0.45, and in students with post graduate fathers, 4 cells (33.3% of total cells) had expected count less than 5, while the minimum expected count is 0.26 to enable reliable chi-square computations. Hence, the two categories of first class and distinction students were merged creating a new category as high grade PMFSE Thus, the empty cells were modified.

Similarly, the computation of data about MA students indicated that in those students with illiterate fathers 8 cells had (66.7% of total cells) expected count less than 5 while the minimum expected count is .65, in students with high school educated fathers, 4 cells had (33.3% of total cells) expected count less than 5 while the minimum expected count is 1.19 to enable reliable chi-square computations, in students with graduate fathers 4 cells (33.3% of total cells) had expected count less than 5 while the minimum expected count is 1.33, and in students with post graduate fathers, 6cells (50.0% of total cells) had expected count less than 5, while the minimum expected count is .10 to enable reliable chi-square computations. Hence, two categories of first class and distinction students were merged creating a new category as high grade PMFSE. Thus, the empty cells were modified. The findings were as reflected below:

Table 4.9 presents data about relationship between levels of depression and academic achievement in BA and MA students in relation to fathers' education.

**Table 4.6 - Relationship between levels of depression and academic achievement in BA and MA students in relation to fathers' education**

| | | | Levels of Depression | | | | | Chi-square Test |
|---|---|---|---|---|---|---|---|---|
| | | | ND | LLD | MLD | HLD | Total | |
| BA Students | Illiterate | Second class students | 10(76.9%) | 7(77.8%) | 4(66.7%) | 4(66.7%) | **25(73.5%)** | $X^2$ 05.>0p,3=df451,= 0 |
| | | H.G. in PMFSE students | 3(23.1%) | 2(22.2%) | 2(33.3%) | 2(33.3%) | **9(26.5%)** | |
| | | **Total** | **13 (100%)** | **9 (100%)** | **6 (100%)** | **6 (100%)** | **34 (100.0%)** | |
| | High School | Second class students | 34(54.8%) | 40(63.5 %) | 19(73.1%) | 9(69.2%) | **102(62.2 %)** | $X^2$ 05.>0p,3=df055,=3 |
| | | H.G. in PMFSE students | 28(45.2%) | 23(36.5 %) | 7(26.9%) | 4(30.8%) | **62(37.8%)** | |
| | | **Total** | **62 (100%)** | **63 (100%)** | **26 (100%)** | **13 (100%)** | **164 (100%)** | |
| | Graduate | Second class students | 36(42.4%) | 22(45.8 %) | 14(73.7%) | 4(44.4%) | **76(47.2%)** | $X^2$ 05.0>p,3=df212,= 6 |
| | | H.G. in PMFSE students | 49(57.6%) | 26(54.2 %) | 5(26.3%) | 5(55.6%) | **85(52.8%)** | |
| | | **Total** | **85 (100%)** | **48 (100%)** | **19 (100%)** | **9 (100%)** | **161 (100%)** | |
| | PostGraduate | Second class students | 20(28.2%) | 20(43.5 %) | 9(52.9%) | 1(50.0%) | **50(36.8%)** | $X^2$ 05.0>p,3=df212,= 5 |
| | | H.G.PMFSE students | 51(71.8%) | 26(56.5 %) | 8(47.1%) | 1(50.0%) | **86(63.2%)** | |
| | | **Total** | **71 (100%)** | **46 (100%)** | **17 (100%)** | **2 (100%)** | **86 (63.2%)** | |
| MA Students | Illiterate | Second class students | 4 (26.7%) | 4(23.5%) | 4(26.7%) | 3(23.1%) | 15(25.0%) | $X^2$ 05.0>p,3=df090,0 = |
| | | H.G. in PMFSE students | 11(73.3%) | 13(76.5 %) | 11(73.3%) | 10(76.9% ) | 45(75.0%) | |
| | | **Total** | **15 (100%)** | **17 (100%)** | **15 (100%)** | **13 (100%)** | **60 (100.0%)** | |
| | High School | Second class students | 18(35.3%) | 13(35.1 %) | 11(29.7%) | 12(63.2% ) | 54(37.5%) | $X^2$ 05.0>p ,3=df484,=6 |
| | | H.G. in PMFSE students | 33(64.7%) | 24(64.9 %) | 26(70.3%) | 7(36.8%) | 90(62.5%) | |
| | | **Total** | **51 (100%)** | **37 (100%)** | **37 (100%)** | **19 (100%)** | **144 (100%)** | |
| | Graduate | Second class students | 27(27.6%) | 11(29.7 %) | 7(36.8%) | 5(45.5%) | 50(30.3%) | $X^2$ 05.>0p,3.df827,= = |
| | | H.G. in PMFSE students | 71(72.4%) | 26(70.3 %) | 12(63.2%) | 6(54.5%0 ) | 115(69.7% ) | |
| | | **Total** | **98 (100%)** | **37 (100%)** | **19 (100%)** | **11 (100%)** | **165 (100%)** | |
| | Post Graduate | Second class students | 11(16.7%) | 13(31.7 %) | 9(56.0%) | 0(.0%) | 33(26.6%) | $X^2$ 01.0=p,3=df446,=11 |
| | | H.G. in PMFSE students | 55(83.3%) | 28(68.3 %) | 7(43.8%) | 1(100.0% ) | 91(73.4%) | |
| | | **Total** | **66 (100%)** | **41 (100%)** | **16 (100%)** | **1 (100%)** | **124 (100%)** | |

