

Prevalence and Determinants of Mental Health Issues among the University Students and its Impact on their Academic Performance and Well-being in Punjab, Pakistan

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Declaration

I hereby declare that this dissertation represents my independent and original work and that I have used no other sources except as noted by citations. All data, tables, figures and text citations which have been reproduced from any other source have been explicitly acknowledged as such. This dissertation has not been accepted in substance for any other degree, nor is it currently being submitted in candidature or achievement of any other degree at any other university. I further declare that I have not previously made attempts to do a doctorate at any national or international university.

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Abbreviations and Acronyms

APA	American Psychiatric Association
AOR	Adjusted Odds Ratio
BMI	Body Mass Index
BZU	Bahauddin Zakariya University
CESCR	Committee on Economic, Social and Cultural Rights
CI	Confidence Interval
CNSHS	Cross-National Student Health Study
DALYs	Disability Adjusted Life Years
DS	Depressive Symptoms
DSM	Diagnostic and Statistical Manual
GBD	Global Burden of Disease
GDP	Gross Domestic Product
GPA	Grade Point Average
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social & Cultural Rights
IRB	Institution Review Board
LWB	Low Well-being
M-BDI	Modified version of Beck Depression Inventory
OHCHR	Office of the High Commissioner for Human Rights
OR	Odds Ratio
PCA	Principal Component Factor Analysis
PHCs	Psychosomatic Health Complaints
PS	Perceived Stress
PSS	Perceived Stress Scale
PU	University of the Punjab
SRHS	Self-rated Health Status
SRRS	Social Readjustment Rating Scale
SWB	Subjective Well-being
UDHR	Universal Declaration of Human Rights
UN	United Nations
UoG	University of Gujrat
WHO	World Health Organization
WHO-5	Well-being Index Five
YLDs	Years Lived with Disability

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Abstract

Background

Mental illnesses constitute a significant portion of the global burden of disease (World Health Organization, 2016). However, the scale of their impact on populations is frequently not reflected in governmental spending and policy concerns. Mental health issues have been, and remain, less of a priority in a number of countries across the world (Patel et al., 2016; Whiteford et al., 2013). The limited focus on mental health issues appears to be more profound when viewed from the perspective of inequality of wealth among countries. Developing countries tend to spend lesser on mental health issues than developed countries, even when accounted for their comparative spending on physical health issues (Gadit, 2007; Saraceno et al., 2007). This owes much to the perception that mental illnesses are not life threatening and therefore do not generally gain the political momentum required to direct resources towards their management.

It is only recent that the burden of mental health issues has been measured in terms which reveal the scale of their social as well as economic burden not only in health sector but in other spheres of social activity (Bloom et al., 2011; Centre for Mental Health, 2010; Patel et al., 2016). The introduction of concepts such as Years Lived with Disability (YLDs) and Disability Adjusted Life Years (DALYs) have highlighted the gravity of mental health issues and their relative importance in relation to other more established concerns such as cancer and HIV/AIDS (Murray et al., 2012; Whiteford et al., 2013). Still, the share of mental health issues in the global burden of disease cannot be adequately gauged due to indirect impacts it causes on the progression of physical health conditions.

Mental health issues are not evenly spread across population segments and research suggests that youth are more vulnerable to mental health issues than other age groups (Erskine et al., 2015; Patel, Flisher, Hetrick, & McGorry, 2007). Within the youth segment, students have been shown to be particularly vulnerable to mental illnesses. The reason for this could be that mental health issues are largely dependent on social conditions and students are exposed to stressful conditions not only in wider society but also to those associated with the academic environment.

In view of the above, the present study is conducted in Pakistan which has a 57 million population aged 15 to 29 years. Among these, 1.8 million young people are studying in

universities (Government of Pakistan, 2015). Despite challenges at several fronts, Pakistan boasts of its young population and envisions its youth as a driver of socioeconomic development in foreseeable future. However, investment in the development of young population has been minimal which is evident from Pakistan's dismal literacy rate and rates of transition from schools to universities (Nasir & Nazli, 2010). If any, there is very limited coordination between education and health sector nor are there any robust structures which could cater to the health needs of students (Khan, 2013). The lack of institutional structures for health within universities most adversely affects subtle mental health issues which are less likely to be self-diagnosed.

Objectives of the Study

This study is intended to measure the determinants, prevalence and outcomes of mental health issues among the university students of Pakistan. It considers the influence of health-related behaviors, academic and non-academic stressors on mental health issues. The academic and demographic characteristics of students are taken as confounding variables and their impacts on stressors and mental health issues have been examined. Thereafter, the impacts of mental health issues on academic performance and subjective well-being of students have been measured. Finally, this study describes the coping strategies used by students to mitigate mental health issues and discusses how these are related with their demographic characteristics.

Theoretical Framework

This study is theoretically embedded in stress theory introduced by Selye (Selye, 1950; 1956). The stress theory presents an elaborate process wherein it is argued that the accumulation of stressors might result in stress depending on the context of the occurrence of stress. The stress experienced by an individual may or may not lead to distress depending on the nature and scope of coping resources embodied by that individual. In the context of present study, the university students are assumed to be confronted with several academic and non-academic stressors which may lead to stress. The effect of these stressors may be increased or decreased due to personal circumstances of individual students. However, mental health is also affected by issues which are intrinsic to an individual. These issues include health behaviors, self-rated physical health, psychosomatic complaints and chronic illnesses. In this study, these internal factors are dealt parallel to the stressors explained above. This distinction is based on the effort in this study to independently assess the impact

of university related factors and personal factors on mental health issues. The stress theory further states that coping resources of an individual are a mitigating factor in the transition from stress to distress. While, this study has attempted to investigate how the students cope with stress, it has also tried to figure out the coping strategies used by students suffering from distress. Finally, as hypothesized by stress theory, this study examined the outcomes of distress for the students. Given the wide range of outcomes which may arise from distress, these outcomes were limited to students' academic performance and subjective well-being.

Methods and Materials

This quantitative study adopted a cross sectional design to guide data collection. Using multi-stage cluster sampling technique, the data were collected from 1308 randomly selected students of age (15-29) from three selected public universities in the province of Punjab, Pakistan. The data were collected through a pre-coded self-administered questionnaire. The questionnaire consisted of six distinct sections. The first section of the questionnaire dealt with the demographic details and academic background of the respondents. The second section included questions about self-rated health status, health related behaviors and Psychosomatic Health Complaints (PHCs) of the students. The third section measured academic and non-academic stressors faced by the students. The fourth section comprised of standardized tools to measure perceived stress, depressive symptoms and psychological well-being of students. The fifth segment measured the academic performance and level of satisfaction with the different areas of life whereas the sixth section dealt with coping strategies used by students to mitigate stress. Findings based on the collected data are presented in two sections. Descriptive statistics section includes results presented in the form of frequencies and percentages whereas in the inferential statistics section, simple, binary and multinomial logistic regression analyses are used for hypothesis testing

Key Findings

The response rate was 91.4%, excluding partially filled questionnaires. The findings revealed that an overwhelming majority of students at the universities were 20-24 years of age with the mean age of 21.5 years. The proportion of male and female students was almost equal and most the respondents (61.5%) in the sample belonged to urban areas. The study sample represented students from diverse family backgrounds in terms of parents' education, family income etc.

A major finding was that gender and income insufficiency were associated with all three types of mental health issues considered in this study. Students living home and those enrolled in Bachelors programs were more affected with mental health issues than their counterparts. General health and health related behaviors had a significant impact on mental health of students across all the selected universities. Academic stressors such as examinations were considered by students as severe stressors. However, in terms of impact, non-academic stressors such as family expectations and problems in interaction with fellow students had a more profound impact on mental health. The prevalence of perceived stress and depressive symptoms were high at 54.1% and 44.2% respectively across the study sample. Students suffering from high levels of distress and depression had poor objective and subjective academic performance. Even students with higher grades were likely to report their subjective academic performance as poor if they were suffering from mental health issues. Depressive symptoms had more impact on subjective well-being of students than perceived stress. Few students used problem focused strategies to cope with mental health issues. The use of religious coping strategies was high in the study sample.

Discussion

The prevalence of distress and depression in this study was like most research conducted elsewhere. However, this study also highlighted those determinants of mental health issues which were rooted in peculiar conditions of the study area. These determinants such as English language as the medium of instruction or interaction with opposite gender were not reported in the studies consulted by the author. Financial dependency of students on their families was significantly higher than what is reported in studies from Western countries. Furthermore, the amount of physical activity undertaken by the students was substantially lower than what most previous studies elsewhere have reported. Consistent with most previous studies, academic performance and subjective well-being were adversely affected by distress and depression. Similarly, some of the coping strategies reported in this study, especially those grounded in religious beliefs, were a novelty in view of previous research.

Conclusion

This study was the first attempt of its kind to measure the prevalence of mental health issues in public sector universities of Pakistan. The high prevalence of mental health issues reported in this study was not matched by the scant health services available at the universities. Students were dissatisfied with the facilities at their universities, and there seemed to be a

disconnect between students' needs and policies devised by universities' administrations. It is suggested that similar studies may be conducted to inform mental health policies at the university level, which would focus on mental health promotion and disease prevention.

Chapter 1: Introduction

Chapter Outline

This dissertation is organized into six chapters. The first chapter provides an overview of the dissertation by presenting a summary of the remaining five chapters.

Chapter 2: Theoretical Framework, Literature Review and Public Health Relevance

This chapter is divided into three main sections. The first section provides a brief overview of historical perspectives on mental health. The models regarding conception of mental health and illness are then discussed. Three major approaches to mental health i.e. biological, psychological and sociological approaches are critically analyzed and evaluated in context of the present study. Thereafter, three prominent sociological theories are discussed. Finally, one of these theories, the stress theory, is examined in detail in view of its relevance to the present study.

The second section of this chapter attempts to cover the literature relevant to research problems addressed in this study. It highlights the importance of prevalence of mental health issues as a field of inquiry and the prominence of university students as a particularly relevant population segment for such endeavor. Furthermore, it highlights the methodological challenges associated with the prevalence of mental health issues. Finally, this section touches upon those demographic and contextual factors which could play a role in influencing the relationship of mental health issues with academic performance and well-being of university students.

The third section of this chapter is public health relevance which briefly outlines the scope of mental health promotion and mental disorder prevention. It touches upon the international commitments to mental health issues and conceptualize mental health in human rights framework. Highlighting the socioeconomic determinants of mental health, this section also brings those disparities to attention which makes some people more vulnerable to mental illnesses. This section ends with some argumentative discussion on the malleability of students' mental health under the influence of globalized sociopolitical configurations.

Chapter 3: Materials and Methods

This chapter begins with study objectives, research questions and hypotheses of the research followed by the philosophical debates concerning research on social phenomena and traditions in mental health research. Thereafter, it briefly describes the context in terms of

geography and demography of the study area. It explains the methodological procedures including population, sampling and ethical considerations of this study. The tool used to collect data has been described in detail. Finally, this chapter delineates some challenges encountered in the field and some interesting fieldwork experiences.

Chapter 4: Results

This chapter is divided into two parts. The first part outlines the major findings from the descriptive analysis of the data. Firstly, it describes the results pertaining to demography, academic details and socioeconomic background. Secondly, the findings related to self-rated health, health behavior and psychosomatic health complaints have been shown. Thirdly, perceived stressors, perceived stress, low psychological well-being and depressive symptoms have been described and illustrated through graphical and tabular presentation. Fourthly, this chapter reports academic performance of the respondents and satisfaction with different areas of life. Finally, this chapter describes coping strategies used by the respondents to counter mental health issues.

The second part is based on the results of inferential statistics intended to address the research hypotheses. Simple and binary logistic regression analyses were used for socioeconomic and academic factors associated with mental health. Same procedures were applied to assess the impact of self-rated health status and health related behaviors on mental health issues. Stressors were first divided into academic and non-academic stressors using principal component factor analysis (PCA) and then the impact of both these types of stressors on mental health issues was examined. Finally, the impact of mental health issues on academic performance and well-being was measured by applying multinomial logistic regression analysis. The results of the analyses are presented in an order which corresponds with the research objectives of this study.

Chapter 5: Discussion

This chapter discusses the descriptive and inferential results to address the research questions of this study. The first segment of this chapter discusses the descriptive results while the second segment discusses the hypotheses of this study. This chapter shows that the hypotheses postulated in this study were accepted and components of stress theory were verified. Throughout this chapter, evidence from previous research is compared with findings to interpret the results.

Chapter 6: Conclusion, Study Limitations and Recommendations

This chapter includes conclusion, study limitations and recommendations as separate sections. The conclusion section places the present study in the broader context of mental health research to situate it in the wider body of knowledge. The next section candidly outlines the limitations of this study which could guide further research whereas recommendations section touches upon policy implications of the findings of this study.

Chapter 2: Theoretical Framework, State of the Art in Mental Health Research within a Public Health Paradigm

2.1 Theoretical Framework

The first section of this chapter provides a brief overview of the historical perspectives on mental health. The models regarding conception of mental health and illness are then discussed. Three major approaches to mental health i.e. biological, psychological and sociological approaches are critically analyzed and evaluated in the context of the present study. Thereafter, three prominent sociological theories are discussed. Finally, one of these theories i.e. stress theory is examined in detail in view of its relevance to the present study.

2.1.1 Health and Mental Health: A Historical Perspective

Health has been conceived in human history in three dominant ways. The pathogenic approach towards health has been dominant through most of the history (Thoits, 2010). This approach views health as the absence of disease and disability. The other conception of health, called the salutogenic approach, can be traced back to Greek and Roman writings but it was not until the twentieth century that it was popularized in the mainstream theoretical discourse. The term was used by Antonovsky (1979) and other scholars such as Maslow (1966). This conception views health in a broader perspective than pathogenic approach and consider health as positive states of capacities and functioning in thinking, feeling, and behavior (Strümpfer, 1995). The third approach which is most recent and widely acknowledged in the contemporary literature is the complete state model. This approach is arguably most comprehensive and is reflected in the World Health Organization's definition of health "[h]ealth is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2014) . It includes both the presence of positive capacities as well as the absence of disease or disorder.

With respect to mental health, the complete state approach seems most plausible. This study views health in a holistic way as opposed to pathogenic and salutogenic approaches. In this study, mental health is considered as not merely the absence of psychopathology but an optimum state of physical, cognitive, and emotional functioning (WHO, 2014). Mental health and mental disorder reflects distinctive areas of study which not only bear their unique subject matter but also have varied policy implications. Likewise, these constructs differently approach the question of distinguishing health from sickness and sanity from insanity.

Arguably, 'mental health' is a fluid concept and its meaning is relative to the context in which it is used. In fact, the World Health Organization describes "[m]ental health as not merely the absence of disease but a state of high level of psychological well-being, self-esteem and the ability to maintain social relationships" (WHO, 2004).

Ryff (1989) had consolidated diverse views on psychological well-being such as maturity (Allport, 1954, 1958), self-actualization (Maslow, 1966), individuation (Jung, 1924) and fully functioning person (Rogers, 1963). Ryff conceptualizes psychological well-being as containing higher locus of control, sufferance, ability to engage in mutually rewarding relationships, meaningfulness, and personal development (Ryff, 1989). By this elaboration, it is evident that mental health is rather a standard which individuals strive or would strive to achieve. Most of the people would lie somewhere between the continuum of characteristics which are constituents of mental health. Therefore, as opposed to the mental disorders, proponents of mental health are not only concerned with mental disorder patients but rather advocate a wide range of services to promote mental health in the general population. These services are mostly targeted at the promotion of mental health and prevention of mental illnesses through education, awareness raising and bolstering healthy behaviors. This approach towards mental health leads us towards 'Continuous model' of mental health.

Continuous model of health has been a dominant standpoint in research scholarship through the 1970s (Scheid & Brown, 2010). This model views mental health and mental illness as two end points of a continuum rather than distinct identities. In this way, the model suggests that most of the people are somewhere in-between the continuum. Therefore, the division between mental health and mental illness is not based on absolute grounds but it reflects the degree to which a person and his/her behaviors are considered healthy and normal. The continuous model thus place greater emphasis on socio-environmental influences where any individual in stressful circumstances may move along the continuum towards mental illness.

Of late, the emphasis on discrete model of mental health and illness has gained prominence. As opposed to the continuous model which views mental health and illness as endpoints of a continuum, the discrete or dichotomous model suggests that these are opposite to each other and there is a clear distinction can be drawn on whether a person is sick or healthy (Scheid & Brown, 2010). For instance, there is reasonable clinical evidence to assert that either a person is suffering from depressive disorders, schizophrenia etc. or he/she is not suffering from them. Therefore, mentally ill people are identified on the basis of their symptoms and

classified in their specific disease categories. By virtue of its standpoint, this model is inclined towards the biological approaches towards mental illness and places more emphasis on the naturalistic causes of disease such as biochemical or neurological causes.

The question of viewing mental illness as falling in specific disease categories or on a continuum is still open to debate. Both the aforementioned models are supplemented with empirical evidence. Arguably, the answer to this question could not be provided in absolute terms. Taking the view expounded by one model versus the other very much depends on the research questions which one tries to address.

In this study, the focus is on the students and the prevalence of mental health among them. This research does not follow an experimental design to study diagnosed patients. Instead, it aims to examine the mental health status of the general student body, their vulnerabilities towards distress and its outcomes in terms of their academic performance and well-being. Therefore, the research design as well as the objectives of this research corresponds more closely to the continuum model of mental health and illness.

2.1.2 Approaches to Mental Health: An Interdisciplinary Theoretical Debate

In addition to the continuum/dichotomous debate regarding mental health and illness, another perspective concerns the nature of psychiatric symptoms. According to Scheid & Horwitz (1999), some mental health practitioners and most of the psychiatrists view psychiatric symptoms as indicators of disease whereas the others view these symptoms as deviance. The focus of former is on people having profound symptoms which cause dysfunction. The advocates of this view generally refer to the definition of mental ill health found in the American Psychiatric Association's Diagnostic and Statistical Manual, DSM-IV (American Psychiatric Association, 1994). DSM-IV conceptualizes mental disorder as a clinically diagnosable behavioral or psychological syndrome or pattern which is associated with present distress or disability, or which may cause impaired functioning. It is also emphasized that such syndrome or pattern should not be only culturally or circumstantially driven. It should at least concurrently manifest a dysfunction which may be diagnosed in clinical settings irrespective of the causes. The deviant behaviors as well as conflict between individual and society are not mental disorders. These behaviors may only be considered as mental disorders if they exhibit themselves as a symptom of a dysfunction in the individual.

In contrast to the DSM's view, mental illness may also be thought of in terms of deviant behaviors which may be conceptualized not as indicative of intrapsychic disorders but as aberrations from the social norms (Horwitz & Scheid, 1999). Accordingly, those people who are called mentally ill are actually socially deviant people. While some degree of deviance is to be found in every society, 'mentally ill' people are those which are labeled as such by mental health professionals, family, peers etc. (Horwitz & Scheid, 1999). The DSM exclude deviant behaviors from its definition of mental illnesses but the definition of a number of disorders mentioned therein include behaviors which indicate deviance rather than intrapsychic disorders. These include drug and alcohol disorder, antisocial personality disorder, conduct disorder etc.

Sociologists tend to study the underlying processes which lead to labeling of certain behaviors as mental illness rather than anything else. Foucault (1965, 1988) argues that viewing "madness as a disease and associated fear of unreason were a product of certain structural dynamics of the eighteenth century". These dynamics, he asserted, were an offshoot to the development of a civilization where abstract contemplation increased at the expense of corresponding exercise of the body. At that time, people who had lost their reason were marginalized or removed from the social space. Madness was individualized and associated with crime. According to Foucault, psychiatry was developed due to the need of differentiating the mad man from the other suspect groups such as poor and the criminals (Foucault, 1965, 1988).