**Note: H.G. = High Grade**

**Table 4.9.1 – The measure of correlation coefficient for relationship between levels of depression and academic achievement according to fathers' education among BA and MA students**

| The measures of Somers'd correlation coefficient | | | |
|---|---|---|---|
| | **Fathers' Edu.** | **Value** | **P value** |
| **Postgraduate Students** | **Postgraduate** | -.290 | =0.003 |

**BA students-** According to table 4.9, the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" ($x^2$= 0.451, df=3, P> 0. 05) (see appendix) in BA students with "IF", and on the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in these students.

Moreover, observation of data in table 4.9 also shows that the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" ($x^2$= 3.055, df=3, P> 0. 05) (see appendix) in BA students with "HF". On the basis of statistical analysis in these students, there is not a significant relationship between levels of depression and academic achievement in BA students who have fathers with high school education.

Furthermore, table 4.9 indicates that the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students with "GF" ($x^2$= 6.212, df=3, P> 0. 05) and on the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in BA students with graduate fathers.

In addition, the observed data in table 4.9 indicates that the chi-square value is smaller than the chi-square value in "Table of Chi-square statistics" ($x^2$= 5.212, df P=3, P> 0. 05) (see appendix) in BA students with "PGF". On the basis of statistical analysis there is not a significant

relationship between levels of depression and academic achievement in BA students with post-graduate fathers.

**MA students-** As the table reflects, in MA students with different levels of fathers‟ education, no significant relationship between levels of depression and academic achievement was found except in students who have post graduate fathers. The Pearson chi-square presents the above result. The findings are summarized as follows:

From table, the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “IF” ($x^2$= 0.090, df =3, P> 0. 05) On the basis of statistical analysis, there is not a significant relationship between levels of depression and academic achievement in MA students who have illiterate fathers.

Moreover, the table also shows that the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “HF” ($x^2$= 6.484, df=3, P> 0. 05) On the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in MA students who have high school education fathers.

In addition, from table, the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “GF” ($x^2$= 1.937, df =3, P> 0. 05) On the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in MA students who have graduate fathers.

As table 4.9 indicates, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “PGF” ($x^2$= 11. 446, df =3, P < 0. 01) On the basis of statistical analysis there is a significant relationship between levels of

depression and academic achievement in MA students who have postgraduate fathers. Among these students, whenever levels of depression decreases, academic achievement increases in them. The measure of "Somers'd correlation" (-.290, p=0.003) substantiates the above results and shows significant measure of relationship between two variables of levels of depression and academic achievement, it is in a moderate range of correlation.