Additionally, Szasz (1961, 2010) has also contributed to the debate whether mental illness is a genuinely pathological issue or is it a socially constructed notion for referring to deviant behavior. He argued that mental health is not a disease because it is not associated with any explicit physical abnormalities, rather it is a label placed on socially undesirable behaviors. The labeling of people as 'mentally ill' can restrict their ability to exercise freedom in their actions. It is argued that involuntary treatment of mentally ill people amounts to punishment such as incarceration (Szasz, 1961, 2010). Rosenhan (1973) has also pointed to the failure of psychiatrist in differentiating between mentally ill people and pseudo patients. His work is acclaimed by those who consider mental illness as a social construct which may not be exclusively dealt in clinical settings (Rosenhan, 1973).

Given the controversies and anomalies associated with the nature of mental health and illness, it is a daunting task to arrive at an objective criterion to measure them. Here again, there is a

stark differentiation between sociological and clinical approaches. Sociologists are not much interested in the patients entering clinical settings rather they are interested in understanding the societal processes and the structural causes leading to mental illnesses. Their disinterest towards studying people in clinical settings is grounded in the assertion that these people are not a true sample of all the people suffering from mental disorders. It is believed that most of the people suffering from mental illnesses do not seek professional help or enter into alternative course of actions such as religious settings (Karim, et al., 2004; Khalil, 2011). The issue of studying untreated people in community settings raises some unresolved conceptual issues regarding the definition and measurement of mental illnesses.

In context of the present study, mental health is viewed subjectively and is based on the perception of respondents i.e. students. This study aims to understand the stressors surrounding the university environment and their association with the students' performance in academic as well as in non-academic contexts. The objective of this study is to measure the prevalence of mental health among student population along a continuum. It is not primarily concerned with those students that are undergoing clinical treatment. Instead, it is more interested in understanding those tendencies towards mental illnesses which may be caused by stress factors around a student life. Moreover, the present study aims to cover large sample of students to increase the generalizability of findings. It is practically difficult for the researcher to perform clinical trials of each respondent to assess his/her mental health status. Even if it could be done, the results might not have been consistent with the primary assumption of this research which considers mental health and illness as points on a continuum. For these reasons, this study understands deviant behaviors as an indicative of stress and mental illnesses.

Approaches to mental health

The approaches to mental health are generally categorized into four subsets i) biological, ii) psychological, iii) psychiatric-epidemiological and iv) sociological. A brief summary of each approach is given below:

Biological approaches: Biological approaches consider mental illnesses as any other disease where an apparent dysfunction is caused by some irregularity in the body. In the case of psychiatric disorders, the irregularity is perceived to be related to the brain. Thus, the objective of these approaches is to understand the relationship between the irregularities in the brain functions and psychiatric disorders (Andreasen, 1984; Black & Andreasen, 2011;

Cowan, Harter, & Kandel, 2000; Joffe, 2001). A number of theories assert that mental illnesses have genetic, neurological or biochemical causes. These theories regard mental health as a disease which may be treated with medicine rather than psychotherapy. Biological or organic approaches have been substantiated by recent advancements in neuroscience which strives to examine the vital links between brain structure and human behavior.

Psychological approaches: Psychologists are primarily concerned with individuals rather than groups. They are interested in individual level determinants of abnormal thoughts and behaviors. Traditionally, psychology has been restricted to operate within certain theoretical frameworks. Nonetheless, of late, it has been argued that the subject needs to broaden its scope. Now psychologists also pursue therapeutic techniques to reduce distress. It is emphasized that the biochemical and genetic basis of psychiatric disorders need to be understood in greater detail. Concomitantly, social factors influencing mental health issues should be considered as predictors as well as determinants of mental illnesses.

The psychological models of abnormality do not disregard the biological aspects of mental illness. Nonetheless, from a treatment point of view, psychological models lay considerably less emphasis on the biological factors. Psychological theories which attempt to explain abnormal behavior may be categorized on the basis of their differing focuses. A number of theories focus on the importance of “feelings” on the abnormal behavior, some focus on behaviors and maladaptive patterns of behavior, and yet others focus on thought processes which may lead to dysfunction.

Psychiatric epidemiological approaches: As the name suggests, psychiatric epidemiology is a specialized part of medical epidemiology. It concerns the prevalence and patterns of mental diseases and its correlates in different populations. More specifically, psychiatric epidemiology concerns the relevance of social circumstances and socio-demographic characteristics such as age, sex, social class, and occupation on mental health outcomes. By virtue of its areas of focus, this area falls in the domain of both sociology and psychiatry. In order to study large populations, psychiatric epidemiology often employs survey research technique which is also traditionally attributed to sociology. While studying large samples of people is important for the generalizability as well as the policy, it is a challenging task with respect to mental illness. Epidemiological surveys are often conducted by non-clinicians who ask respondents about the symptoms they experience. Such settings are prone to diagnostic errors due to a lack of safeguards and corrective mechanisms which could only be provided

in clinical settings. It is also not feasible to get clinicians to comprehensively interview a large sample of the population for accurate diagnosis. Therefore, epidemiologists have to rely on interviews conducted by non-clinicians in a general setting.

2.1.2.1 Sociological approach and theories

The sociology of mental health and illness combines elements from both the biological and psychological approaches to mental illness. However, it is distinctive in its theories and the methodological stance. Sociological approaches hold the view that mental illnesses as well as mental health are a product of social life. Broadly, sociological strands in mental health and illness may be divided in two categories. Some approaches focus on those social conditions such as family conflicts, stressful life events, financial burden, and social expectations etc. which may have a bearing on the mental health of individuals. Other approaches are concerned with the role of cultural factors in defining mental illnesses and the responses towards mental health issues.

With regard to mental health and illness, it is important to note the frequency of stressful events in people's life (Holmes & Rahe, 1967). Such events may include memories of disturbed childhood, death of loved ones, serious threat, breakdown of intimate relationships, and loss of employment etc. Being a victim of physical or sexual violence, witnessing a violent incident, or suffering from starvation may be especially powerful stressors which could have long term repercussions on individual's mental health (Dohrenwend, 2000). The frequency and intensity of such serious incidents in one's life are an important predictor of mental illness, regardless of biological or personality issues. Arguably, such conditions are deterministic and mostly transcend beyond the domain of individuals' personality traits which could otherwise play a role in confronting these stressors.

In view of the above, sociological approaches are less interested in a small number of people who are categorized as mental health patients or those who are receiving mental health treatment. The sociologists use generalized tools to understand the status of mental health in samples of large populations. They could utilize statistical information to compare the prevalence of mental health issues, understand their social determinants and evaluate their research within a policy paradigm e.g. in terms of availability of mental health care across regions. Therefore, sociological studies regarding mental health and illness are instrumental in understanding and explaining the social variations in mental health issues across communities as well as between societies. However, individual experiences of mental illness

are largely unexplored in sociological domain. In view of this, a discussion of major sociological theories concerning mental health is discussed in the next section.

Sociological theories

The sociological perspective on the etiology of mental illness can be mostly covered in three theories. These are: i) structural strain theory, ii) labeling theory, and iii) stress theory. A brief overview of these theories including their assumptions, strengths and weaknesses, and relevance to the prevention and treatment of mental illness are discussed below:

Labeling theory: Labeling theory is based on the premise that if situations are defined as real by the people, then they are real in their consequences (Scheff, 1974). Consequently, labeling of certain people as mentally ill and their treatment by the society as such can cause mental illness among them. To explain further, labeling theory states that violations of socially determined values and norms are considered by the wider society as symptoms of mental illness. Thus, the person who is considered mentally ill in one society may not be considered so in another society where the standards of right and wrong are different. Ironically, labeling theory suggests that in order to prevent or control mental illness, those normative standards may be altered which differentiate between what is normal or abnormal. Labeling theory espouses critical approaches to social phenomena which could provide a useful foundation for understanding the consequences of labeling and institutional definition of acceptable versus unacceptable behavior.

Structural strain theory: Structural strain theory asserts that the etiology of mental illness lies in the macro-social organization. Mental illnesses may occur as a response to the structural stressors or depending on social integration of individuals with the society. For instance, during economic recession or war, the admission of people to mental health facilities may increase (Aneshensel, Rutter, & Lachenbruch, 1991; Thoits, 2010). Contrarily, in periods of relative peace and economic stability, there could be a lower rate of such admission. Thus, structural stressors may be seen as determinants of mental illness among individuals. Structural strain theory further explains that some people are better placed in social hierarchies than others. These people are relatively immune to certain degree of social hazards and are, therefore, less likely to suffer from mental illness. With this view, structural strain theory strives for social justice in the society by advocating interventions which may reduce the vulnerabilities of less advantageous classes of society. A limitation of structural

strain theory is that it focuses primarily on behavioral outcomes of strains and does not consider the health effects of these strains on individuals.

Stress theory: The basic premise of stress theory is that the aggregate of social stressors can lead to psychological issues. The association between exposure to stress and developing psychiatric symptoms is mediated by the coping strategies employed by individuals (Folkman & Lazarus, 1980). Therefore, researchers working with stress theory tend to emphasize the relationship between stress and coping resources and how the exposure to stress and the range of coping resources vary across populations. It is argued that individuals and groups from disadvantaged backgrounds are more vulnerable to psychiatric symptoms because they are more likely to be exposed to stressors and have limited coping resources. It is, therefore, important to reduce the stressors from the environment and build the capacity of individuals to effectively cope with stressful circumstances by enhancing their coping resources.

2.1.2.2 Applicability of sociological approach

All the approaches to mental illness discussed here address different aspects of the issue. No single approach could be said to encompass the phenomenon of mental illness in its entirety. This research primarily discusses sociological approaches towards mental illness. The focus here is on elaborating those social factors which are relevant to prevention, etiology, implications, and treatment of mental illnesses. The emphasis placed on sociological approaches in this research does not imply the insignificance of other approaches rather it highlights those social factors which are likely to be neglected in the mental health discourse in clinical and experimental settings. The distribution of mental illness in the society is not random rather it is patterned across certain social factors (Kawachi & Berkman, 2001).

The present study concerns the prevalence of mental health among a representative sample of university students in the province of Punjab, Pakistan. The critical assumption in studying perceived prevalence rather than the clinical prevalence of students' mental illness is supported by the continuous model of mental illness and psychiatric epidemiology. Moreover, the determinants of mental health in the present study are sought in the socio-environmental conditions as postulated in the sociological perspective. While biological and psychological models of abnormality are important theoretical stands in understanding the etiology of mental illness, both models consider individual as their unit of analysis. On the other hand, the emphasis of the current study is on identifying the patterns of mental health issues and their outcomes for the student population. Therefore, those approaches towards the

understanding of mental illnesses which emphasize contextual and societal factors are more appropriate in the context of this study. Although the diagnostic criterion in a socio-epidemiological framework may not be as accurate as in the biological/psychological models, the incessant need to identify and generalize the social determinants and prevalence of mental health warrants a sociological approach towards the issue. Figure 2.1 illustrated schematic presentation of this discussion.

In addition to the above, the present study is not heavily inclined towards specific mental disorders. In other words, the study is concerned with vulnerabilities of students towards developing mental illnesses in wake of structural and phenomenological constraints around them. In this context, the prevalence of biologically defined disorders such as schizophrenia, are not of central interest to the research questions under consideration. The study is interested in researching the mental illnesses which have a strong association with socio-environmental factors. For instance, distress and depression have been shown to be greatly influenced by the environmental conditions and social processes.

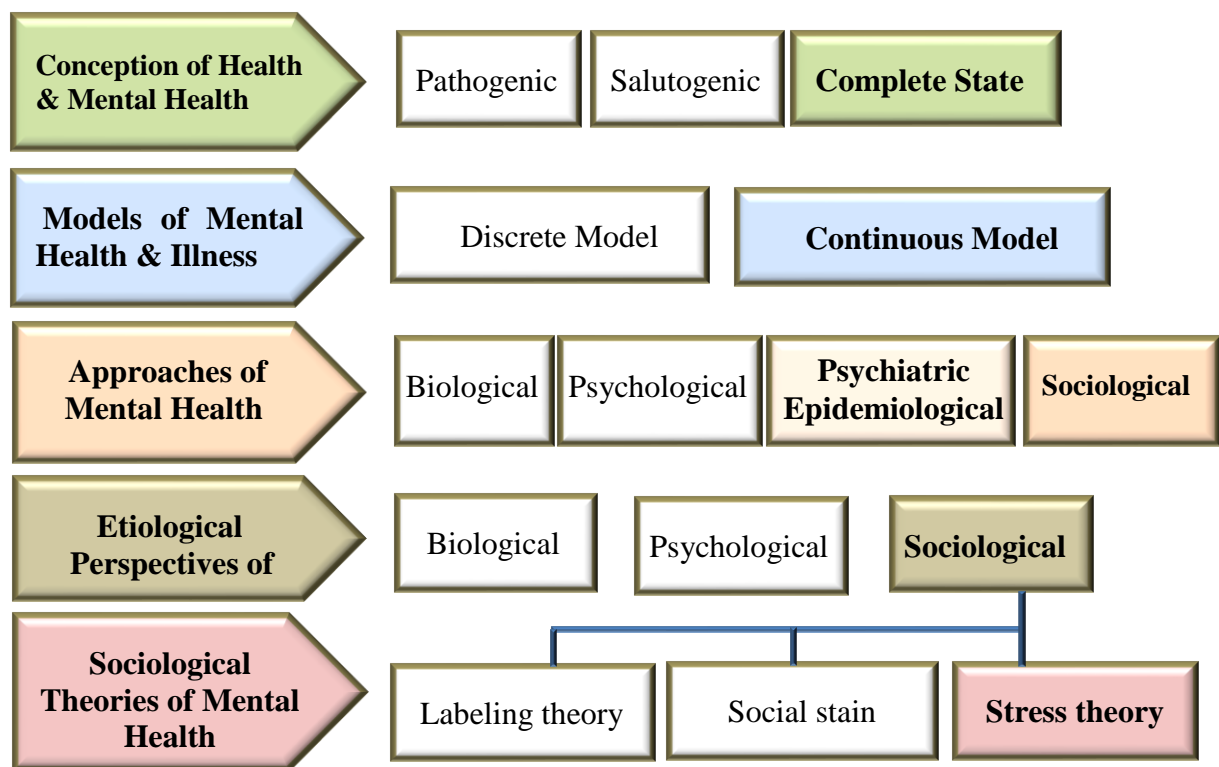


Figure 2.1: Frame of theoretical orientations of current study

2.1.3 The Stress Theory

The stress theory presents an elaborate process wherein it is argued that the accumulation of stressors might result in stress depending on the context of the occurrence of stress. The stress experienced by an individual may or may not lead to distress depending on the nature and scope of coping resources embodied by that individual. This process approximates to the conceptual framework of the present study. While it considers the stressful life events, hassles, and chronic strains as the predictor of stress and eventual distress, the stress theory also emphasizes the coping strategies of the individuals against these events (Lazarus & Folkman, 1984). In the context of present study, the university students are assumed to be confronted with a number of academic and non-academic stressors which may lead to stress. The effect of these stressors may be more or less profound based on the personal circumstances of individual students. It is also hypothesized that an inability to effectively deal with these stressors may result in distress among students. Eventually, this study is an attempt to examine the outcomes of distress for the students in terms of their academic performance and subjective well-being. In view of the above, the stress theory is being adopted for the purpose of present study.

2.1.3.1 Conceptualization of stress, stressors and distress

Ordinary use of the term ‘stress’ is ambiguous and it is important to clarify any ambiguities here. Wheaton and Montazer (2010) argued that stress is thought of as a cause of psychological problems when it is understood as resulting from negative events. It may also refer to subjective experience of an individual. Researchers use the term ‘stress’ to refer to major life events or other environmental causes of emotional issues. Stress reaction and stress response are the terms which denote emotional consequences of the stress or stressors (Wheaton & Montazer, 2010). The present study views mental illnesses and psychological distress as the maladaptive response to stress whereas chronic stressors are considered as environmental factors leading to distress or mental ill-health.

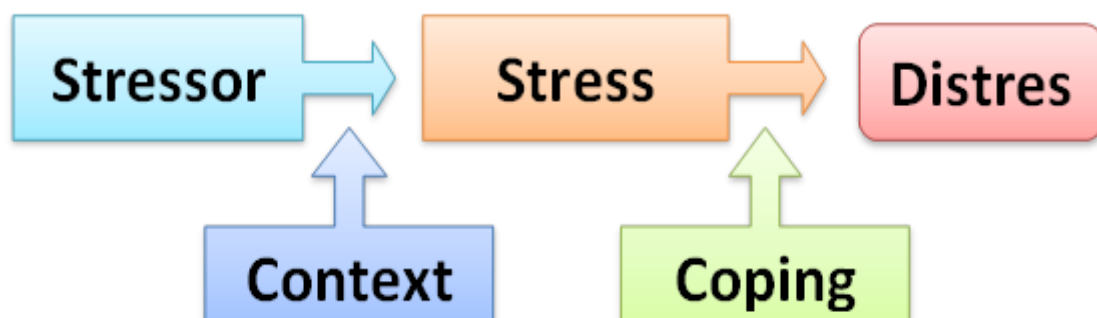


Figure 2.2: Model of stressor, stress and distress
Source: (Wheaton, Montazer 2010)

Figure 2.2 illustrates the above debated conceptual distinctions and it also elaborates the process through which stressors may lead to distress. It may be seen that the potential of stressors to cause stress depends on the context in which the stressors operate. The contextual circumstances influence the meaning of stressor for the individual and the meaning assigned then determines the propensity of circumstances to result in stress. Once stress is experienced, coping resources come into action in order to eliminate or reduce the effects of stress. In case the coping resources are exhausted or unable to cope with the stress, then it results in distress. This process and the contingencies involved in it are useful in understanding the dynamics of stress and distress. The events which we may regard as stressors might not turn out to be stressful for any particular individual. Similarly, even if a stressor is stressful, the stress might not result in distress. This is because the context and coping respectively mitigate the progression of stressors to stress and then distress. For instance, neighborhood violence might not be more stressful for one person than another because the one who considered it as non-stressful might have lived in an area plagued by more hostile conflicts. Additionally, a person might not suffer from distress than another because of the differences in the efficacy of their social support system.

It is argued that defining stressors is equally important than defining stress (Pearlin & Schooler, 1978). Stressors are generally defined as those stimuli which may cause stress (Selye, 1950; Selye, 1956). Selye (1950) defined stress as a biological response of heightened alertness towards threatening situations. It follows then that these biological changes would need to be measured in order to determine something as stressful. This requirement is problematic in itself and additionally, it is also not certain that the transition of stressors to distress is mediated through the biological stress response. For instance, if people report a stressor as not affecting them, it would not mean that they are not affected by the stressor in terms of their mental health; they may only have internalized it.

For the purpose of this study, stressors are defined as those conditions which can potentially constrain the desired functioning of an individual and which challenges the organic integrity of an individual. Stressors can act upon the individuals differently and their effect is mediated by environmental constraints. These may be threats which could potentially cause harm or these may be challenges, which instigate a person to perform better since usual way of operating would not suffice. Stressors may also be ‘demands’, which may be understood as referring to additional loads or burden on individuals. Furthermore, there are structural

constraints occurring in the larger political and social configuration which may limit the opportunity structure for individuals and restrain their chances of success in various social situations. Living in insecure vicinity might be a threat; recovering from a chronic disease may be a challenging task; family pressure to succeed with high grades in exams could be demands; and rising inflation may be a structural constraint.

2.1.3.2 Background and developments in stress theory

The term, 'stress', was introduced in scientific scholarship by Hans Selye in the 1930. He used the term to refer to anything which causes attrition in body. He conducted experiments on animals, and he named extreme temperature change, overcrowded cages, and electric shocks as stressors (Selye, 1950; Selye, 1956). He argued that these stressors are detrimental to defense mechanisms of the body and the animals could not resist the disease or infection when they were exposed to it.

The biological stress model of Selye (1950; 1956) comprises of four stages: (1) stressors: a number of events or conditions which may result in threat or insult to an individual; (2) conditioning factors which may change the implication of stressors on the organism (3) the general adaptation syndrome, an interposing state of stress; and (4) responses; these may be adaptive or maladaptive in form of distress. Among these four stages, Selye specifically elaborated upon the third stage which came to be known as the General Adaptation Syndrome (GAS). The GAS delineated three stages which explained the individual response to stress. In the first stage i.e. alarm stage, the body responds to perceived threat (stressor) by releasing hormones such as adrenaline, noradrenaline and cortisol. These hormones enable the individual to do actions that may not be possibly done in ordinary circumstances. In the second stage i.e. resistance stage, the stress has been usually dealt with and the body directs its energy to revitalize damaged muscle tissues and release lesser hormones. Nonetheless, the body is still vigilant to act against the stressor especially if the stressor is still present, though the response is likely to be less intense than the response in the alarm stage. In the third stage i.e. exhaustion stage, the body is no longer able to respond to the stressor due to the exhaustion of its adaptive energy. In these circumstances, individual is likely to suffer from stress overload which may lead to health problems if not dealt with immediately. An illustration of GAS is given on next page in Figure 2.3:

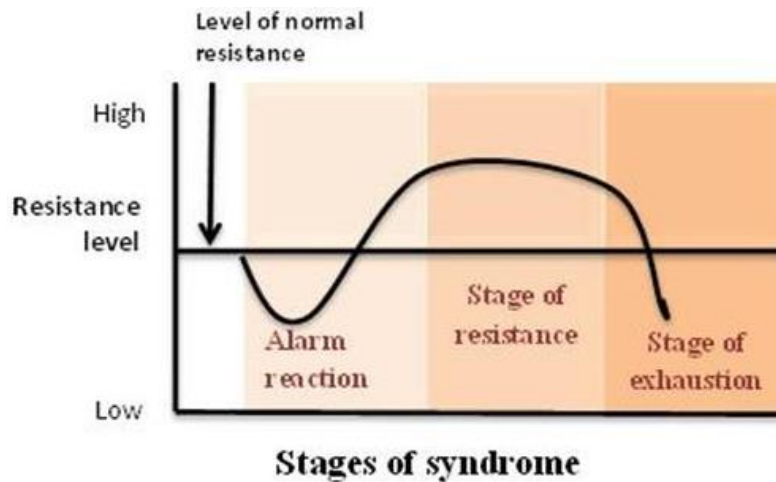


Figure 2.3: Selye's general adaptation syndrome model
Source: Selye (1956)

To conclude, the biological model of stress by Selye (1956) presents a comprehensive view of stress ranging from the problem perception to the stress response and its outcomes. In this model, Selye differentiated stress from distress and other behavioral responses. This model also retains its significance to date because it provides a continuum between the physiological responses to the stress and the use of coping resources.

After the relationship between continued stress and disease was established with animals in laboratory setting, concerns arose regarding the effects of stress on human beings. A research was conducted in 1967 which attempted to examine the influence of major life events and other stressors on human beings (Holmes & Rahe, 1967). In this research, the major life events were defined as comprising those changes which have long term implications on human behavior. It was argued that frequent readjustment of behavior due to stressors can result in the deterioration of coping abilities within the individuals, hence rendering them vulnerable to disease and illness. This research was conducted on Navy employees and delineated those life events which occurred before their visits to doctors or hospitalization (Holmes & Rahe, 1967). A list of 43 such events was prepared and different people were asked to evaluate the extent to which each event required behavioral adjustment. In this way, Social Readjustment Rating Scale (SRRS) was devised which rank ordered the list of life events according to the extent of their impact on behavioral adjustment. This list served as a checklist for the researchers to assess whether exposure to these stressors or life events would play a role in health consequences. It was found that the frequency of life events in a given period of time as well as their readjustment rating was significantly associated with the tendency to develop disease and illness. Individuals with higher frequency of 'life events' occurring within a specified period and especially those events which required greater

behavioral readjustments were highly likely to fall prey to disease and even die (Cohen, Janicki-Deverts, & Miller, 2007; Cooper, 2005; Tennant, 1999).

Once the relationship between life events and health was established, the focus shifted towards the categorization of various stressors and their segregated impact on mental illness. This was a significant development because Holmes and Rahe (1967) research had posited that all life events whether positive or negative require readjustment and hence increase the tendency towards the development of illness. The later research divided the stressors through the lens of culture and found that culturally undesirable events (negative events) were more likely to cause mental illness than the culturally desirable events (positive events) (Brown & Harris, 1978; Ross & Mirowsky, 1979).

As a prominent illustration to the aforementioned categorization, Brown and Harris (1978) found that “severe” (the term they preferred to denote very serious negative events) life events were more likely to cause major depression to the individuals than mundane positive or even negative events (Brown & Harris, 1978). Further research also found the association of severe events and negative events with other mental illnesses such as anxiety, schizophrenia, and generalized distress (Thoits, 1995; Turner, 1995; Turner & Lloyd, 1999). Therefore, it was well established that stressful life events as well as environmental stressors or chronic strains (which require subtle behavioral readjustments over a long period of time) may result in a number of mild or severe mental illnesses.

Various explanations of stress theories (Lazarus & Folkman, 1984; Pearlin, 1989; Pearlin, Menaghan, Lieberman, & Mullan, 1981) suggested that the strength of correlation between exposure to stress and symptoms of mental illness is mediated by coping strategies. Since human beings are not passive, they respond to the stressors in different ways so as to manage and reduce their negative effects on health and well-being. ‘Coping resources’ is the term that has been used to refer to the range of capabilities which people may use to confront stressors (Pearlin & Schooler, 1978). Support networks in the social field (social support) are regarded as one of the most instrumental coping resources which people can deploy when faced with stressful circumstances. Social support refers to the material, cognitive, and emotional assistance which the people in immediate social proximity can provide to the individuals (Thoits, 1995). Additionally, people who feel competent to confront the stressors or who generally feel in control of their immediate environment are more likely to engage in aggressive or active coping strategies to deal with stress (Folkman, 1984; Pearlin et al., 1981;

Taylor & Aspinwall, 1996) or they may employ a number of coping strategies creatively to show resilience towards stressors (Folkman & Moskowitz, 2004; Mattlin, Wethington, & Kessler, 1990; Pearlin & Schooler, 1978).

Coping strategies are cognitive or behavioral attempts to deal with circumstances which an individual perceives to be stressful or where the individual has difficulties to manage them with every day tactics (Lazarus & Folkman, 1984). Coping strategies are traditionally divided into problem-focused and emotion-focused strategies. Problem focused coping strategies are active coping strategies which are aimed at eliminating the stressors or altering the demands generated by stressful events. On the contrary, emotion-focused coping strategies are passive and they focus on changing the emotional response towards the stressors e.g. denial, avoidance, and retreatism. An important differentiation within the emotion-focused coping strategies has been proposed by Pearlin & Schooler, (1978). They introduced the concept of meaning-focused coping strategies which involved altering the self's perception towards the stressful circumstances so that circumstances seem less threatening and relatively manageable. In other words, the mind makes attempts to change the interpretation of the events to avoid distress which could be caused by the stressors. Meaning-focused coping strategies are considered a sub category of emotion-focused coping strategies because they tend to alter the internal consciousness about the events rather than the events themselves (Lazarus & Folkman, 1984).

In real life situations, most people are likely to use problem-focused, emotion-focused as well as meaning-focused coping strategies in most of the stressful circumstances (Folkman & Lazarus, 1980; Taylor & Aspinwall, 1996). Although there are variations in the nature of coping strategies used by various people, it also depends on whether the stressor is perceived to be manageable or not. People tend to use problem-focused coping strategies for those problems which they think can be managed (Folkman, Lazarus, Pimley, & Novacek, 1987) e.g. financial loss due to a fire accident. On the other hand, people are most likely to use emotion-focused coping strategies for the problems which are not apparently resolvable such as the death of a loved one (Taylor & Aspinwall, 1996). The negative or emotion-focused coping strategies have been shown to be most significantly associated with mental illnesses (Folkman & Moskowitz, 2004). The major contribution to stress theory in this regard is illustrated in Figure: 2.4 on next page.

There are several strengths of stress theory, most of which are at the same time weaknesses of psychological and biological approaches. Firstly, the stress theory emphasizes social situations of people as relevant to the etiology of mental illness. Secondly, it provides a well-founded explanation of variation in the prevalence of mental issues among different groups i.e. on the basis of their coping resources. Thirdly, the stress theory follows a more empirical approach as opposed to its counterparts. The methodological rigor associated with the stress theory (using survey and interview techniques) allows the researchers to understand the relevance of various concepts to mental health and enables them to test the associations between key variables such as stressors, coping strategies, well-being etc.

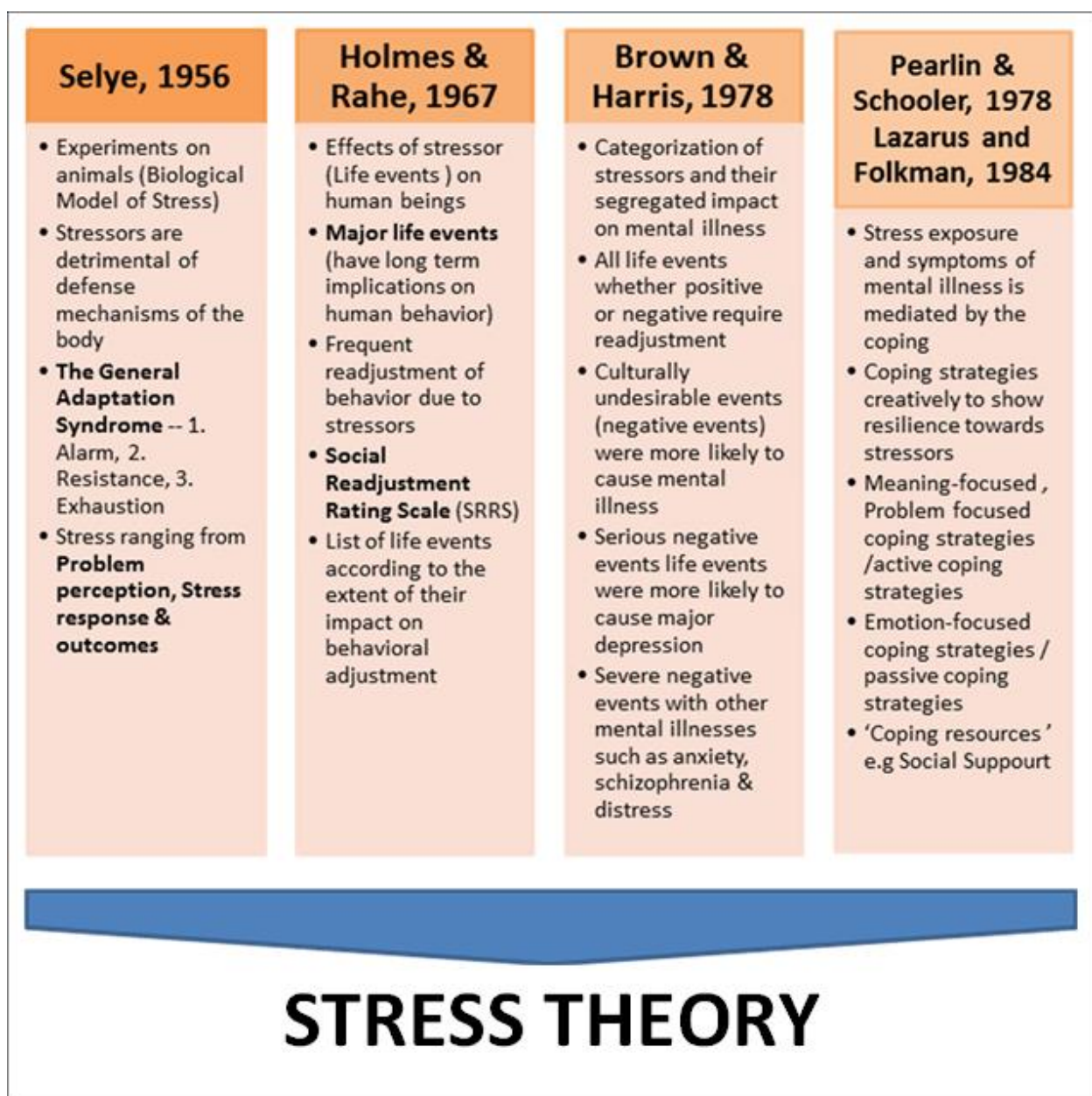


Figure 2.4: The major contributions to stress theory

2.1.3.3 Stress theory: A theoretical framework for the present study

The present study is embedded in the stress theory wherein the stressors for the university students are categorized as academic and non-academic. Academic stressors are defined as those factors which are directly related to academic career of the students and which are likely to cause stress. For instance, examinations are considered to be the single most important stressor which may lead to distress among students (Abouserie, 1994; Renk & Smith, 2007). On the other hand, non-academic stressors are those which may not be directly related to the academic performance and achievement but they are important determinants of stress among students. For instance, financial constraints could be a non-academic stressor for a student. The academic and non-academic stressors adopted in this study have been drawn through multiple sources on the concerned topic. In theory, these stressors are not independent of demographic characteristics such as age, sex, and socioeconomic status of students. In the present study, these characteristics are taken as confounding variables. An effort has been made to compare the results across these characteristics in order to investigate the social patterns contributing to stress and mental illness.

In addition to the demographic characteristics, broader structural variables such as political and economic situation are considered to be relevant to the distribution of mental health issues among the population. Nonetheless, in the present study, these factors are taken as control variables since it is assumed that they are likely to have a relatively uniform effect across the student population. According to the stress theory, the aggregate of different stressors in certain contexts may result in stress. On the basis of this argument, this study intends to measure perceived stress among university students and the extent to which each stressor is perceived to contribute towards the stress.

Furthermore, the theory states that the stress may transform or lead to distress. The present study will attempt to understand the prevalence of mental health issues among university students by examining their perceptions about the prevalence and the frequency of symptoms related to mental illness. The stress theory further states that coping resources of an individual are mitigating factor in the transition from stress to distress. While, this study has attempted to investigate how the students cope with stress, it has also looked into the coping strategies implied by students suffering from distress. The evidence for the coping strategies used during stress is important to figure out the non-health outcomes of distress which have already been expounded in existing literature (Aneshensel et al., 1991). In the context of

present study, the non-health outcomes of distress are confined to academic performance and subjective well-being of the students. Following figure 2.5 is an elaborate conceptual framework of the study which summarizes the discussion in this chapter.

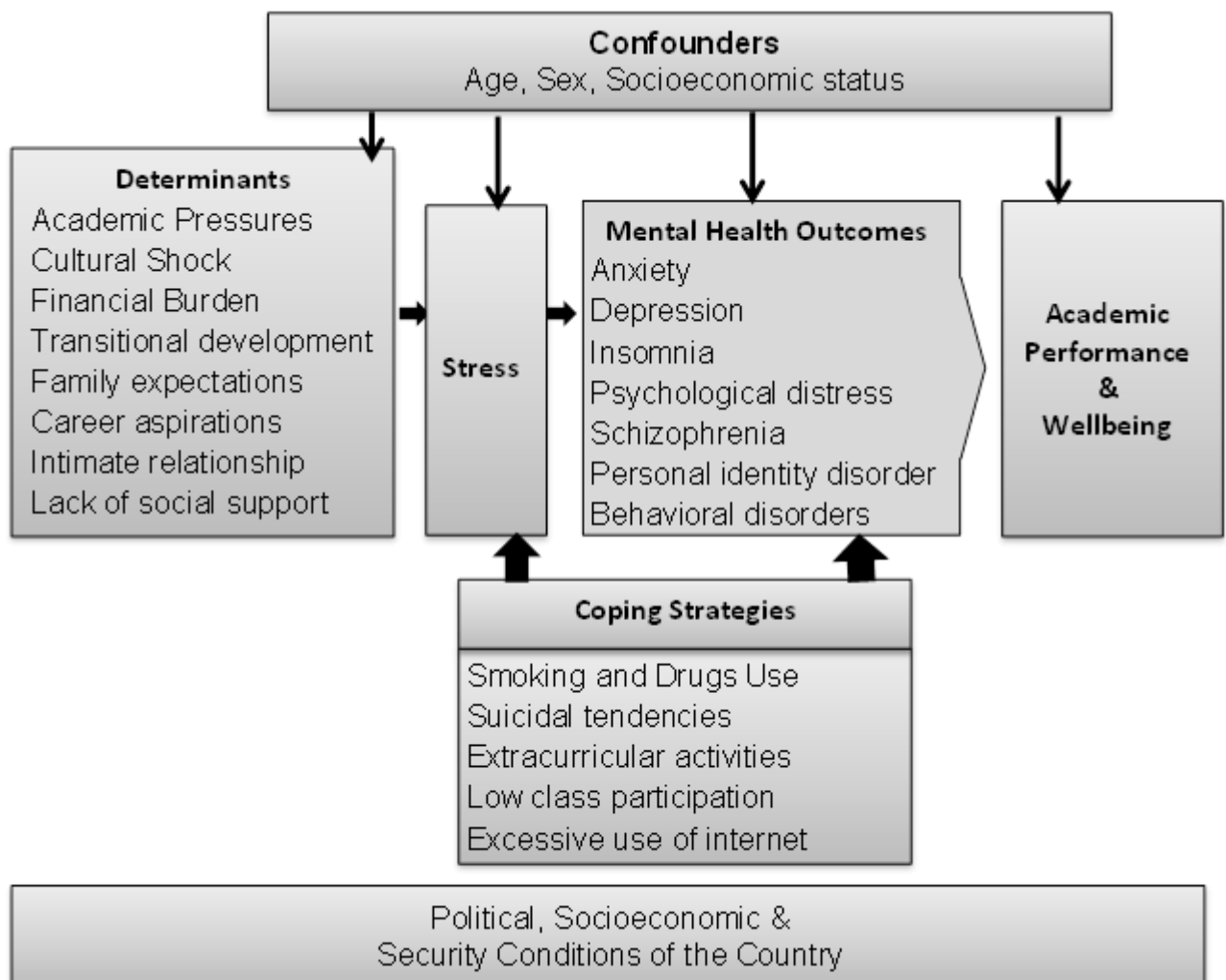


Figure 2.5: Conceptual framework of the study

2.2 State of the Art in Mental Health Research within a Public Health Paradigm

This section attempts to provide an overview of the available empirical research relevant to the research problems addressed in this study. It highlights the importance of prevalence of mental health issues as a field of inquiry and the importance of university students as a particularly relevant population segment for such endeavor. Furthermore, it highlights the consensus and contradictions in measuring the prevalence of mental health issues. Finally, this section touches upon the demographic and contextual factors which could play a role in influencing the relationship of mental health issues with academic performance and well-being of university students.

2.2.1 Mental health: A Truly Global Issue

Mental health or psychological well-being is the cornerstone for social functioning of any individual. Mental illness may arise from naturalistic factors such as the genetic and psychological makeup of an individual and also from the socio-environmental conditions (Patel, Chisholm, Dua, Laxminarayan, & Medina-Mora, 2015; World Health Organization, 2014). Mental health issues limit the capacity of individuals to engage in everyday social life and may lead to impaired functioning in extreme cases. In addition to the personal and social costs associated with mental disorders, the economic costs of this important public health issue transcend 4% of GDP in a number of countries (OECD, 2014). In the UK alone, mental disorders cost about £105 billion (Centre for Mental Health, 2010; Thomas et al., 2016), around 100 times more than the total health budget of a developing country such as Pakistan.

There are stark differences in spending on mental health issues when viewed from the perspective of inequality of wealth among countries. Developing countries tend to spend lesser on mental health issues than developed countries even when accounted for their comparative spending on physical health issues (Gadit, 2007; Saraceno et al., 2007). It is understandable to a certain extent since under budgetary constraints, governments are likely to prioritize those issues which are deemed to be emergent (Hate & Gannon, 2010; World Health Organization, 2005). In other words, the health priorities of most developing countries are heavily skewed towards the provision of curative rather than promotive or prevention services. However, a number of developing countries are partially dependent on the financial assistance and patronage of supranational institutions such as World Health Organization (WHO). Under the auspices of these global bodies, there has been some improvements in terms of service provisions regarding mental illnesses in developing world (World Health

Organization, 2013). Nonetheless, there remains an acute shortage of resources as compared with the magnitude of impact which mental illnesses pose on health levels of populations.