# 4.11 Tables of hypothesis ten

Tables 4.10.1, 4.10.1.1, 4.10.2, and 4.10.2.1 deal with the tenth hypothesis of this study which is "Whenever education of students' mothers increases, depression decreases, in students".

Table 4.10.1 presents data about the percentage of depressed students in BA and MA students in relation to mothers' education.

**Table 4.10.1 - The percentage of depressed students in BA and MA students in relation to mothers' education**

| | **Graduate Students** | | | | | **Post Graduate Students** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Mothers' Education** | | | | | **Mothers' Education** | | | | |
| | **Illiterate** | **SchoolHigh** | **Graduate** | **Post Graduate** | **Total** | **Illiterate** | **SchoolHigh** | **Graduate** | **Post Graduate** | **Total** |
| **Non-depressed Students** | 25 (32.9%) | 92 (43.2%) | 76 (53.5%) | 39 (60%) | **232 (46.8%)** | 30 (27.3%) | 76 (43.1%) | 88 (62.4%) | 36 (58.1%) | **230 (47.0%)** |
| **Depressed Students** | 51 (67.1%) | 121 (56.8%) | 66 (46.5%) | 26 (40%) | **264 (53.2%)** | 80 (72.7%) | 100 (56.9%) | 53 (37.6%) | 26 (41.9%) | **259 (53.0%)** |
| **Total** | **76 (100%)** | **213 (100%)** | **142 (100%)** | **65 (100%)** | **496 (100%)** | **110 (100%)** | **176 (100%)** | **141 (100%)** | **62 (100%)** | **489 (100%)** |
| **Chi-square Test value** | **$X^2$= 14.142 , df = 3 , p= 0.003** | | | | | **$X^2$= 34.703 , df = 3 , p = 0.000** | | | | |

**Table 4.10.1.1 – The measure of correlation coefficient for relationship between depression and mothers' education among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | - .203 | .000 | - .283 | .000 |

**BA students-** As it is seen in table 4.10.1, Amongst BA students (N= 496) there are 76 students with illiterate mothers, 213 students who have mothers with high-school education, 142 students with graduate mothers, and lastly 65 students with post-graduate mothers. In addition, there are 53.2% depressed students, and 46.8 % non-depressed students in total sample.

Based on table 4.10.1, in BA students, the highest percentage belongs to depressed students (53.2) which is 67.1 % and 56.8% in students who have illiterate and high-school educated mothers; respectively, and it is 40% and 46.5% in students who have post-graduate and graduate mothers; respectively. It means among BA students the percentage of depression decreases, whenever their mothers‟ education increases. Thus, we can see a negative correlation between the percentages of BA depressed students and their mothers‟ education.

Moreover, the percentage of non-depressed students **(46.8)** which is 32.9% and 43.2% in students who have illiterate and high-school educated mothers; respectively, and it is 60% and 53.5% in students who have post-graduate and graduate mothers; respectively.

**MA students-** As table 4.10.1 presents, amongst MA students (N= 489) there are 110 students with illiterate mothers, 176 students who have mothers with high-school education, 141 students with graduate mothers, and finally 62 students with post-graduate mothers. Moreover, there are 53% depressed students, and 47% non-depressed students in total sample.

In addition, table 4.10.1 shows that the highest percentage (53%) belongs to depressed students, which is 72.7 % and 56.9% in students who have illiterate and high-school educated mothers; respectively, and it is 37.6% and 41.9% in students who have graduate and post-graduate mothers; respectively. It means students who have illiterate and high-school education mothers suffer much more from depression than students with graduate and post-graduate mothers.

Furthermore, the percentage of non-depressed students **(47%)** which is 27.3% and 43.1% in students who have illiterate and high-school educated mothers; respectively, and it is 62.4% and 58.1% in students who have graduate and post-graduate mothers; respectively.

As table 4.10.1 reflects, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students ($\mathbf{X^2 = 14.142, df = 3, p = 0.003)}$ as well as in MA students ($\mathbf{X^2 = 34.703, df = 3, p = 0.000)}$ On the basis of statistical analysis in BA and MA groups there is a significant negative relationship between percentage of depression and mothers‟ education in both groups of sample. In both groups of BA and MA students the higher levels of education in mothers leads to lower depression among them. The measures of "Somers'd correlation" in BA students (-.203, p=.000) and (-
.283, p=.000) in MA students, confirm above results and show significant measure of relationship between two variables of depression and mothers' education, although it is below our expectation in BA students, but in MA students it is near to the moderate range.

Table 4.10.2 presents data about the percentage of depressed students in levels of depression among BA and MA students in relation to mothers' education.

**Table 4.10.2 - the percentage of depressed students in levels of depression among BA and MA students in relation to mothers' education**

| | BA Students | | | | | MA Students | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mother's Education** | **DepressedNon** | **ofLevelLow Depression** | **ofLevelMiddle depression** | **oflevelHigh Depression** | **Total** | **DepressedNon** | **ofLevelLow Depression** | **oflevelMiddle Depression** | **ofLevelHigh Depression** | **Total** |
| **Illiterate** | 24 6%).(31 | 30 5%).(39 | 13 1%).(17 | 9 %)8.(11 | **76 %)(100** | 30 3%).(27 | 30 3%).(27 | 25 7%).(22 | 25 7%).(22 | **110 (100%)** |
| **High School** | 92 2%).(43 | 72 8%).(33 | 34 0%).(16 | 15 0%).(7 | **213 %)(100** | 76 2%).(43 | 49 8%).(27 | 37 0%).(21 | 14 0%).(8 | **176 (100%)** |
| **Graduate** | 76 5%).(53 | 46 4%).(32 | 14 9%).(9 | 6 2%).(4 | **142 %)(100** | 88 4%).(62 | 33 4%).(23 | 16 3%).(11 | 4 8%).(2 | **141 (100%)** |
| **Post Graduate** | 39 0%).(0 | 18 7%).(27 | 8 3%).(12 | 0 0%).( | **65 %)(100** | 36 1%).(58 | 19 6%).(30 | 7 3%).(11 | 0 0%).( | **62 (100%)** |
| **Total** | **231 6%).(46** | **166 5%).(33** | **69 9%).(13** | **30 0%).(6** | **496 (100%)** | **230 0%).(47** | **131 8%).(26** | **85 4%).(17** | **43 8%).(8** | **489 (100%)** |
| **Chi-Square Test value** | **$X^2$ = 21.978 ,df= 9 , P=.009** | | | | | **$X^2$ = 62.407 ,df= 9 , P=.000** | | | | |

**Table 4.10.2.1 – The measure of correlation coefficient for relationship between levels of depression and mothers' education among BA and MA students**

| | Graduate Students | | Postgraduate Students | |
|---|---|---|---|---|
| **The Measures of Somers'd** | **Value** | **P value** | **Value** | **P value** |
| | -.213 | =.000 | - .302 | =.000 |

**BA students-** Based on table 4.10.2, amongst BA students (N= 496) there are 76, 213, 142, and 65 students who have illiterate, high-school educated, graduate, and postgraduate mothers, respectively. In addition, there are 33.5%, 13.9%, and 6.0% students who suffer from

LLD, MLD, and HLD respectively in total sample. Furthermore, there are 46.6% non-depressed students.

As table 4.10.2 reflects, there are 39.5% students with “IM”, 33.8% students with “HF”, 32.4% students with “GM”, and 27.7% students who have “PGM”, amongst students who have LLD. As it is seen, among these students, the percentage of students with lower education mothers in LLD is more than students with higher education mothers. In fact, in BA students, who suffer from LLD whenever mothers‟ education goes up, percentage of depression declines among them.

Furthermore, there are 17.1% students with “IM”, 16.0% students with “HM”, 9.9% students with “GM”, and 12.3% students with “GM”, amongst students who have MLD. As table 4.10.2 shows, in LLD, the percentage of students who have mothers with lower education is more than students who have mothers with higher education.