Mental health issues share a significant burden of disease across the world (Murray et al., 2012; Patel et al., 2015; World Health Organization, 2013). In 2010, mental health, neurological and substance use disorders accounted for 258 million Disability Adjusted-Life Years (DALYs), constituting 10.4% of global DALYs. Amongst these, mental disorders accounted for 56.7% of DALYs, followed by neurological (28.6%) and substance use (14.7%) disorders. Within mental and substance use disorders, depressive disorders accounted for the largest number of DALYs (40.5%) whereas anxiety disorders (14.6%), drug use disorders (10.9%) and alcohol use disorders (9.6%) follow them respectively. Graphical illustration is presented in Figure: 2.6.

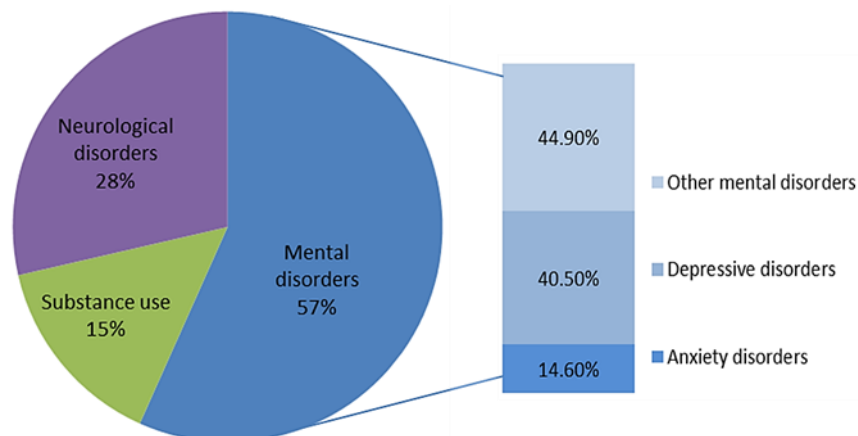


Figure 2.6: Percentages of DALYs constituting mental health, neurological & substance use disorders

The women were slightly more affected by mental, neurological and substance use disorders with 134 million DALYs as compared to the men who had 124 million DALYs. In terms of age, people aged 20 to 30 years were substantially more affected by mental and substance use disorders as compared to other age groups. Mental, neurological and substance use disorders were the leading cause, accounting for 28.5% of global YLDs as illustrated in Figure 2.7 (Erskine et al., 2015; Vos et al., 2012; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015; World Health Organization, 2013). While these figures explain the significance of mental disorders within realm of the global burden of disease, it seems plausible to assert that the actual prevalence and distribution of these disorders could be even higher. One of the reasons for this speculation is paucity of the research measuring prevalence and distribution of mental illnesses in developing countries. Furthermore, mental illnesses are known to exacerbate other chronic diseases such as diabetes and cardiovascular disease (Prince et al.,

2007) and it is difficult to measure this indirect impact in terms of DALYs, YLDs, morbidity and premature mortality.

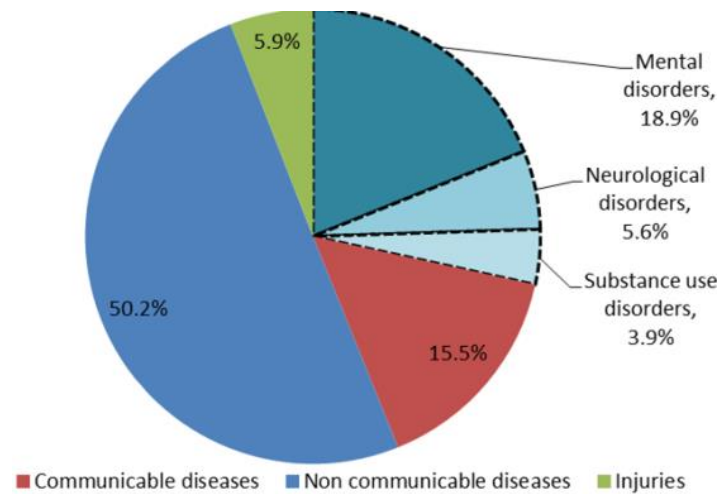


Figure 2.7: Proportion of global YLDs attributable to mental, neurological, and substance use disorders, 2010

Source: (Whiteford et al. 2015)

Unlike most of other health problems, mental health issues are more evenly distributed across different geographical and economic regions of the world. It is estimated that the prevalence of mental disorder is 26.4% among the adults in the United States of America (USA) (World Health Organization, 2008) whereas 17.6% of adults in England have one of the more common mental disorders (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009). Mental illnesses are more prevalent in the United Kingdom (UK) (22.8%) than any other disease such as cardiovascular disease (16.2%) and cancer (15.9%) while also leading in terms of intensity and impact (Royal College of Psychiatrists, 2010). The persistence of mental health issues in countries with arguably one of the most advanced health care systems points towards the peculiarities of dealing with this subject and the need for research which could inform policy decisions (Ramon, Healy, & Renouf, 2007).

A meta-analysis based on a review of 174 surveys conducted across the world, including both high and low income countries, revealed that 29.2% of adults suffer from a common mental disorder in their lifetime (Steel et al., 2014). However, this study also reported substantial variation among the surveys in terms of prevalence of mental disorders. Arguably, this could be because of the different measuring tools employed in these surveys. Given the general scarcity of research on mental health issues, this inconsistency further complicates attempts to compare findings from different studies and to generalize them.

2.2.1.1 Mental health issues among the university students

The global data on the Burden of Disease (2010) suggest that youth are the most vulnerable segment of population in terms of mental and substance use disorders (Vos et al., 2012; Whiteford et al., 2013; Whiteford et al., 2015). According to WHO estimates, around one in four young people aged 12-24 experience a mental disorder in any one year (World Health Organization, 2014) whereas Fisher et al. (2011) estimates that one in five adolescents suffer from a mental health issue each year. A number of other studies have contended that most mental health issues occur at a young age and persist through later stages of life (Erskine et al., 2015; Kessler et al., 2005; Patel, Flisher, Hetrick, & McGorry, 2007). However, young people generally receive less attention as a vulnerable group in terms of health and well-being.

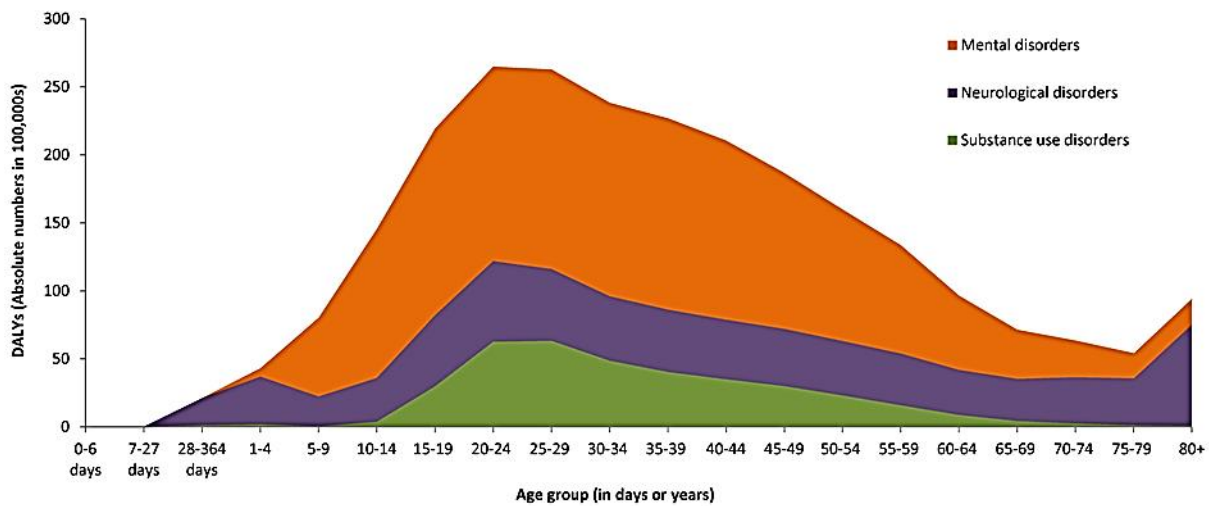


Figure 2.8: Absolute DALYs attributable to mental, neurological, and substance use disorders, by Age, 2010
Adopted from (Whiteford et al., 2015)

Within the youth segment, university students have been found to be typically affected by mental illnesses (Chew-Graham, Rogers, & Yassin, 2003; Eisenberg, Hunt, & Speer, 2013; Roberts, Golding, Towell, & Weinreb, 1999; Saleem, Mahmood, & Naz, 2013). In terms of mental health issues, the university students are in a doubly disadvantageous state due to their age group and their role as students. In addition to the developmental and emotional issues faced by them, university students have added pressures of academic success, financial dependency, and career aspirations (Bayram & Bilgel, 2008; Bojuwoye, 2010; Dyrbye, Thomas, & Shanafelt, 2006; Eisenberg, Golberstein, & Hunt, 2009; El Ansari, Khalil, & Stock, 2014; Mikolajczyk, Maxwell, Naydenova, Meier, & El Ansari, 2008). The overall situation is exacerbated by the fact that these influences operate in an increasingly competitive environment in terms of economic opportunities as well as life chances.

In view of the above, it is important to produce empirical data identifying the burden of mental health illnesses among university students. Such data and the patterns emerging from it may be useful in interventions which could result in better management of mental health issues. A review of literature indicates that the studies concerning prevalence of mental health issues have generally focused on different subgroups of students. These include first year students (Al-Daghri et al., 2014; Bojuwoye, 2010; Brown & Ralph, 1999; Christensson, Vaez, Dickman, & Runeson, 2011), undergraduate students (Dachew, Bisetegn, & Gebremariam, 2015; Iqbal, Gupta, & Venkatarao, 2015a; Shah, Hasan, Malik, & Sreeramareddy, 2010), university health service patients (Amir, Gilany, & Hady, 2010; Hyun, Quinn, Madon, & Lustig, 2007; Stallman, 2010; Tosevski, Milovancevic, & Gajic, 2010), international students (Andrade, 2006; Kramer, Profer-Kramer, Stock, & Tshiananga, 2004; Mori, 2000; Zhou, Jindal-Snape, Topping, & Todman, 2008), and medical students (Alvi, Assad, Ramzan, & Khan, 2010; Rahimi, Baetz, Bowen, & Balbuena, 2014; Venkatarao, Iqbal, & Gupta, 2015).

2.2.1.2 General limitations of studies examining students' mental health

There is a dearth of studies covering the general student body with large samples which could allow for measurement of general prevalence among university students, comparative analyses between subgroups and identification of high risk student groups. While it is speculated that student population is more vulnerable to mental illnesses than the general population, benchmarking in this regard is required. A handful of studies attempting to make such a comparison mostly did not use elaborate tools to measure prevalence which limited validity of their claims. For instance, some studies have relied on the perceived depression and symptoms checklist to ascertain the mental health of students (Chen, Wang, Qiu, Yang, Qiao, Yang, Liang et al., 2013; Sidana et al., 2012). Only a few studies have used elaborate screening tests to identify mental issues (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Monroe & Harkness, 2005) but even in these studies, comparable data from the general population was missing. However, those studies which compared students' mental health issues with general population found higher level of stress among students (Kessler et al., 2003; Stallman, 2010). The point here is that even if comparisons with general population are not made in a study, the tools used to measure prevalence should be such that a comparison could be made at a later stage.

Most research on mental health issues have focused on common mental health problems whereas some studies have also examined self-harm, obsessive compulsive disorder and suicidal ideation (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Tran, 2015). Depression is by far the leading cause of mental problems among university students (Andrews & Wilding, 2004; Christensson et al., 2011; Khan, Haider, & Khokhar, 2015). A systematic review conducted in 2013 puts the weighted mean prevalence of depression among university students at 30.6% with a range of 10%-85% (Ibrahim, Kelly, Adams, & Glazebrook, 2013). While there are a handful of studies concerning mental issues among university students, very few studies have taken account of factors such as utilization of health services over time, development of disease across different stages of academic career and the effectiveness of coping strategies. While these important questions may appear to be more relevant to a longitudinal research design, cross sectional studies could also draw an elaborate snapshot covering important aspects of these questions.

Several studies have taken depression and perceived stress to be the most frequent of mental health issues prevalent among university students (Andrews & Wilding, 2004; Bayram & Bilgel, 2008; Venkatarao et al., 2015). Although it may appear counter intuitive, university students from both developed and developing countries experience high levels of distress (Dachew et al., 2015). In almost all the cases, the prevalence of distress among university students was higher than that of general population (Kessler et al., 2003; Stallman, 2010). Considering depression as a common issue among university student, it is important to distinguish depression from the occasional sad feelings that are situational which could be overcome them in short period of time. On the other hand, the severity of depression need also be differentiated as it could lead to impaired functioning as reported by 17.3 % of college students in a national survey conducted in USA (Eisenberg et al., 2007). Thus, depression is a sort of transitory state which needs careful examination to avoid misdiagnosis.

2.2.1.3 Differential risk in terms of sex and demography

There are also significant gender variations in terms of mental disorders. While males are more vulnerable to commit suicide, females have been found be more prone to depressive disorders (Eisenberg et al., 2007). A study conducted at a public university found that undergraduates had a slightly higher prevalence of depressive disorder as compared to graduates (Iqbal et al., 2015). Female students have been found to experience more distress than their male counterparts (Shah, Hasan, Malik, & Sreeramareddy, 2010; Stallman &

Shochet, 2009). However, male students utilize mental health services more often than females for reasons yet to be elaborated by the current literature. As with the general population, distress is more common with the students aged 18-34 years (Australian Bureau of Statistics, 2008; Stallman, 2010). The first and second year students have been found to experience most distress and the third year students came at second rank (Abdulghani, AlKanhal, Mahmoud, Ponnampereuma, & Alfaris, 2011; Bayram & Bilgel, 2008; Chen, Wang, Qiu, Yang, Qiao, Yang, Liang et al., 2013). These findings were also supported by other studies where stress among first year students was thought to continue till the end of their undergraduate degree (Borjalilu, Mohammadi, & Mojtahedzadeh, 2015; Cooke, Bewick, Barkham, Bradley, & Audin, 2006). The distress level has been, however, lower in postgraduate students (Borjalilu et al., 2015; Eisenberg, Golberstein, & Hunt, 2009; Stallman, 2010) which could be due to their improved skills to manage stressful conditions.

Students who live with their families reported lower level of distress than those living away from family, including those living in shared accommodations (Shaikh & Deschamps, 2006; Sreeramareddy et al., 2007; Stallman, 2010). The level of dissatisfaction with shared accommodation indicated that it was not the lack of social support that accounted for distress since shared accommodation offered a degree of such support (Abolfotouh, Bassiouni, Mounir, & Fayyad, 2007; Sreeramareddy et al., 2007). Perhaps it could be nostalgia or home sickness which may have contributed to distress faced by students living away from home.

It is evident from the foregoing discussion that measuring the prevalence of mental health issues is a problematic endeavor which lack much required uniformity in terms of methodological tools applied. Furthermore, mental health issues are substantially influenced by the demographic and contextual factors and an assessment of these factors need a careful appraisal of cultural reality of studied population. Given the rank of mental health issues in the global burden of disease, it becomes important to conduct studies which are sensitive to these issues in current research. As such, the present study has considered the demographic and contextual issues as intervening variables in terms of prevalence of mental health.

2.2.2 Students' Mental Health Issues in Pakistan: Is it any different?

Mental health issues particularly stress can be viewed as the product of interaction between the individual and its environment (Lazarus & Folkman, 1984). Therefore, it is important to understand the contextual circumstances leading to the occurrence of stress (Hammen, 2006). In Pakistan, higher education system has exponentially expanded around the turn of 21st

century (Akhtar & Kalsoom, 2012; Haider, 2008). The number of public and private sector universities in the country has increased from 59 to 163 from 2001 to 2015. During this time, the student influx in universities has also increased dramatically. Currently, the total enrolment in Pakistani universities stood at 1.4 million as compared with 0.47 million in 2005 (Government of Pakistan, 2015).

2.2.2.1 Burden of disease attributable to mental health in Pakistan

According to the Institute for Health Metrics and Evaluation, (2013) in report titled, “Global Burden of Disease (GBD) Profile: Pakistan”, major depressive disorder was the 11th leading cause of DALYs in 2010 in Pakistan just behind stroke and neonatal sepsis as compared to 16th leading cause of DALYs in 1990 (Institute for Health Metrics and Evaluation, 2013). The percentage increase in DALYs attributed to major depressive disorder was found to have increased by more than 70% between 1990 and 2010. This increase was significantly higher than the global increase of 37.6% in DALYs attributed to mental and substance use disorders.

Additionally, mental and substance use disorders accounted for the largest number of YLDs in Pakistan as compared to other diseases in 2010. With regard to age groups, mental and behavioral disorders were estimated to be most prevalent among people aged 15 to 29 years. Among the fifteen comparable countries ordered by income per capita, the report revealed that Pakistan has fallen from the 4th rank to the 7th in terms of DALYs rate attributable to major depressive disorder during 1990-2010.

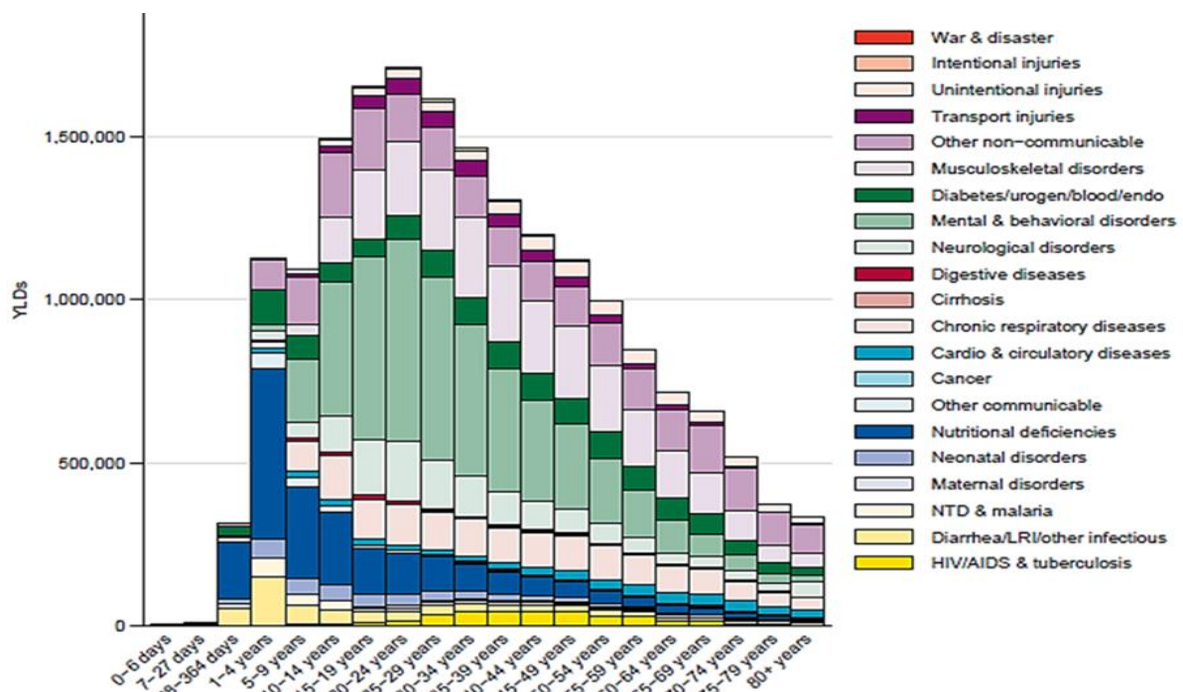


Figure 2.9: Age distribution of YLDs in Pakistan according to GBD 2010
Source and adopted from Health Metrics and Evaluation (2013)

The data further depicted that mental and substance use disorders are on a rise in the country and Pakistan's youth is most vulnerable to fall victim to these disorders (Institute for Health Metrics and Evaluation, 2013). A graphical illustration is presented in Figure: 2.9.