As table 4.10.2 shows, there are 11.8% students with “IM”, 7.0% students with “HM”, 4.2% students with “GM”, and 0.0% students who have “PGM”, amongst students who have HLD. As table shows, in HLD, the percentage of students with lower education mothers is more than students with higher education mothers. In fact, in BA students who suffer from HLD, whenever mothers‟ education goes up, percentage of depression declines, as we can see that percentage of students with “PGM” in HLD is zero.

If we can neglect of LLD as mild form of depression among BA students with different groups of mothers‟ education, we should focus to percentage of MLD and HLD as two serious forms of depression among BA students who have mothers with lower education.

**MA students-** As table 4.10.2 shows, amongst MA students (N= 489) there are 110, 176, 141, and 62 students who have illiterate, high-school educated, graduate, and postgraduate mothers, respectively. In

addition, there are 26.8%, 17.4%, and 8.8% students who suffer from LLD, MLD, and HLD respectively in total sample. Furthermore, there are 47.0% non-depressed students.

As table 4.10.2 reflects, there are 27.3% students with "IM", 27.8% students with "HM", 23.4% students with "GM", and 30.6% students who have "PGM", amongst students who have LLD. As it is seen students with post-graduate mothers have the most percentage of LLD as compared with other students.

Based on table 4.10.2, there are 22.7% students with "IM", 21.0% students with "HM", 11.3% students with "GM", and 11.3% students with "PGM" amongst students who have MLD. As we can see in table 4.10.2, in MLD the percentage of students who have mothers with lower education is more than students who have mothers with higher education.

Furthermore, there are 22.7% students with "IM", 8.0% students with "HM", 2.8% students with "GM", and .0% students with "PGM", amongst students who have HLD. As table 4.10.2 shows, among students who suffer from HLD, percentage of students who have mothers with lower education is much more than other students who have mothers with higher education. In addition, students with „IM", show the higher percentage in HLD as compared with students who have "HM".

It is obviously, percentage of MLD and HLD (as two serious form of depression) amongst students who have mothers with lower education, is more than students who have mothers with higher education, in BA students as well as MA students, however percentage of MA students in those levels is more than BA students, especially in HLD. Suffering from HLD in MA students who have mothers with lower education is critical.

As table 4.10.2 shows, the chi-square value is grater than the chi-square value in "Table of Chi-square statistics" (see appendix) in BA students ($\mathbf{X^2 = 21.978, df = 9, p=0.009)}$ as well as MA students ($\mathbf{X^2 =}$

**62.407, df = 9, p=0.000)** and on the basis of statistical analysis in BA and MA students there is a significant negative relationship between levels of depression and mothers‟ education. In both groups of BA and MA students whenever levels of education in their mothers increases, level of depression decreases among them. In addition, the measure of "Somers'd correlation" in BA students (-.213. p=.000) and MA students (- .302, p=.000) confirms above results and shows significant measure of relationship between two variables of levels of depression and academic achievement, however it is below expectation in BA students, but in MA students it is approximately in the moderate range.

# 4.12 Tables of hypothesis eleven

Tables 4.11 and 4.11.1 deal with the eleventh hypothesis of this study which is "As regards to mothers' education a significant relationship exists between levels of depression and academic achievement in students".

## 4.12.1 Recode of related data for table 4.11

The first computation of data about BA students indicated that in those students with illiterate mothers 6 cells had (50.0% of total cells) expected count less than 5 while the minimum expected count is .12, in students with high school educated mothers, 4 cells had (33.3% of total cells) expected count less than 5 while the minimum expected count is .35 to enable reliable chi-square computations, in students with graduate mothers 5 cells (41.7% of total cells) expected count less than 5 while the minimum expected count is .55, and in students with post graduate mothers, 4cells (44.4% of total cells) have expected count less than 5, while the minimum expected count is 1.35 to enable reliable chi-square

computations. Hence, two categories of first class and distinction students were merged creating a new category as high grade PMFSE Thus, the empty cells were modified.

Similarly, the computation of data about MA students indicated that in those students with illiterate mothers 4 cells had (33.3% of total cells) expected count less than 5 while the minimum expected count is .91, in students with high school educated mothers, 4 cells had (33.3% of total cells) expected count less than 5 while the minimum expected count is .95 to enable reliable chi-square computations, in students with graduate mothers 5 cells (41.7% of total cells) expected count less than 5 while the minimum expected count is .54, and in students with post graduate mothers, 5 cells (55.6% of total cells) have expected count less than 5, while the minimum expected count is 1.02 to enable reliable chi-square computations. Hence, two categories of first class and distinction students were merged creating a new category as high grade PMFSE. Thus, the empty cells were modified. The findings were as reflected below:

Table 4.11 presents data about relationship between levels of depression and academic achievement in BA and MA students in relation to mothers' education.

**Table 4.11 - relationship between levels of depression and academic achievement in BA and MA students in relation to mother's education**

| | | | Levels of Depression | | | | | Chi-square Test value |
|---|---|---|---|---|---|---|---|---|
| | | | ND | LLD | MLD | HLD | Total | |
| BAStudents | Illiterate | Second class students | 16 (66.7%) | 19 (63.3%) | 9 (69.2%) | 5 (55.6%) | 49 (64.5%) | $X^2$, df = 3 |
| | | H.G in PMFSE students | 8 (33.3%) | 11 (36.7%) | 4 (30.8%) | 4 (44.4%) | 27 (35.5%) | , p >0.05 |
| | | Total | 24 (100%) | 30 (100%) | 13 (100%) | 9 (100%) | 76 (100%) | |
| | High School | Second class students | 48 (52.2%) | 42 (58.3%) | 27 (79.4%) | 11 (73.3%) | 128 (60.1%) | $X^2$ = 8.887, df = |
| | | High grade of PMFSE students | 44 (47.8%) | 30 (41.7%) | 7 (20.6%) | 4 (26.7%) | 85 (39.9%) | <0.05 |
| | | Total | 92 (100%) | 72 (100%) | 3 (100%) | 15 (100%) | 213 (100%) | |
| | Graduate | Second class students | 29 (38.2%) | 19 (41.3%) | 7 (50.0%) | 2 (33.3%) | 57 (40.1%) | $X^2$, df = 3 |
| | | High grade of PMFSE students | 47 (61.8%) | 27 (58.7%) | 7 (50.0%) | 4 (66.7%) | 85 (59.9%) | , p >0.05 3,p |
| | | Total | 76 (100%) | 46 (100%) | 14 (100%) | 6 (100%) | 142 (100%) | |
| | Graduate | Second class students | 7 (17.9%) | 9 (50.0%) | 4 (50.0%) | 0(0%) | 20 (30.8%) | df = 2 |
| | | High grade of PMFSE students | 32 (82.1%) | 9 (50.0%) | 4 (50.0%) | 0(0%) | 45 (69.2%) | 7.523 |
| | | Total | 39 (100%) | 18 (100%) | 8 (100%) | 0 (100%) | 65 (100%) | |
| MA | Illiterate | Second class students | 9 (30.0%) | 9 (30.0%) | 7 (28.0%) | 9 (36.0%) | 34 30.9% | , |
| | | High grade of PMFSE students | 21 (70.0%) | 21 (70.0%) | 18 (72.0%) | 16 (64.0%) | 76 69.1% | p >0.05 |
| | | Total | 30 (100%) | 30 (100%) | 25 (100%) | 25 (100%) | 110 100.0% | |
| | | Second class students | 21 (27.6%) | 18 (36.7%) | 11 (29.7%) | 9 (64.3%) | 59 33.5% | df |
| | | High grade of PMFSE students | 55 (72.4%) | 31 (63.3%) | 26 (70.3%) | 5 (35.7%) | 117 66.5% | 5, |
| | | Total | 76 (100%) | 49 (100%) | 37 (100%) | 14 (100%) | 176 100.0% | |
| | Graduate | Second class students | 23 (26.1%) | 9 (27.3%) | 11 (68.8%) | 3 (75.0%) | 46 32.6% | f |
| | | High grade of PMFSE students | 65 (73.9%) | 24 (72.7%) | 5 (31.3%) | 1 (25.0%) | 95 67.4% | 3, p < 0.01 |
| | | Total | 88 (100%) | 33 (100%) | 16 (100%) | 4 (100%) | 141 100.0% | |
| | Post Graduation | Second class students | 7 (19.4%) | 5 (26.3%) | 2 (28.6%) | 0 (0%) | 14 22.6% | df = 2 |
| | | High grade of PMFSE students | 29 (80.6%) | 14 (73.7%) | 5 (71.4%) | 0 (0%) | 48 77.4% | 8 |
| | | Total | 36 (100%) | 19 (100%) | 7 (100%) | 0 (100%) | 62 (100%) | p >0.05 |