2.2.2.2 Community perceptions of mental health in Pakistan

In Pakistan, religious beliefs play an important role in shaping public perceptions on many issues and health is no exception. Karim et al. (2004) found that it is a common perception in Pakistan that illness is a 'test' by the God and while a person is ill, God forgives the sins he/she had committed in the past. With regard to the mental health, it is generally thought that these are caused by black magic, evil spirits or other such supposedly supernatural forces. Sometimes, modern medicine is also perceived to be a cause of mental illness. It is commonly argued in the masses that the medicines used by the patient (for some physical illness) were of "high potency" and these medicines had caused effects on his/her brain functioning (Karim et al., 2004). However, the situation is not all pervasive and these stereotypes are often challenged in urban areas perhaps due to the awareness created by mass media and modern education. It is also a common practice to get the mentally ill person married and it is believed that by commencing a married life, the patient will gradually recover from mental disorders. Families generally try to conceal the mental illness of their family member(s) in order to avoid lasting stigma. This study was sensitive to these cultural issues and efforts were made to ensure that the respondents did not feel vulnerable to stigmatization by participating in this study.

2.2.2.3 University student and mental health services in Pakistan

When discussing the need to encourage students to utilize available health services in the context of Pakistan, it is pertinent to observe the extent to which the mental health services are available at all. Akhtar and Khan (2000) have analyzed that the projects initiated in the country to deal with health issues are devoid of participatory approach towards capacity building of health staff. Mental health issues have not been well emphasized in the public health discourse. Within the health budget, allocation to mental health services has been persistently low. Only 0.4% for health budget is allocated to mental health (World Health Organization, 2009). As a result, mental health facilities are effectively absent from the primary care settings. In the absence of an integrated mental health policy, minimal financial resources, and lack of trained personnel, mental health problems in the country are likely to worsen (Karim et al., 2004; Naqvi & Khan, 2007). Students' mental health issues need to be

prioritized given the situation analysis of education sector and keeping in view the emergent need for provision of stable and productive human resource. As of today, there is no common information available regarding the existence of student mental health services and counselling at campuses in Pakistan (Saleem et al., 2013). Secondly, there is an absolute dearth of data regarding the prevalence of these issues (Naqvi & Khan, 2007). As a first step towards engaging universities' administration and other relevant stakeholders, there remains a need to conduct studies to provide baseline information on the topic under consideration.

2.2.2.4 The health context of Pakistan

The health sector in Pakistan faces multiple challenges on financial, political and human capital fronts which hinder its abilities to meet the health needs of 190 million people. Following the 18th Constitutional Amendment made in 2010, the subject of health has been devolved to provinces while the Ministry of National Health Services, Regulation and Coordination exists at federal level (PILDAT, 2011). With the devolution, bureaucratic complexities have arisen between federation and provinces and responsibilities of provincial line departments are not clear. Health care system in Pakistan is facing numerous challenges in provision of health services to the population. Pakistan has the highest new-born death rate in the world with 40.7 per 1,000 births of infants dying on the first day of their lives (Government of Pakistan, 2015; Save the Children, 2014). Similarly, maternal mortality rate is also high with 178 per 100,000 women losing their lives during the reproductive period (World Health Organization, 2015). The other health indicators also show that Pakistan's progress in the health sector has not been at par with other South Asian countries. Table 2.1 provides a comparative picture of health indicators in some South Asian countries including Pakistan.

Table 2.1:
Health indicators for South Asia

Health indicators	Pakistan		Bangladesh		India		Sri Lanka		Nepal	
	1990	2015	1990	2015	1990	2015	1990	2015	1990	2015
Infant mortality rate (per 1,000 live births)	95	69	97	33	81	41	24	8.2	94	32
Maternal mortality rate (per 100,000 live births)	490	170	800	170	600	171	85	29	770	190
Under-five mortality rate (per 1,000 live births)	122	85.5	139	41	114	53	29	9.6	135	39
Immunization (DPT) among 1-year-olds (%)	54	86	69	97	70	72	86	99	43	97
Immunization (measles) among 1-year-olds (%)	50	61	65	93	56	74	88	95	57	88
Total fertility rate	-	3.2	-	2.2	-	2.5	-	2.3	-	2.3
Life expectancy at birth (years)	-	66	-	71	-	66	-	75	-	68

Source: (World Health Organization, 2015)

An overwhelming majority of the health expenditure is incurred privately in Pakistan which places it among the countries with highest proportion of private health expenditure (Afzal & Yusuf, 2013; World Health Organization, 2015). The rural-urban divide in the availability and access to health facilities is high (Government of Pakistan, 2015). Rural poor find it difficult to access primary and tertiary health services. Additionally, the utilization of essential services such as immunization of children is also low in rural areas. The inefficiency of state led health system has provided space to the private enterprise to dominate the health sector. While private health services have helped in improving the access to health care, it has also resulted in increased health expenses and commercialization of health problems.

2.2.2.5 Budgetary allocations for health care

The budgetary allocations for health sector in Pakistan as proportion of Gross Domestic Product (GDP) are lower than other South Asian countries such as Sri Lanka, India, Nepal, and Bangladesh. Pakistan spent 0.35 percent of its GDP on health services in 2012-2013. The health expenditure has decreased over the last decade from 0.72 percent in 2000-2001 to 0.42 in 2014-2015 (Government of Pakistan, 2015). Given the population growth rate of 1.92% (Government of Pakistan, 2015), the cut in public expenditure on health implies that the accessibility and quality of health care services are declining. A large share of this expenditure is spent on tertiary healthcare which is used by only 15 percent of the total population (World Health Organization, 2009).

2.2.2.6 Mental health care in Pakistan

Out of the meager health budget of Pakistan, only 0.4% is allocated to mental health (World Health Organization, 2009). The proportion of health budget spent on mental health in Pakistan is lower than other South Asian countries. There is no social insurance scheme for mental patients. Pakistan has five mental hospitals and a dismally low rate of 1.9 beds per 100,000 population (World Health Organization, 2009). On average, mental patients spend 49.9 days at hospitals with 84% of the patients leaving hospital in less than a year's time. In terms of human resources, there are 400 psychiatrists in Pakistan which roughly correspond to 0.23 per 100,000 population (World Health Organization, 2009). Similar figures have been reported for psychologists and support staff at psychiatric facilities. The rural urban divide also exists in provision of mental health services with a majority of psychiatrists based in urban areas, in an otherwise predominantly rural country. In addition to this, there is a dearth

of research on mental health in Pakistan which hampers informed policy formulation on mental health issues.

Until 2001, mental health services in Pakistan were guided by the Lunacy Act of 1912, which was enacted by the British government during colonial era. However, largely under pressure of international commitments, a Mental Health Ordinance was enacted in 2001 (World Health Organization, 2009). This Ordinance brought significant changes to the legislative framework in terms of care, treatment and property management of people suffering from mental health issues. In light of this Ordinance, mental health policy and mental health plan were also revised in 2003 (World Health Organization, 2009). While the provisions of Mental Health Ordinance and subsequent policies and plans were in the phase of implementation, 18th Constitutional Amendment rendered the Ordinance abrogated in 2010 (Government of Pakistan, 2015a; World Health Organization, 2009) . As the amendment made health services a provincial concern, the provinces were required to enact their own legislation. In this regard, Punjab – the largest province in Pakistan- adopted Mental Health Ordinance without any changes in 2014 (Amina & Khalida, 2016). Out of all the provinces, only Sindh enacted its own legislative instrument which is called the Sindh Mental Act, 2013 (Amina & Khalida, 2016). Overall, the implementation of laws and policies regarding mental health is at best sluggish and does not seem to be a governmental priority in any province.

2.2.3 Two Dimensions of Mental Health

Mental health issues embody a wide variety of conditions ranging from mild stress in everyday situations to severe mental disorders visibly inhibiting normal functioning. Common mental health problems such as distress, depression, anxiety and eating disorder are so prevalent in modern societies that they are likely to go unnoticed (Storrie, Ahern, & Tuckett, 2010; World Health Organization, 2014). Mental health issues such as neurotic symptoms i.e. severe forms of emotional experiences and psychotic symptoms i.e. apparent conditions altering the individual's perceptions about reality are more likely to be assessed by patients as well as the community. Despite commonality in symptoms of specific mental health issues, behaviors of patients can substantially vary on a case to case basis and this makes it more difficult to categorize an individual as a mental health patient. Therefore, perceptions of patients about subtle mental health issues such as stress and depression are important to understand since they could have profound implications on health seeking behavior.

2.2.3.1 Stress and depression

The relationship among stressors, perceived stress and depressive symptoms is not linear. While stress increases the risk for depression, the depression also increases the vulnerability to stressful events (or stressors) especially those that are partly or wholly influenced by the individual (Liu & Alloy, 2010). To account for this, two models have been established; i) The stress exposure model ii) The stress generation model of depression.

The stress exposure model is based on the assumption that individuals passively confront stressful life events (Aneshensel et al., 1991; Aneshensel, 1992; Hammen, 2005; Pearlin, 1989). This means that individuals have little or no control over the stressful events occurring in their lives. Thus, this model primarily deals with independent life events such as the death of a family level rather than the dependent life events whose occurrence is more or less determined by the individual.

The stress generation model assumes that individuals are active agents which may trigger or manipulate stressful life events (Hammen, 2005; Liu & Alloy, 2010; Pearlin et al., 1981; Pearlin, 1989). The stress generation is found to vary across different demographic characteristics such as gender. The model further explains that individuals who are more vulnerable to depression are more likely to encounter stressful life events than those with less vulnerability. This is especially relevant to those events that are somehow controlled by the individual and not to those events which are independent. Additionally, individual characteristics also affect the management of such events. Maladaptive behaviors associated with more vulnerable individuals may increase the severity of stress associated with dependent life events (Hammen, 2006). Since dependent life events are more predictive of depressive episodes than the independent life events (Brown & Harris, 2012), the ability to manage dependent life event influence the management of current disorder as well as the recurrence of subsequent depressive episodes. Stress generation may not only lead to depressive symptoms but has also found to be associated with other disorders such as anxiety (Liu & Alloy, 2010).

Depression is one of the most prevalent mental disorders across the globe (Bruffaerts et al., 2012). Although it is difficult to discern regular patterns of its distribution across regions, it is established that women are more susceptible to depression than men. Approximately 20-25% of women are affected by depression as compared with 10-17% of men (Levinson, 2006). Additionally, individuals who experience a depressive episode are more likely to experience

another and the vulnerability towards subsequent episodes progressively increases (Burcusa & Iacono, 2007; Kessler & Wang, 2010; Monroe & Harkness, 2005). It is, therefore, important to understand the relationship between stress and depression to investigate the etiology as well as the persistence of depressive symptoms.

The association between stressors, stress and depression has been well documented in academic literature (Brown & Harris, 1978a; Mazure, 1998; Paykel, 2003; Thoits, 2010). Several studies following an experimental research design have found stressful life events to precede major depressive episodes (Hammen, Kim, Eberhart, & Brennan, 2009; Harkness, Bruce, & Lumley, 2006). Arguably, depressed patients are 2.5 times more likely to have stressors as compared with the control groups while depression in 80% of the cases has been a follow up to stressful life events (Mazure, 1998). Nonetheless, it is important to understand whether stressful event occurred independent of the individual's control or was it caused at least partly by the individual. The individual's perception regarding the stressor and its management is a determinant of the stressfulness of the event. Therefore, individual personal circumstances and personality traits are an important predictor of the progression of stress into depressive episodes. An example of such subjective or perceived stress could be that the chronic illness of a close family member may have markedly different implications for different relatives depending on their personal circumstances.

There have been some notable efforts to identify the "stressfulness" of the stressor in an objective way. In one of such methods, the occurrences of event and circumstances around the event were systematically analyzed (Brown & Harris, 2012). Such information was then employed to objectively understand the severity of stress. In this way, it became possible to ascertain how a person would typically behave in face of an event under the same circumstances. However, such machination of human behavior is of course prone to criticisms from a number of academic quarters.

The review of literature on stress and depression further reveals that studies have mostly focused on two approaches. On one hand there are studies which identified groups differentiated on the basis of presence or absence of the stressor before a depressive episode and then examined the symptoms patterns if they were due to biological/genetic (endogenous depression) or social causes (exogenous depression). On the other hand, there are studies which differentiated groups on the basis of endogenous and exogenous symptoms and then determined whether the stress was experienced before the onset of symptoms (Gotlib &

Hammen, 2010; Hammen, 2005; Mazure, 1998). The findings of such studies have not been thoroughly consistent but there seems to be a general consensus that stressors are equally likely to cause both endogenous and exogenous depression. However, there have been exceptions and some studies have suggested that endogenous depressive symptoms are less likely to be preceded by a precipitating stressor than the exogenous symptoms (Frank, Anderson, Reynolds, Ritenour, & Kupfer, 1994). Contrarily, a research has found no such difference in case of first depressive episode, however, endogenous symptoms were found to be less likely associated with stress in subsequent episodes than the exogenous symptoms (Brown, Harris, & Hepworth, 1994).

The studies concerning endogenous and exogenous symptoms and their relationship with stress are limited due to the complexity involved in operationalization of these concepts. For instance, it is widely accepted that the occurrence of endogenous symptoms are more likely in older patients and this confounding variable is difficult to control (Hammen, 2005). More importantly, the validity of measures of stressful life events is questioned by various studies which add to the limitations of this relationship. Given the disagreements, it is pertinent to mention here that this study exclusively deals with exogenous depressive symptoms.

2.2.3.2 Stress, depression and university students

According to the stress exposure model, the occurrence of stressful life events depends on the external environment of individuals. With reference to the student population, these life events are associated with educational, psychological, personal and socioeconomic characteristics of students (Allam, 2011; Babar et al., 2015; Bayram & Bilgel, 2008b; Bojuwoye, 2010; Hope & Henderson, 2014a; Mikolajczyk et al., 2008). It has been argued that stress does not necessarily result in negative outcomes for students. Besides, the university environment helps students build the capacity to experience stress positively. Such connotation of stress is referred as eustress (Brown & Ralph, 1999). Contrarily, some studies have suggested that students frequently experience distress rather than eustress (Andrews & Wilding, 2004; Dachew et al., 2015; Dyrbye et al., 2006).

Apparently, experiences of students are substantially different from the people of same age group who are not studying. This may be because students are exposed to academic as well as non-academic stress. For instance, the transition to university life and the subsequent environment related adjustments are unique to student segment (Bojuwoye, 2010; Dyrbye et al., 2006; Soh et al., 2013). These include culture shock, academic pressures, career

aspirations, social expectations, establishing networking, financial constraints and managing other responsibilities apart from studies (Christensson et al., 2011; Hope & Henderson, 2014; Tosevski et al., 2010; Verger et al., 2009; Ward, Bochner, & Furnham, 2005; Zhou et al., 2008). These pressures generally impact the student at a time when he/she is also in a transition phase from adolescence to adulthood. All these influences may accumulate to precipitate stress which may result in the onset of depression, particularly in vulnerable students. Thus, stressful events associated with student life may significantly affect the mental health of student segment and place it as a high risk group towards developing distress and depressive symptoms which may lead to adverse mental health outcomes (Arria et al., 2009)

Of late, there has been intense competition in the universities as well as in the labor market. The students face more pressure to succeed in wake of financial insecurity as well as to secure well established careers (International Labour Organization, 2012; Javed, Rafiq, Ahmed, & Khan, 2012). Owing to this, students are vulnerable to various physical and mental health conditions. Thus, there has been an increased focus on research relating to the health dynamics of student segment. It has been reported that students' health is on a decline whereas the risk factors have amplified lately. Therefore, health promotion and disease prevention strategies need to be directed towards mental health issues of students.

Studies regarding stress among university students or students in the higher education have mostly focused on students enrolled in professional courses. There are a number of studies which have focused on medical students, law students, social work students, nursing students, and psychology students (Ahmed, Riaz, & Ramzan, 2013; Babar et al., 2015; Jacob, Gummesson, & Nordmark, 2012; Jadoon, Yaqoob, Raza, Shehzad, & Zeshan, 2010; Karaoglu & Şeker, 2010; Rahimi et al., 2014; Shaban, Khater, & Akhu-Zaheya, 2012; Sreeramareddy et al., 2007; Wilks, 2008). While the reasons for selecting these particular student groups have not been made explicit, it is perhaps assumed that student in professional courses experience more stress than the other.

Arguably the stressful events may affect the interpersonal relationships, academic performance, well-being, learning ability, and emotional stability of students (Eisenberg et al., 2009; El Ansari & Stock, 2010; Shah, Hasan, Malik, & Sreeramareddy, 2010). Most studies on students' mental health have focused on students belonging to specific academic disciplines and there is a dearth of studies covering university students as a unified segment.

This discrepancy has resulted in limited knowledge about the general stressful conditions experienced by a university student. Additionally, limiting the scope of such studies to one or two academic disciplines reduce their potential for advocacy and policy development. There is a need for systemic investigation of mental health issues among general students in universities. Additionally, studies may include universities which are geographically distant from each other. This would help in neutralizing the specific factors relating to a university or its surroundings. In this way, an objective assessment of the determinants, prevalence, and outcomes of mental health issues among university would be possible.

2.2.3.3 Mental health and physical health

There is ample evidence to suggest that physical and mental health are mutually reinforcing (Chu, et al., 2015; El Ansari, Oskrochi, & Haghgoo, 2014; Toussaint, Shields, Dorn, & Slavich, 2014; Vaez & Laflamme, 2008). Physical illnesses especially those of a chronic nature may lead to mental health issues and mental illnesses may cause physical illnesses partly owing to the health-risk behaviors and lifestyle issues (Bruffaerts et al., 2012; Erskine et al., 2015; Lawrence, Holman, & Jablensky, 2001). For instance, people with mental health issues are less likely to engage in physical activities, keep an eye on their health and maintain an optimal body weight (Khan, 2013; Melnyk, Kelly, Jacobson, Arcolego, & Shaibi, 2014). Mental health issues are associated with an increased risk of chronic illnesses such as heart disease, cancer, and stroke. For instance, depression is found to be associated with 67% and 50% increased mortality due to cardiovascular disease and cancer respectively (Moussavi et al., 2007; National Institute for Clinical Excellence, 2009; Prince et al., 2007). Premature mortality is also associated with severe mental illnesses such as schizophrenia and bipolar disorder which could decrease a patient's life expectancy by an average 25 years (Parks, Svendsen, Singer, Foti, & Mauer, 2006). Additionally, mental illnesses are also associated with health inequality where there is a greater tendency to engage in potentially health damaging behaviors such as smoking (Toussaint et al., 2014; World Health Organization, 2002).

Conversely, chronic physical diseases have significant association with the prevalence of mental disorders (Prince et al., 2007; Thoits, 2010). The mental disorders arising due to physical diseases not only obstruct the smooth recovery of patient but also lead to increased mortality. The intensity of depression is found to be two times higher in patients suffering from chronic diseases such as hypertension, diabetes, coronary artery disease and heart

failure (Parks et al., 2006; Thoits, 2010). The prevalence of depression could be three times higher in patients with end-stage renal failure, cerebrovascular disease, and chronic obstructive pulmonary disease (Egede, 2007). Furthermore, depression among patients suffering from two or more chronic illnesses is approximately 7 times higher as compared with the patients not suffering from chronic illnesses (Moussavi et al., 2007). Thus, although it is difficult to generalize whether physical illnesses precede mental illnesses and health behaviors or vice versa, the relationship between the two is well established.

It is argued that mental health issues among students may reflect themselves in poor health outcomes. For instance, depression, distress, and anxiety are found to be significantly associated with smoking of cigarettes (Shaikh et al., 2004; Wolfson, McCoy, & Sutfin, 2009). Additionally, distress is significantly associated with excessive drinking (Patel et al., 2015; Sebena, El Ansari, Stock, Orosova, & Mikolajczyk, 2012; Toussaint et al., 2014). Students suffering from mental illnesses are also found to be involved in substance abuse, thus damaging their general health (Firth-Cozens, 2001; Sebena et al., 2012; Tavalacci et al., 2013). Nevertheless, association of mental health issues and health behaviors with other physical conditions among university students is not well documented. This study has attempted to highlight this association by delineating general health issues and health behaviors arising out of mental health problems suffered by the students. These health issues may range from psychosomatic complaints such as headache, mood swings and low back pain etc. to chronic and life threatening illnesses. Since mental and physical illnesses both affect each other, this study has yielded information regarding the overall impact of mental illness on students' lives.