**Table 4.11.1 – The correlation coefficient in relationship between levels of depression and academic achievement according to mothers' education among BA and MA students**

| The measures of Somers'd correlation coefficient | | | |
|---|---|---|---|
| | **mothers' Edu** | **Value** | **P value** |
| **Graduate Students** | **High school** | -.175 | <0.001 |
| | **Postgraduate** | -.336 | <0.001 |
| **Postgraduate Student** | **Graduate** | -.225 | <0.001 |

As table 4.11 implies, the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in BA students with “IM” (x2= 0.508, df=3, P> 0. 05) and on the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in BA students with illiterate mothers.

As table 4.11 reflects, in BA students with high school educated mothers, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” (x2= 8.887, df=3, P < 0. 05) (see appendix) and on the basis of statistical analysis, there is a significant negative relationship between levels of depression and academic achievement in BA students who have mothers with high school education. Among these students higher level of depression leads to lower academic achievement. On the other hand, the measure of "Somers'd correlation" (-.175, p<0.001) is in a significant level, and it confirms the measure of relationship between two variables, although it is weak.

In addition, the observed data in table 4.11 indicates that the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” ($x^2$= 0.832, df =3, P>0.05) (see appendix) In BA students with

“GM”, and on the basis of statistical analysis, there is not a significant relationship between levels of depression and academic achievement in BA students with graduate mothers.

As table 4.11 shows, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” (see appendix) in BA students with “PGM” ($x^2$= 7.523, df =3, P < 0. 05) and on the basis of statistical analysis, there is a significant negative relationship between levels of depression and academic achievement in BA students who have postgraduate mothers. In these students whenever level of depression decreases, academic achievement increases. The measure of "Somers'd correlation" in these students (-.336, p<0.001) substantiates the above results and shows significant measure of relationship between two variables, and it is in the moderate range.

Based on table, in MA students with different levels of mothers‟ education, there is only a significant relationship between levels of depression and academic achievement in students who had graduate mothers. The Pearson chi-square presents the above results. The findings are summarized as follows:

According to table 4.11, the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “IM” ($x^2$= 0.426, df =3, P> 0. 05) and on the basis of statistical analysis, there is not a significant relationship between levels of depression and academic achievement in MA students who have illiterate mothers.

Moreover, the table also indicates that the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “HM” ($x^2$= 7.595, df =3, P> 0. 05) and on the basis of statistical analysis there is not a significant relationship

between levels of depression and academic achievement in MA students who have high school educated mothers.

Based on table 4.11, in MA students with graduate mothers, the chi-square value is grater than the chi-square value in “Table of Chi-square statistics” ($x^2$= 14. 883, df=3, P < 0. 05) (see appendix) and on the basis of statistical analysis there is a significant negative relationship between levels of depression and academic achievement in MA students who have graduate mothers. Among these students, higher level of depression leads to lower level of academic achievement. On the other hand, the measure of "Somers'd correlation" (-.225, P < 0.01) is significant and it confirms the relationship between two variables, although it is below our expectation, but acceptable.

In addition, above table indicates that the chi-square value is smaller than the chi-square value in “Table of Chi-square statistics” (see appendix) in MA students with “PGM” (x2= .498, df =2, P> 0. 05) And on the basis of statistical analysis there is not a significant relationship between levels of depression and academic achievement in MA students who have post-graduate mothers.

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