2.2.4 Determinants of Student's Mental Health

The determinants of mental illnesses (or stressors) among students are varied and they depend on the particular context and environment surrounding the students. Generally, economic dependency (Andrews & Wilding, 2004; Mikolajczyk et al., 2008; Saïas et al., 2014) and academic pressures (El Ansari et al., 2014; Hussain, Kumar, & Husain, 2008; Verger et al., 2009) are the leading determinants observed supplemented by the transitional period in personality development (Bojuwoye, 2010; Dyson & Renk, 2006). A study conducted on university students in United Kingdom found that students have significant mental health issues where financial problems and burden of course work have been the primary factors causing stress in students (Monk, 2004). Some researchers have exclusively

focused on students at university residence as their research respondents. Such studies have noted high prevalence of stress among students which led to various mental health symptoms in the sample. Shaikh and Deschamps (2006) argued that many students living at university residence suffer from depression, anxiety and similar issues (Shaikh & Deschamps, 2006).

Financial hardships and study load are considered as major factors in perpetuating mental health problems. It is further emphasized that foreign students or students coming from other areas of the country are a high risk group due to added difficulties of being away from home (Andrade, 2006; Furnham, 2004; Hyun et al., 2007). Thus, students who should leave their home to attend university find themselves distressed and depressed. A number of studies reported that homesickness can be a consequent problem triggered by re-location (Abolfotouh et al., 2007; Wang, 2004; Zhou et al., 2008). Similar situation holds true for students migrating from rural to urban areas for studying at universities (Sulaiman, Hassan, M Sopian, & Abdullah, 2009). However, the desire to settle in urban setting is relatively higher in developing countries. Therefore, research from newly industrialized countries may explain if such a pattern manifests itself in university students across different regions.

Research suggested that the developmental tasks associated with the age of adolescence which includes striving for emotional stability, getting settled to start a family life and to realize career ambitions (Havighurst, 1972; Schulenberg & Maggs, 1999). Other studies also suggested that student life is a stressful phase of an individual's psychological development (Shaikh et al., 2004; Soutter, O'Steen, & Gilmore, 2014). The studies focusing on medical students found that prevalence of perceived stress was very high among students (Ali et al., 2015; Dyrbye et al., 2006; Tran, 2015; Venkatarao et al., 2015). They also considered studies and evaluation tests as dominant stress factors (Ali et al., 2015). Similarly, a study conducted in Pakistan on medical students found a high level of perceived stress among medical students which resulted from a number of factors including high parental expectations, examinations and uncertainty about the future (Shah et al., 2010). A study conducted on management students in Pakistan revealed similar findings where intense competition and high workload were cited as prominent factors causing stress (Ahmed et al., 2013).

Interaction with new people and decisions regarding career choices also play an important role in causing stress. Consistent with the stress generation model, there is evidence that students from different geographical regions report different stressors. For instance, studies have found that foreign students have cited different stressors than native students (Furnham,

2004; Soh et al., 2013). A cross sectional study conducted with the university students from Israel, Australia and Sweden found significant differences among students from different countries with respect to stress scores and the perceived factors causing distress (Jacob et al., 2012). The general stressors faced by the students have been categorized into academic and non-academic stressors and explained below.

2.2.4.1 Academic stressors

Academic work is invariably associated with stress (Agolla & Ongor, 2009). Academic stress is defined as the combination of academic demands which may not be adaptively dealt by the student (Wilks, 2008). It has been suggested that academic factors are largely responsible for stress among students (Agolla & Ongor, 2009; Hussain et al., 2008; Kumar & Jejurkar, 2005; Masih & Gulrez, 2006; Shaikh, Babar, Tasneem et al., 2004; Sulaiman et al., 2009). Academic stress, therefore, needs to be investigated in greater detail since it affects the overall adjustment of students (Hussain et al., 2008). Academic stress may have numerous components but some consistently reported academic stressors are: non-conducive physical environment of classroom, absence of healthy student teacher interaction, “irrational” rules and disciplines, teaching methodologies, and indifferent attitudes of teachers (Masih & Gulrez, 2006). Additionally, overcrowded classrooms (Agolla & Ongor, 2009) and subject related projects (Bojuwoye, 2010; Mikolajczyk, Maxwell, Naydenova, Meier, & El Ansari, 2008) may also serve as stressors along with various others.

Study pressures and peer competition: Technological advancements have increasingly substituted manual manpower with mechanical equipment and labor market conditions demand increasingly educated workforce. Arguably, this development has resulted in a global campaign to emphasize access to quality education. Moreover, global unemployment is on the rise with 5.9% in 2012 and projected to exceed by 6.2% in 2017 (International Labour Organization, 2012). This implies that dropping out of university or failing a year is not an option for many students. In this context, there is intensive competition between young students. For instance, a study conducted on dental students in Malaysia found fear of failure as the top stressor for students (Babar et al., 2015). Students are keen to achieve maximum success in courses and to acquire other miscellaneous skills to gain competitive advantage over fellow students. Resultantly, the scope and extent of knowledge and skills base in academics have expanded. It has thus become difficult for a young student to realize the

standards of success. This predisposition is stressful in given uncertain circumstances and students might remain stressed even after achieving better grades than their peers.

Examination stress: Examinations are arguably one of the most significant stressors in students' life and a large number of studies have found it to be the leading contributor to stress and depression (El Ansari et al., 2014; Shaban et al., 2012; Shah et al., 2010). It is suggested that around 30% of the students experience examination related stress which may be compounded by lack of support and homesickness (Robotham & Julian, 2006). During examination days, student may experience changing sleeping patterns, nausea and stomach related issues. It is also argued that stress is considerably reduced once the examinations start (Renk & Smith, 2007). This implies that the anxiety related to examinations is more stressful and depressive than the examinations itself.

Study-related stressors: Not only exams, the stress associated with factors related to studying, coursework assignments, presentations and term papers exponentially increase academic pressures (Mikolajczyk et al., 2008). The resultant workload is generally overwhelming for the students and they find it difficult to meet deadlines. A study conducted in South Africa found 'academic demand factors' i.e. assignments, method of instruction, workload etc. to be highly stressful for students (Reisberg, 2000). Additionally, students find it difficult to manage time and they commonly perceive a lack of control over time (Reisberg, 2000). In order to deal with the perceived time shortage, students undergo behavioral changes which in turn cause distress (Robotham & Julian, 2006). Since there is an intense competition among students and in the labor market, fear of not being able to perform well may cause distress among students

2.2.4.2 Non-academic stressors

There are certain stressors which may not be academic but they affect the mental health of university students. Salient of these stressors are explained below:

Financial dependency: Constrained financial resources may significantly cause stress among students. A number of studies across the world and in Pakistan have rated financial problems as one of the leading non-academic stressors for students (Babar et al., 2015; Bojuwoye, 2010; Dachew et al., 2015; Eisenberg et al., 2013; Shah et al., 2010; Stallman, 2010). Financial problems have also been found to have an impact on the performance of students as well. When compounded with already existing mental issues, the implications of financial

issues may be worse (Drentea & Reynolds, 2015). Increased financial dependency of students is reflected by the fact that a large proportion of students (as high as 42%) is in paid employment and many students may finish their stay at university under debt (UNITE, 2004).

University students are in the turbulent dilemma of apparently independent socio economic status and increased financial dependency on family (Shaikh & Deschamps, 2006). This means that their kinship networks at university consider them as an adult responsible for his/her actions whereas at a more personal level, a student is generally dependent on his/her family for sustained support. The situation typically holds for developing countries where socioeconomic inequalities and low public spending on higher education extend the role of family even further (Afzal & Yusuf, 2013). While for some students, financial support from family may be sufficient to live comfortably, it may also increase the expectations of family. These situations restrain the ability of young students to take independent decisions about their career thereby making them averse to new ideas and to attain an objective understanding of their surroundings.

Transition to university: The university environment is considered unique and transition to the university environment may be distressing especially for those who leave home to attend university (Abolfotouh et al., 2007b; Fisher, 1994; Soh et al., 2013). The students from other areas are particularly at risk because they have to adjust to new social conditions and also need to perform well academically from the outset (Andrade, 2006; Ross, Niebling, & Heckert, 1999). In such cases, experiencing stress may be even more challenging due to the lack of interpersonal support systems (Hudd et al., 2000). While the student is adjusting to the new environment without adequate social support, he/she is also under pressure to socialize with the new people at the university (Mustaffa & Munirah, 2013; Wang, 2004) which may cause further stress. First year students are particularly vulnerable to such stress whereas foreign students additionally face an altogether different cultural milieu (Bojuwoye, 2010; Verger et al., 2009). In countries like Pakistan where there are a few foreign students, those hailing from rural areas have more or less similar problems as foreign students.

University circumstances: Apart from the structural issues emanating in external environment, groups construct their social reality in the context of interaction and experience (Weber, 1922). Thus, relations with fellow students, social support and social capital could well be important measures of students' mental health and well-being. Among these factors, stress associated with student-teacher relationship is arguably one of the most significant

determinants of student's well-being and performance (Becker & Luthar, 2002). Students require a healthy personal relationship and teachers ought to be caring, encouraging and collaborative. To do this, teachers should adopt a collaborative rather than an instructive approach to reduce stress among the students (Millis, 2012). On the other hand, students assign primary importance to academic grades and evaluation anxiety is substantially high across different cultures (Ali et al., 2015; Misra, McKean, West, & Russo, 2000; Richardson, Abraham, & Bond, 2012; Vaez & Laflamme, 2008).

Culture shock: Culture is central to the socialization of an individual. In a multicultural environment, people generally find it difficult to cope with values different to their own. Students from diversified socio-economic statuses attend the university and may suffer from culture shock to varying degrees (Furnham, 2004). The lowest point in culture shock is experienced between 3 to 12 months (Ward et al., 2005). Sustained exposure to a different culture in space and in time may lead to adjustment issues which are perhaps universal. The resultant shock may result in distress and depression in individuals (Ward et al., 2005).

It is also argued that differences between the culture of origin and the current culture determine the nature of the low point of culture shock. For instance, a study has suggested that European students find it relatively easy to adjust themselves in USA than Asian students (Oropeza, Fitzgibbon, & Barón Jr., 1991). Individual level factors also play an important role where personality traits such as emotional stability, adaptability and tolerance are critical factors influencing adjustment (Zhou et al., 2008).

It is suggested that contentment with one's own culture negatively affects adjustment into new culture (Furnham, 2004). The opposite of this could also be true where students not having pleasant experience with their own culture might find another culture more satisfying. Students need to learn culturally plural values and adapt to the cultural diversity in order to be functional in their immediate environment (Dyson & Renk, 2006; Zhou et al., 2008). However, not all the students are equally likely to accomplish this task positively. A study conducted in Malaysia found that previous travel experience and language proficiency significantly affects the propensity of students to adjust to the multicultural environment. Failure to do so may cause culture shock which could lead to behavioral issues (Mustaffa & Munirah, 2013).

Students from diversified socio-economic status attend the university and suffer from culture shock to varying degree (Wang, 2004). In developed countries, a significant number of international students study in universities and are more likely to face culture shock. On the other hand, large rural-urban divide in developing countries characterize this issue for university students from rural areas. For both these groups, living away from home and parents mostly for the first time in life cause adverse health outcomes (Sulaiman et al., 2009).

Transition of adolescence to adulthood: This is the stage of lifecycle where secondary socialization factors are affecting the attitudes and values of young students. The psychological developments going on through this particular period determine the students' level of social integration in adult life. The development of personality traits during adolescence has their significance for the later stages of life. Moreover, studies have suggested that biological changes occurring during this stage could create possibility of identity confusion and other depressive symptoms (Dyson & Renk, 2006; Reinherz, Giaconia, Hauf, Wasserman, & Silverman, 1999; Schulenberg & Maggs, 1999).

Career aspirations among university students: Though this particular factor is more relevant to final year students, high career aspirations are common among all university students. Such aspirations are linked to distress and fear of not meeting up to these expectations (Mikolajczyk et al., 2008; Vazquez & Blanco, 2006). Especially with underachieving students, it can cause severe mental health issues. Among other factors, pressures from family and peer groups to hold jobs in perceivably esteemed professions such as medicine and engineering etc. can even lead to fatal mental disorders and suicidal tendencies in some students (American College Health Association, 2007; Monk, 2004; Sebena et al., 2012).

Emotional disturbance in intimate social relations: University students are often encountered with the problem of finding a balance between the freewill they want to exercise and the determinism which their dependencies exert upon them. Such a state of mind is one of the several vaguely understood factors which contribute to problematic relationships within and outside family and cause mental disorders (Lakey & Orehek, 2011; Turner & Brown, 2010; Verger et al., 2009). Similarly, emotional instability and less endurance may cause breakdown in intimate relationships both at university and outside. In societies where interaction across gender is not common, complexities are likely to arise in intimate relationships at the university. Besides causing mental health issues, such disturbances result

in low self-esteem which is a significant determinant of dropping out of education (Ahmed et al., 2013; Sreeramareddy et al., 2007b; Vaez & Laflamme, 2008)

Living Conditions at university: In order to impart knowledge and skills effectively, universities should provide a safe and healthy physical and social environment to support students' tasks. Students' dilemmas are aggravated with frail living conditions at university and these structural aspects are noted even in developed countries (Stock & Krämer, 2001). For most of universities in developing countries, hygienic food, safe drinking water and adequate hostel facilities at campus are scarcely available (Akhtar & Kalsoom, 2012; Khan, 2013). Additionally, recreational facilities are limited and health facilities are not profound and student focused (Abolfotouh et al., 2007). Consequently, an unhealthy environment limits the students' capability of adaptation and coping in an otherwise stressful environment. Many studies reported that students are not satisfied with the living space, noise, lights and many other aspects of living conditions (Abolfotouh et al., 2007; Bostanci et al., 2005; Shaikh & Deschamps, 2006). Such conditions result in nutritional irregularities and subsequent physical health issues e.g. weight gain, and specifically affect students living at university residences.

2.2.4.3 Stressors of university students in the context of Pakistan

Pakistan is a conservative society with traditional family systems, patriarchy and colonial legacy (Akhtar & Kalsoom, 2012; Ayub, Irfan, Naeem, & Blackwood, 2012; Chaudhry & Rahman, 2009; Iqtidar, 2012a; Maddison, 2006; Shamama-tus-Sabah & Gilani, 2010). Due to its sociopolitical environment and cultural background, students in Pakistan face certain conditions which may not be generalized to other societies (Ahmad, Ali, & Ahmad, 2014; Akhtar & Kalsoom, 2012; Haider, 2008; Husain, 2005; Jafar et al., 2013a; Khan, 2012; Malik & Courtney, 2011b; Memon, 2007; Nasir & Nazli, 2010). Following are the different factors which specifically affect the experience of a university student in Pakistan.

Family as a dual agent of social support and mental health issues: High education costs, increased duration of academic life and other factors have placed a greater emphasis on family to meet the requisites in order to facilitate the student to get through his/her academic life. It is pertinent to note here that family system in Pakistan is more resilient as compared to most Western societies (Akhtar & Kalsoom, 2012; Ayub et al., 2012). Kinship networks associated with the family system make up the very social fabric on which the Pakistani society can be conceived of being based (Shamama-tus-Sabah & Gilani, 2010). In

reciprocation, family expects the student to ensure upward social mobility for him/her as well as the family.

It may be noted that the general family type in Pakistan is extended (Ayub et al., 2012) and it is expected of the student to support parents, siblings, spouse and off springs economically as well as in the other aspects of social life (Husain, 2005b; Nasir & Nazli, 2010). The aforementioned situation exerts pressure on a university student. As a result they immediately try to follow an illustrious career to return the favor to family. It consequently limits the student's ability to make independent choices about the field of study they wish to pursue. Arguably economic viability of a field of study supersedes the possible creative potential of a student in other subjects. In such a situation, lack of meaning and self-actualization may cause stress, depression and anxiety (Khan, 2013).

Foreign language as a medium of instruction: Another outstanding issue in the context of Pakistan which both affects the academic performance and mental health of university students is the use of English language as the medium of instruction. Being a foreign language to the citizens of Pakistan, most students are not proficient in it and some of them find it a major challenge throughout their academic career (Husain, 2005). Despite a grasp over the subject matter, university students find it difficult to express their ideas in English. This results in depression among a significant number of university students and underscores as a major factor in evaluation of performance (Andrade, 2006; Jacob et al., 2012; Versaevel, 2014).

Gender aspect of mental health: Gender aspect of mental health among university students in Pakistan is significant (Jadoon et al., 2010; Khan, Mahmood, Badshah, Ali, & Jamal, 2006; Shah et al., 2010). It is very likely that females find it very difficult to adapt in the university setting since an overwhelming majority of them are not exposed to such multicultural environment before (Chaudhry & Rahman, 2009; Malik & Courtney, 2011). This makes it difficult for them to express themselves with new people and university fellows. Another gendered aspect of university students' experience is that females are not expected to do paid jobs after their education. They are confined to expressive roles (Parsons, 1952, 2010) which may create meaninglessness and demotivation. Such a disposition also creates added pressure on male students since they must support the future family alone. Hence, the experiences and context of each gender as a university student is quite different in some respects.

Implication of sociopolitical situation: Political instability, terrorism and insecurity is prevalent in Pakistani society (Ahmad et al., 2014; Husain, 2005; Iqtidar, 2012; Khan, 2012). This adversely affects the university life of students because they are exposed to some of those ideas (ideologies) which may not be consistent with the spirit of their academic knowledge (Haider, 2008; Memon, 2007). Sectarian and religious differences have attained sensitivity in recent years and in some cases, ethnic and religious minorities experience the university life very differently than the others (Butt, 2009). Therefore, their mental health issues may be given specific consideration for an objective understanding of the research problem.

As evident from the above discussion, students are exposed to several academic as well as non-academic stressors, however, studies vary considerably in their conceptualization and categorization of different stressors. Even studies with similar conceptual scheme and categorization have reported varied findings as to which factors, academic or non-academic, cause more mental health issues. Moreover, there are very few studies which have delineated the effect of some stressors on specific mental health outcomes. This study has tried to address these research gaps within the ambit of its aims and objectives.

The context specific factors in Pakistani universities are also important to consider for the present study. For instance, stressors relating specifically to foreign students may not be applicable for investigating mental health issues in Pakistani universities since the number of foreign students is negligible. This study includes Pakistan's context specific factors in addition to general stressors available in the scientific literature. In this way, the study has delineated the stressors common to Pakistani universities and foreign universities and also those stressors which are specific to the Pakistani context.

Keeping in view the current methods measuring the prevalence of mental health issues, it is not possible to delineate all the factors which could potentially contribute to mental illnesses in students. This is particularly true for significant life events and personal experiences in early life (Fryers & Brugha, 2013). However, if mental health is conceptualized as a continuous as opposed to a dichotomous state, it is plausible to think that university related factors could independently affect mental health of students irrespective of their individual histories. In order to draw prevalence of mental health issues in a generalizable sample of university students, it is convenient to understand the perceptions of students about those factors or stressors in university environment which could have a bearing on mental health of students.

2.2.4.4 Students' response to stressors

A number of health problems are attributable to stress while individuals exposed to highly stressful conditions are vulnerable to mental disorders, physical illnesses and engagement in destructive behaviors. The impact of stressors on distress and depression is well established. Several studies ranging in span from 1990s through the present time have provided ample evidence that exposure to stressors has a significant bearing on not only distress but a range of mental health outcomes such as depressive symptoms, alcohol and substance abuse, generalized anxiety disorder and post-traumatic stress disorder (Abouserie, 1994; Allam, 2011; Borjalilu et al., 2015a; El Ansari et al., 2014a; Khansari, Murgu, & Faith, 1990; Mazure, 1998; Mikolajczyk et al., 2008; Tavoracci et al., 2013; Thoits, 1995, 2010). The accumulative effect of stressors could also be a risk factor for physical health outcomes such as heart disease, immune malfunctioning, herpes and bowel disease (Bruffaerts et al., 2012; Chu, et al., 2015; Royal College of Psychiatrists, 2010; Tennant, 1999; Thoits, 2010; Versaevel, 2014). Finally, distress is known to contribute to criminal tendencies, school dropout and poor academic performance (Eisenberg et al., 2009; Erskine et al., 2015; Thomas et al., 2016). Thus, stress exposure could be seen to have an overarching influence on an individual's quality of life, both in physical and social terms.

The etiology and pathogenesis of stress are based on multiple factors and there are variations across different environments. Similarly, the outcomes of stress differ according to the ways it is understood and they also depend on the demographic and cultural characteristics of the individuals exposed to stress. Students respond to stressors in a variety of ways which may be cognitive, emotional, physiological, and behavioral in nature. In certain cases, extreme conditions such as psychosis and paranoia may occur if the stress is not managed. Some studies conducted on students' stressors have found them to primarily impact perceived stress (Ahmed et al., 2013; Borjalilu et al., 2015; Shah et al., 2010; Sohail, 2013; Tran, 2015) whereas other studies have found them to mostly impact depressive symptoms (Bostanci et al., 2005; Dyson & Renk, 2006; Khan et al., 2015; Mikolajczyk, Maxwell, El Ansari, Naydenova, Stock, Ilieva, Dudziak, & Nagyova, 2008; Wardle et al., 2004). But both these strands of studies suggest that stressors have a distinct bearing on both (dis)stress and depressive symptoms. The present study has delineated the association of stressors with distress and depression in order to ascertain which of these are more impacted by stressors in comparative terms. Nonetheless, the whole range of responses towards stressors transcend well beyond stress and depression. Among these responses, this study will also examine the

impact of mental issues on the academic performance and satisfaction of university students (Eisenberg et al., 2009; Guney, Kalafat, & Boysan, 2010). Other studies on the impact of stressors hint towards a wide range of responses which have been observed in general population including students. The Table 2.2 outlining an elaborate set of such responses is given below:

Table 2.2:
Effect of stressors on physical, psychosocial and behavioral issues

Physical	Psychosocial	Behavioral
– Headaches	– Irritability	– Overeating or loss of appetite
– Chest pain	– Anxiety	– Impatience
– Shortness of breath	– Sadness	– Quickness to argue
– Pounding heart	– Defensiveness	– Procrastination
– High blood pressure	– Anger	– Increased smoking
– Muscle aches	– Mood swings	– Withdrawal or isolation from others
– Indigestion	– Hypersensitivity	– Neglect of responsibility
– Constipation or diarrhea	– Apathy	– Poor job performance
– Increased perspiration	– Depression	– Poor personal hygiene
– Fatigue	– Slowed thinking or racing thoughts	– Change in religious practices
– Insomnia	– Feelings of helplessness,	– Changes in close family relationships
– Frequent illness	hopelessness, or of being trapped	– Increased use of alcohol / drugs

Source and adopted from: *Canadian Mental Health Association (2005)*

2.2.4.5 Variation among student segments

The prevalence of perceived stress may vary across demographic characteristics and students with modest socio economic backgrounds are more vulnerable to higher levels of stress, depression, and low psychological well-being (Andrews & Wilding, 2004; Verger et al., 2009). The research conducted in the USA, Turkey and France have shown financial issues to be associated with adverse mental health conditions (Bayram & Bilgel, 2008; Bostanci et al., 2005; Hope & Henderson, 2014; Saïas et al., 2014; Tavolacci et al., 2013). Besides, rural students have been found to be suffering from higher level of depression, stress and anxiety than their urban counterparts (Bayram & Bilgel, 2008). The difference across student from rural and urban areas may be understood through evidence that rural students usually hail from poorer economic backgrounds. However, the research on this particular theme is scant in context of countries such as Pakistan where most students receive all financial assistance from their family. Similarly, a number of studies have sought to examine the impact of

students' employment status on mental health issues (Chen, Wang, Qiu, Yang, Qiao, Yang, Liang et al., 2013; Dachew et al., 2015; Gnilka, Ashby, Matheny, Chung, & Chang, 2015) which is not very relevant in the context of Pakistan where most students do not have any work experience before they graduate from the university. One reason for this could be the general lack of part time employment opportunities in the country as well as the fact that families generally bear all expenditure of students during university.

Another manifestation of the impact of financial situation was highlighted in a study where students living in low quality housing facilities had low level of well-being. The students sharing accommodation with other students were facing more stress (Heath & Kenyon, 2001). Thus the quality of living environment is an important determinant of stress and satisfaction or dissatisfaction with it may serve as a protective as well as a risk factor for students' mental health and well-being (Abolfotouh et al., 2007; Shaikh, Babar, Tasneem et al., 2004).

The academic characteristics of the students have a bearing on the kind of stressors they face and ultimately on the likelihood of contracting mental issues or disorders. A large scale study conducted in the USA found that students from certain disciplines and those belonging to certain colleges or universities were more vulnerable to mental issues than the rest (Eisenberg et al., 2013). Studies conducted in other parts of the world such as Turkey (Bayram & Bilgel, 2008) and Egypt (El Ansari, Labeeb, Moseley, Kotb, & El-Houfy, 2013) also highlighted differential prevalence of mental issues among students where students from social and political sciences were found to have more stress and depression than students from basic science. Similarly, students in their early years of studies had higher stress and depression than students in their later years of studies (Abdulghani et al., 2011; Bojuwoye, 2010; Verger et al., 2009). However, some other studies have shown it to be the other way round (Iqbal et al., 2015; Vaez & Laflamme, 2008). The impact of students' years at university on mental issues remains a contentious issue in students' mental health literature and this study has attempted to address it in the context of Pakistan.

2.2.4.7 Factors influencing the intensity of perceived stressors

There is a considerable amount of evidence that there are gender differences in the experience of stressful events. The stress arising due to cyber addiction, eating disorders, alcohol related disorders have been shown to be more common among females than males (Niemi & Vainiomäki, 2009). A range of studies conducted in the USA, Western Europe, Middle East

and Indian subcontinent have found female students to be more vulnerable to mental issues than their male counterparts (Christensson et al., 2011; Dyrbye et al., 2006b; Eisenberg, Gollust, Golberstein, & Hefner, 2007; El Ansari et al., 2013a; Iqbal et al., 2015; Mikolajczyk et al., 2008; Saïas et al., 2014; Shah et al., 2010). Nonetheless, these findings have been contested by other studies which asserted that stress was gender neutral (Matud, 2004; Smith, Peterson, Degenhardt, & Johnson, 2007). Yet there are some studies which have considered males to be more likely to contract mental illnesses than females (Hope & Henderson, 2014; Karaoglu & Şeker, 2010). Keeping in view these contrasting evidences, this study has taken into account gender variation in most of the analyses conducted herein.

As evident from the aforementioned literature, the extent of effects of different stressors varies across multiple factors such as socioeconomic status, academic characteristics and sex. In addition, the perception of stress also varies in different circumstances and across individual characteristics as hypothesized by stress generation. The present study has attempted to deal with both research problems by generating data sensitive to variations across context and individual characteristics. Most studies conducted to measure stress and depression have used various tools and even those with same tools have used different cut-off points to calculate prevalence (Hope & Henderson, 2014). Due to this, the cross-population generalizability of these studies is severely undermined.

2.2.5 Effects of Students' Mental Health Issues

Stress can either directly cause physiological problems or it may indirectly affect physiological health through destructive behaviors triggered by it (Glanz & Schwartz, 2008). Stress may lead to risk behaviors such as increased smoking, impatience, procrastination, change in religious practices, eating disorder and excessive use of internet (Abolfotouh et al., 2007; Canadian Mental Health Association, 2005; Khalil, 2011b; Memon et al., 2012). The risk of substance abuse has also been reported to increase during university life (Sebena et al., 2012; Versaevel, 2014). Alcohol, cannabis and tobacco are the common substances used by students (Hamdan-Mansour, Halabi, & Dawani, 2009; Hunt & Eisenberg, 2010; Surtees, Wainwright, & Pharoah, 2002). In Pakistan, alcohol and cannabis are illegal to carry or consume which also adds a measure of criminality to their consumption. Apart from the physical health problems, the behavioral disorders may result in academic problems, depression, risky sexual behaviors, and mental disorders (Eisenberg et al., 2009; El Ansari & Stock, 2010; Richardson et al., 2012). Students attribute smoking to social desirability and to

reasons such as facilitating engagement with people, and conformity to group dynamics (Hamdan-Mansour et al., 2009). It has been argued that smoking not only assist in dealing with stress but also indicate that the student displaying the behavior is stressed. Tobacco use during the student life has long term effects, one of which can be the lifelong nicotine dependence (Wolfson et al., 2009). In Pakistan, tobacco is cheaper than most Western countries which can be an additional factor favoring its use by the students.

A study conducted in France showed that perceived stress was associated with behavioral issues such as eating disorder and cyber addiction (Tavolacci et al., 2013). Another study measured the risk of cyber addiction to be as high as 27.5% among students which may also cause long term physical and mental consequences for them. Additionally, behavioral issues such as relationship problems, sleep deprivation and suicidal tendencies have also been reported among students. Multiple factors accounted for high level of depressive symptoms among students which included their genetically determined predisposition (Eisenberg et al., 2013). In the present study, behavioral responses of the students are examined in terms of coping strategies used by students to counter stressors and mental issues.

2.2.5.1 Academic performance

While a certain level of stress (also called eustress) has been shown to produce positive results in terms of students' academic performance and well-being, distress can have both immediate and longer term adverse consequences such as low self-esteem and poor academic performance (Al-Kandari & Vidal, 2007; Eisenberg et al., 2009b; Sohail, 2013). The consequences of mental health issues among university students have been studied since a long period of time (Furneaux, 1962; Kelvin, Lucas, & Ojha, 1965). Kelvin and colleagues found a high percentage of college students (40%) visiting health facilities due to anxiety, tension and poor concentration. The study contended that despite scoring high on neuroticism, the distress experienced by these students did not affect their performance (Kelvin et al., 1965). Surtees et al. (2002) also argued that depressions and anxiety did not affect the likelihood to obtain a first class degree after adjusting other factors (Surtees et al., 2002). Additionally, another study has also asserted that high GHQ scores were not associated with first year exam failure (Szulecka, Springett, & Pauw, 1987). Older studies have generally reported lesser impact of stress on academic and non-academic outcomes. Reasons for this could be lesser competition, annual system, and less demands from students.

Similar results have been reported by studies exploring the relationship between anxiety and academic performance of university students. Andrews & Wilding (2004) found that anxiety has not been associated with academic performance (Andrews & Wilding, 2004). The studies following experimental design have also not found any association between anxiety and cognitive performance. These inconsistent findings may be reasonably explained by the assertion that anxiety causes worry which might temporarily affect performance efficiency but may also result in enhanced concentration thereby leading to high performance (Eysenck & Calvo, 1992). The anxiety prevalent among the student may also be due to the high expectations of the society for them to perform well. The anxiety stemming from these expectations may be a driving force towards high achievements in certain circumstances. Nonetheless, such pressures may result in chronic stress which has long term implication for the physical, cognitive and mental well-being of the student population (Stewart-Brown et al., 2000). Since the existing literature did not show a consistent relationship between anxiety and academic performance, the present study has only taken perceived stress and depression as major mental issues to be examined.

Contrarily, relatively recent studies have found that mental health illness results in adverse academic performance (Eisenberg et al., 2009; Richardson et al., 2012; Shah et al., 2010; Sohail, 2013; Versaevel, 2014). For instance, some studies have found perceived stress and depression to have a negative bearing on academic outcomes (Bostanci et al., 2005; Saleem et al., 2013; Shah et al., 2010). A longitudinal study with graduate and undergraduate students found that depression has a significant bearing on Grade Point Average (GPA) as well as dropping out of college (Eisenberg et al., 2009). Similarly, a study conducted in Australian universities found distress to be associated with lower academic performance (Stallman, 2010). A study conducted in Pakistan also found stressors as well as higher levels of stress to negatively impact academic performance (Sohail, 2013). Adverse academic outcomes have also been found with college students suffering from mental illness (Ali et al., 2015; Babar et al., 2015; Bojuwoye, 2010; Borjalilu et al., 2015). Mental issues and academic performance can be said to be in a cyclical relationship. This study appreciates this hypothetical relationship whereby it examines how mental issues affect academic performance.

Academic performance of students varies per their demographic characteristics, academic disciplines and academic characteristics such as the year of study in university. A longitudinal study in Sweden reaffirmed this by showing that students' age, gender, program

duration and year of study significantly determined their academic achievements (Vaez & Laflamme, 2008). Studies from other parts of the world including Pakistan have also shared similar findings (Eisenberg et al., 2009; El Ansari & Stock, 2010; Shah et al., 2010; Sohail, 2013). In order to avoid the impact of these factors on the relationship between mental issues and academic performance, the present study has attempted to control these factors in theoretical model as well as in empirical analyses.

Moreover, studies have shown that students with deteriorating mental health reported poorer GPA (Richardson et al., 2012; Shah et al., 2010). The sample for this study contained lesser proportion of students with failing grades as compared with general student population. Due to this, the results may be understated. The outcomes of disability on academic achievement may enhance anxiety, stress and depression levels among students in wake of study pressures amidst less capacity to study.

The studies on the impact of depression on academic performance revealed that depression restricts an individual's ability to perform day to day activities, including work life (Andrews & Wilding, 2004b; Chen, et al., 2013). Academic performance may also be considered congruous to workplace performance and the students' ability to do well academically may be gauged by a third party as well as by the student.

Measuring academic performance

The studies conducted on student mental health and academic performance does not only vary in measurement of mental issues but also in terms of measuring academic performance. For instance, whereas the USA education system assigns grades in absolute terms, several other countries consider relative performance of students with their contemporaries (Richardson et al., 2012; Vaez & Laflamme, 2008). Then, there are variations in grading system across universities within the same country. In addition to these objective criteria, another relevant aspect of academic performance especially in mental health studies is the subjective performance of students i.e. their performance as perceived by them. The subjective performance can then be further divided into satisfaction with the attained grades and in comparison with other students (El Ansari & Stock, 2010). While studies have differed greatly in the way they took academic performance as a variable, the present study has taken a holistic view by considering the objective performance as well as both the strands of subjective performance. By doing so, it has attempted to maintain its comparability with

studies which have used either objective or subjective academic performance measurement models.

2.2.5.2 Wellbeing

As a concept, wellbeing has been adopted by various academic disciplines but its purpose and meaning has hardly bypassed its dictionary definition. In terms of treating wellbeing as a contended state of being, it has been often measured across the population through concrete indicators such as GDP to highly abstract ones such as happiness (Diener, Richard, & Shigehiro Oishi, 2009; Soutter, 2011). The definition and measurement of wellbeing changed with the discipline which referred to it. From the perspective of economists, it was the wealth which defined well-being while sociologists stressed quality of life. For psychologists, wellbeing was the state of happiness whereas health professionals emphasized quality of health. A range of indicators such as inflation rates, social cohesion, mental health and epidemiological data were used to measure wellbeing (Soutter et al., 2014; Tran, 2015). Table 2.3 on next page provides more details in this regard.

Primarily, three types of wellbeing i.e. objective, subjective and psychological wellbeing are frequently found in the literature (Diener, Eunkook, Richard, & Heidi, 1999; Eid & Larsen, 2008). Subjective wellbeing in sociology constitute job satisfaction (sociology of work), marital satisfaction (sociology of family) and life satisfaction (sociology of aging) (Veenhoven, 2008). Positive psychology divides subjective wellbeing into cognitive and affective components (Diener, 1984). The cognitive component is life satisfaction or subjective evaluation of quality of life whereas the affective component is feeling good where feeling good denotes frequent joy and infrequent instances of negative emotions (Diener et al., 2009; Diener, Diener, & Diener, 1995; Kong, Zhao, & You, 2013).

Given the abstract nature of the concept of wellbeing, theoretical debates around this concept attract interest. Veenhoven (2008) argued that subjective wellbeing is socially constructed and individuals' assessments of their wellbeing depend upon the collective notions of what a state of higher or lower wellbeing entails. Additionally, if subjective wellbeing is considered a social construction, then cultural values also determine the overall wellbeing of populace (Diener et al., 1995; Diener, 2000; Zheng, Sang, & Lin, 2004). For instance, in contrast to a more collective culture, one that values individual freedom and choice would likely consider an unmarried yet successful professional as having higher wellbeing. Such a predisposition

could affect the overall wellbeing of people by influencing the very definition and meaning of the concept.

Table 2.3:

Well-being descriptors and constructs observed in the economics, sociology, psychology and health professions literature

	Economics	Sociology	Psychology	Health Professions
Terminology used in relation to well-being	Wealth Happiness Welfare Utility Capabilities and freedoms	Quality of life - descriptive - evaluative Social indicators	Happiness/pleasure Subjective well-being Psychological well-being Life satisfaction Authentic happiness Positive youth development Developmental assets Flow Meaning	Health-related quality of life Physical and mental health
Objective indicators	Gross domestic product Inflation rates Employment rates Trade deficit Cost of living index	Educational qualifications Truancy rates Poverty/crime Youth pregnancy Level of democratic governance Social cohesion Religious involvement	Rates of depression Mental health Risk behaviors Genetic/birth factors - personality - birth order Relationship types Number of relationships	Practitioner report Blood tests Epidemiological data - mortality - morbidity - life expectancy - health status at birth Health insurance data Healthcare costs Number of carers
Subjective indicators	Happiness measures Preferences and decisions under risk and uncertainty Inter-temporal choice Time discounting	Domain-specific life satisfaction (e.g. work) Social trust Attitudes or beliefs about phenomena Perceived neighbourhood quality Distance impacts (e.g. commuting time)	Life satisfaction (cognitive and affective appraisals of specific or global domains of life) Relationship quality Flow Goal orientation	Self-rated health (number of good health days and bad health days) Carer's quality of life Faith in healing

Source and adopted from: (Soutter et al., 2014)

In postmodern societies and the consumer culture, wellbeing might be taken as a utopian state of extravagance in terms of material resources, physical attraction and power. In such contexts, it is likely that most people would report a lower wellbeing (Diener et al., 2009). Finally, wellbeing could also be a looking glass-self phenomenon where individuals could judge their wellbeing based on others' reactions about their state of being (Zheng et al., 2004). In this context, it is plausible that the cultural relativity prevails regarding subjective wellbeing. While developed countries have been shown to have consistently higher wellbeing by some studies, other studies have contested this assertion. It is, therefore, important to test these theoretical standpoints to understand if cultural relativity influences state of subjective wellbeing especially in contexts where overt social conditions are not conducive.

In the present study, the absurdity surrounding wellbeing and particularly subjective wellbeing has been accounted for. This study has measured subjective wellbeing as satisfaction with different spheres of life, financial sufficiency and self-rated health. By doing so, it has consolidated standpoints of various academic disciplines.

2.2.5.3 Life satisfaction

As discussed earlier, life satisfaction is a core component of subjective well-being. A number of studies have used it as sole measure of SWB (Gnilka et al., 2015). Like SWB, life satisfaction is also culturally relative. A seminal study of Suh, Diener, Oishi, & Triandis, 1998 involving a sample size of 62,446 individuals across 61 nationalities found that emotional experiences played an important role than norms in terms of life satisfaction of individuals belonging to individualistic cultures. On the other hand, both norms and emotional experiences were important for life satisfaction of individuals in collectivist cultures. However, cultural relativism has its limitations and affluent societies tend to report higher level of life satisfaction than less affluent societies (Suh et al., 1998). A study conducted in Canada reported that more than three quarters of students in the study sample were satisfied with their lives (Chow, 2005). On the other hand, a study conducted in the less affluent country of Pakistan reported that the satisfaction level of University student was alarming low (Abbasi, Malik, Chaudhry, & Imdadullah, 2011).

A number of demographic factors such as age, gender and financial situation have a bearing on students' life satisfaction (Abbasi et al., 2011; Chu, et al., 2015; Matheny et al., 2002). Some studies have also found religious beliefs, personality types and lifestyles to be important predictors of life satisfaction (Joshi & Afshari, 2011; McDowell, 2010). In addition to this, mental health issues such as depression, anxiety and stress have significant association with life satisfaction of students (Chu, et al., 2015; Gnilka et al., 2015a; Guney et al., 2010a). This study examines the impact of both demographic and mental health factors on life satisfaction of students. Moreover, it will also investigate the impact of each of the mental health issues under study on life satisfaction by controlling other variables in the equation.

Several tools have been used to measure life satisfaction of university students. Some studies have used a single question whereas many others have used a five item measure of Diener, Emmons, Larsen, and Griffin (1985) called The Satisfaction with Life Scale (Chow, 2005; Gnilka et al., 2015; Guney et al., 2010; McDowell, 2010). This scale has been criticized for

inclining heavily towards cognitive component of subjective wellbeing. Moreover, this scale overlooked some important dimensions of subjective wellbeing such as financial situation and health. Finally, it does not particularly focus on immediate surroundings of respondents and rather inquire about issues on which the respondents may or may not have an informed opinion. Among the available tools, studying-related life satisfaction scale includes a number of questions which are directly related to students' lives in addition to questions addressed at broader issues. This tool has been tested in both Western and non-Western contexts successfully and as such, it was used in this study.

2.2.5.4 Coping

Coping is defined as those ways by which individual resists stressors, modify his/her perception regarding stressors, and minimize the experience of stress (Cooper, 2005; O'Driscoll & Cooper, 1996). Coping may be problem focused i.e. to alter the conditions which result in stress or it may be emotion focused i.e. altering the appraisal of the stressor to minimize its effect. As with any intervention, stress intervention may be differentiated on the basis of scope, level, focus and the anticipated outcome (Dewe, 1994; Folkman, 1984; Lazarus & Folkman, 1984). Stress interventions focusing on individual rather than the general population has been found to be more effective (Folkman et al., 1987). There have also been criticisms of individual level intervention as it is thought to implicitly put the 'blame' of illness on the individual (Clark et al., 2000). Moreover, individual level stress interventions aim at assisting individuals to cope with stress but these interventions do not address stress in the larger context.

Coping strategies: Coping strategies refer to the conscious efforts undertaken by the individual to manage stress. Coping strategies may be active or avoidant; emotion focused or problem solving. Nevertheless, such categorizations are arbitrary and elude the diversity of coping mechanisms. Research has suggested that students tend to go outing, sleep, or have discussion with peers to cope with mental health issues (Arslan, Dilmaç, & Hamarta, 2009; Matud, 2004; Shaikh, Babar, Tasneem et al., 2004b; Sohail, 2013). Students may also adopt destructive strategies such as substance abuse, alcohol use etc. while dealing with stressors (Hamdan-Mansour et al., 2009; Sebena, El Ansari, Stock, Orosova, & Mikolajczyk, 2012; Tavolacci et al., 2013). Furthermore, in the absence of social support network, students suffering from mental health issues may consider committing suicide. Several similar studies

have also suggested that suicidal ideation among students is on the rise (Arria et al., 2009; Eisenberg et al., 2007).

This study has investigated the nature of coping strategies used by the university students to deal with stress and other mental health problems. It has also attempted to discern the varieties of coping strategies used which could be broadly categorized as problem solving, negative and religious coping strategies. Additionally, the study has disaggregated different coping strategies against demographic characteristics such as gender, age, background (rural/urban), years of study and academic discipline. In this way, important patterns were drawn regarding the vulnerability and resilience of different student segments towards mental health and their ability to cope with it.

2.3 Public Health Relevance

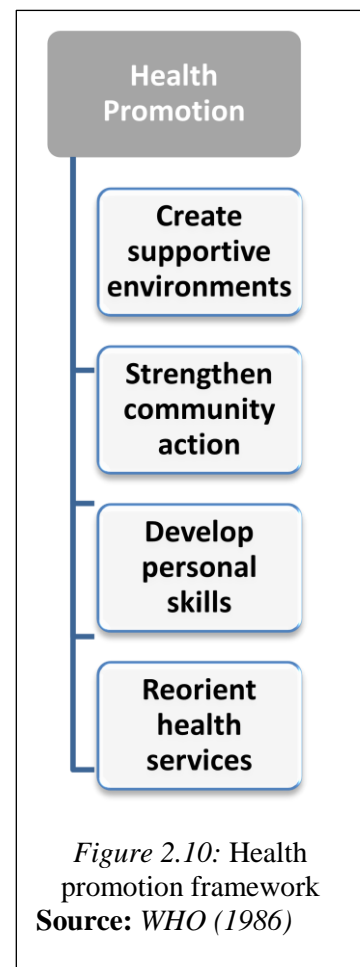
This section briefly outlines the scope of mental health promotion and mental disorder prevention. It touches upon the international commitments to mental health issues and conceptualize mental health in human rights framework. Highlighting the socioeconomic determinants of mental health, this section also brings those disparities to attention which makes some people more vulnerable to mental illnesses. This section ends with speculating the malleability of students' mental health under influence of globalized sociopolitical configurations.

The consideration of mental health as not falling within the domain of public health owes much to the perceived incurability of mental illnesses (Cooper, 1993; World Health Organization, 2004). The health practitioners have thought of mental illnesses as a predominantly biological phenomenon due to poor prognosis (Cooper, 1990; World Health Organization, 2004). It has followed with a perceived futility of promoting mental health and any effort in this direction was conceived as being taken on the opportunity cost of treatment and rehabilitation (World Health Organization, 2008). Additionally, unlike some physical illnesses, mental health illnesses intertwined with such a large range of external influences that they cannot be conceived an outcome of social conditions with a superficial analysis. Improving mental health and reducing mental ill-health are indispensable approaches which essentially require an integrated public health framework.

2.3.1 Health Promotion

Being one of the central themes of public health, health promotion has emerged as a key concept to guide health related efforts in contemporary world (Nutbeam, 2000). Health promotion is concerned with an increased focus on the determinants of health and inclusive approach towards the community. Health promotion is defined by WHO as “[t]he process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behavior towards a wide range of social and environmental interventions” (World Health Organization, 2004). Health promotion is often used interchangeably with ‘new public health’ and the proponents of new public health argue that it is possible to engineer social and environmental conditions for the promotion of health (Tulchinsky & Varavikova, 2000). It is suggested that the determinants of variance of disease among populations are rooted in wider social and environmental conditions (Wilkinson & Marmot, 2006). Therefore, it is important to view health as a product of cumulative product of virtually all social interventions.

Given the expanded scope of new public health, there is no absolute agreement over what constitute health promotion activities. It is even more challenging to limit the health promotion strategies in a well-articulated conceptual framework. Broadly, the health promotion strategies may be understood by the categorization developed by World Health Organization, 1986. The Ottawa Charter of Health Promotion Action Strategies focuses on i) building healthy public policy; ii) creating supportive environments; iii) strengthening community action; iv) developing personal skills; and v) reorienting health services. Health promotion consists of health sensitive policies and the responsibility of the policy makers to consider the health implication of any policy decision (World Health Organization, 1986). Besides, it is also important to create and sustain environments which are favorable for a healthy population. The reorientation of health services refers to an inclusive approach which includes community groups, individual and governments. In this way, the health sector is envisaged to become a dynamic rather than an isolated institution. For the effective enforcement



of these macro level measures, the health promotion aims to empower communities to acquire greater control over their health and to develop their plan of action in accordance with their collective needs. Finally, the health promotion strategies targets individual for awareness raising, education, and skills to manage one's health. The emphasis on this individual level aspect of health promotion has recently attracted considerable attention and public health has focused on enhancing health literacy of the population. A schematic model representing the aforementioned strategies is outlined in Figure: 2.10.

2.3.2 Mental Health Promotion and Prevention

Mental health promotion aims to address the determinants of mental health. These include social, environmental, behavioral and even political factors (Mittelmark, 2003). As discussed earlier, mental health is sensitive to macro level realities such as poverty, unemployment, and improved conditions of living. Additionally, mental health promotion is linked with behavioral issues such as smoking, substance abuse, and illicit sexual activities (Orley & Weisen, 1998; Sebena et al., 2012). In this manner, mental health promotion forms an inalienable part of health promotion. Mental health promotion suggests a wide range of interventions which not only promote mental health but also promote health behaviors and conditions which are relevant to physical health outcomes. Nonetheless, the emphasis of mental health promotion on the broader social changes does not reasonably fit under the ambit of health strategies and interventions. For instance, significant changes in socioeconomic inequality and poverty are unlikely to be made by the mental health promotion activities. It is, therefore, proposed that mental health promotion projects adopt an etiological approach and identify the most relevant determinants of mental health and demonstrate the changes in these determinants to produce evidence for positive mental health outcomes. In this manner, the precise indicators affecting mental health may be developed to guide broader policy actions and strategic shifts.

Mental disorder prevention has been defined as “[r]educing incidence, prevalence, recurrence of mental disorders, the time spent with symptoms, or the risk condition for a mental illness, preventing or delaying recurrences and also decreasing the impact of illness in the affected person, their families and the society” (Mrazek & Haggerty, 1994). As evident from the above definition, mental disorder prevention deals with management and control of mental illnesses. It strives to manipulate the causes of disease in order to control its prevalence and incidence. It also seeks to prevent onslaught of disease in mental health patients. The public

health literature classifies prevention strategies into primary, secondary, or tertiary preventions (Gordon, 1983). Primary interventions centrally concern prevention strategies before the contraction of illness. Secondary interventions are aimed at reducing the rate of prevalence of mental illnesses by embarking upon the early detection and treatment facilities. Similarly, tertiary interventions deals with rehabilitative services to mental health patients and efforts are made to prevent the recurrence and aggravation of disease.

While health promotion focuses on creating favorable conditions to promote health, health prevention lays emphasis on the causes of disease. Mental health promotion and mental disorder prevention have found to be amalgamated with each other and prevention of mental illnesses contributes to the promotion of mental health. This specifically applies to the primary preventive interventions where the focus is to improve those conditions that are not only detrimental to mental health but also increase vulnerability towards disease. Therefore, collective action is categorized keeping in view the improvement in health as well as avoiding risk factors relating to disease (Eaton & Harrison, 1996). Interventions may be universal, for instance, promoting health and preventive disease through raising awareness against tobacco use. It is evident that any such intervention transcends beyond specific population and contains promotive as well as preventive elements. Similarly, the interventions may be selected, for instance, educating young population against hazards associated with substance abuse. In this case as well, the promotion of health essentially corroborates with prevention of various physical and mental illnesses associated with substance abuse. The interventions may also be indicated, for instance, counseling services provided to mental health patients who show some symptoms indicating the disease but not at the stage where any sophisticated diagnosis is possible. Again, the effort would be directed towards to prevent the onset of disease and to promote healthy behaviors to sustain the preventive efforts. Hence, health promotion and health prevention are closely integrated and mental health is not an exception in this regard.

2.3.3 Public Health Relevance of Mental Health

The mental health and public health have been recognized as fundamentally overlapping only recently (Friedli, 2002; World Health Organization, 2002). There were several reasons for this disassociation. Firstly, the mental health has been perceived as a luxury rather a serious health concern. This misconception owes much to the idiosyncrasies of mental illnesses and prevalent confusion regarding the distinction between mental health and mental illness.

Secondly, it has been lately established that mental health is an integral part of health and its association with physical health is much more intimate than once thought. Thirdly, the prevalence of mental health issues has been found to be alarmingly high. For instance, depression is anticipated to become second largest prevalent disease by 2020 (World Health Organization, 2001). It then means that curative and rehabilitative services may not be able to cater to the needs of mental health patients. Therefore, health promotion and prevention activities should be engaged to deal with mental health issues. Research has also suggested that mental health issues are more prevalent with disadvantaged populations (Becker & Luthar, 2002; Patel & Kleinman, 2003). Although the need for treatment and rehabilitation cannot be denied, there is a growing consensus that scope of public health in dealing with mental health issues may even extend to fundamental structural changes such as resource distribution. In this context, the phenomenon of mental health could encompass health policies as well as social and political arena.

2.3.3.1 Mental health as a human rights issue

Health is not merely a technical phenomenon rather it is rooted in the social, economic, and cultural conditions. Health related behaviors need to be complemented with healthy environment, stable economy, and peaceful living in order to produce effective results (Gostin, 2001; Hunt, 2003). Thus, it is not solely upon the individuals to maintain health but it is also the right of people to be provided with facilities which would serve as protective factors against adverse health outcomes. For this reason, the right to physical and mental health was pronounced as a fundamental human right in the constitution of WHO in 1946 (World Health Organization, 1946). Mental health is particularly sensitive to the structural domains which directly constitute the human rights spectrum. The promotion of mental health is associated with adequate standards of living and harmony between groups and communities. Violation of basic human rights as well as insecurity, fear and discrimination directly affect the incidence of mental health issues in populations (Gostin, 2001). Therefore, it is important that international human rights framework be applied to address mental health issues in their entirety.

International human rights instruments represent formidable guidelines to address the mental health of population. International Covenant on Economic, Social and Cultural Rights (1966) (ICESCR) clearly identifies the right to physical and mental health as a fundamental human right (Article 12) (International Covenant on Economic, Social and Cultural Rights, 1966).

The elaboration of the said article by the Committee on Economic, Social and Cultural Rights (CESCR) recognizes that there is unequal access to mental health services and stresses the need for adequate funding for inclusive health intervention.

The emphasis on universal access is very relevant to mental health for several reasons. Firstly, mental health is hardly streamlined in health care systems in terms of resource allocation (Jacob et al., 2007). Secondly, mental health issues account for most years lived with disability (YLDs) (Menken, Munsat, & Toole, 2000; Whiteford et al., 2013; Whiteford et al., 2015) and the social security mechanisms in most countries does not cater for the needs of mental health patients for a longer period of time (Kawachi & Berkman, 2001). Thirdly, mental health issues are stigmatized in many communities and there is almost invariable discrimination against the mental health patients both inside and outside the health care settings (Corrigan & Watson, 2002; Hunt, 2003). These factors combine to formulate a serious challenge for the national governments to address the mental health of its people. In this context, legally binding instruments such as ICESCR serve as leading guidelines to help countries with their plan of action against mental health issues. It is important to note that both key human rights instruments i.e. International Covenant on Civil and Political Rights (ICCPR) (The United Nation General Assembly, 1966) and ICESCR also embark upon the underlying determinants of mental health as envisaged in the International Bill of Rights and Universal Declaration of Human Rights (UDHR) (Universal Declaration of Human Rights, 1948). Article 25 of the UDHR states “Everyone has the right to a standard of living for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (Universal Declaration of Human Rights, 1948).

It may be observed that the aforementioned article of UDHR is a virtual interpretation of the definition of mental health provided by the WHO (World Health Organization, 2004). In order to realize one’s abilities and to positively contribute to the society, it is a prerequisite that basic amenities of life be provided and individuals be protected from structural adversities without discrimination. Moreover, ICESCR and ICCPR contain a range of civil, political, economic, social and cultural rights which collectively form an umbrella under which a mentally healthy population may thrive. These include the right to franchise, right to association and assembly, right to education, right to access to information, and right to just

and favorable conditions of work. Vulnerability towards mental health issues is an outcome of denial of these rights.

Evidence shows that liberty to make individual and collective decisions and to contribute towards society is an important determinant of mental health. On the other hand, violent conflicts and its extreme forms such as genocide, ethnic cleansing, and loss of significant others significantly contribute to the prevalence of mental health issues (Jaranson, Martin, & Ekblad, 2000; Kessler, 2000). Regional distribution of Global Burden of Disease attributable to mental and substance use disorders presents evidence that countries trapped in conflict and violence have a higher prevalence of mental health issues (Baingana, Bannon, & Thomas, 2005). Often, these circumstances are also accompanied by rising poverty, unemployment, job insecurity and political oppression. The convergence of denial of rights with denial of access to resources increases the incidence of mental health issues and exacerbates the health condition of mental disorder patients. Therefore, cardinal UN Human Rights documents are important guiding principles for mental health promotion and mental disorder prevention in the realm of public health framework.

Although the international human rights instruments address people without any discrimination on the basis of sex, color, caste and creed, they place special emphasis on the disadvantaged and marginalized segments of society (World Health Organization, 2002). In addition to the stress on the vulnerable groups and communities with regard to mental health, Office of the High Commissioner for Human Rights (OHCHR) has specific conventions to cater for the discrimination faced by different groups in society. Some of these documents include Convention on the Rights of Child (Convention on the Rights of the Child, 1989) and Convention for Elimination of All Forms of Discrimination (Convention on the elimination of all forms of discrimination against women, 1979). These conventions specifically deal with the mental health needs of children and women and bind the member states to act in accordance with principles contained therein and other general human rights instruments.

To date, International Human Rights Framework of United Nations does not contain an instrument specifically dealing with mental disorders rather they are grouped under the broader segment i.e. persons with disability. In this connection, mental disorders are covered under UN Global Programme on Disability in 1982. Furthermore, the United Nations has adopted Principles for the Protection of Persons with Mental Illness and for the Improvement of Mental Health Care (the MI Principles) in 1991, which have been wholly or partly

integrated by some member countries in their national legislations. These measures reflect a global commitment by the state parties to deal with mental health issues as a priority humanitarian issue. Nonetheless, the ubiquitous presence of mental disorders across the globe and relative mystery regarding its critical determinants call for a specialized UN Human Rights instrument as well as greater efforts on part of the member countries.

2.3.3.2 Socioeconomic determinants of mental health

With regard to social interactions, positive mental health is associated with healthy and interactive social relationships (Lahtinen, 1999; Turner & Brown, 2010). For instance, family as a source of primary socialization is important from a developmental point of view. While family environment ought to be secure, rigidity and oppression in family may cause mental health issues. Thus, stable social relationships may be seen as a constituent of good mental health (Turner & Brown, 2010). Additionally social participation is another aspect of mental health (UNITE, 2004). People with sound mental health tend to contribute to the community whereas mental disorder patients are normally marginalized. Similarly, satisfaction level with workplace is an aspect of mental health. Job satisfaction enhances self-esteem, sense of security, and belonging. Thus, it contributes positively towards mental health. On the other hand, distressing work environment is associated with negative health outcomes.

Mental health is also sensitive to the social capital which refers to social networks, social cohesion, trust, and the propensity for collective action (Putnam, 1993). The solidarity embedded within the concept of social capital affects mental health. Societies with high social capital are not only more likely to bear positive mental health among its individuals but could also provide better access, treatment and support to mental disorder patients. On the contrary, absence of social support aggravates the conditions for people with mental illnesses.

The definition and scope of mental health and mental illness varies across cultures. The world cultures vary in different aspects. For instance, it is generally thought that Asian cultures generally value collectivity whereas European cultures emphasize individual ambitions. On the other hand, some cultures understand distress in religious terms. These variations have significant implications on intervention options available to public health professionals. Additionally, the cultural differences add to the complexity of defining mental health versus mental disorders (Kawachi & Berkman, 2001). It is therefore important to set community based mental health priorities for the effective realization of public health agenda regarding mental health.

Of late, it has been argued that spirituality forms an important part of a significant number of people's lives across the world (Koenig, 2010; Verghese, 2008). The meanings associated with spirituality transcend beyond individual and community goals. It constitutes the existential questions which are relevant to life satisfaction and well-being. Positive mental health contributes towards a harmonious spiritual life (Koenig, 2010). An individual embattled with mental disorders is less likely to delve positively in ethical and existential concerns of spirituality (Koenig, 2010; Verghese, 2008).

2.3.3.3 Impact of globalization on mental health

Globalization is one of the most pervasive of all social processes occurring in the modern world. In addition to the intensification of international trade, globalization has resulted in greater intercultural communication, international migration, and social relations (Timimi, 2005). Arguably, globalization is an archaic phenomenon and its roots can be traced back to the pre-modern times. Nonetheless, unprecedented technological advancements in the 19th and 20th century have magnificently increased the scope of globalization. The distinction between the local and the global has diluted and local cultures are being replaced by transnational norms and values. This process, also known as acculturation, has resulted in fundamental changes in social structures of several societies. Arguably, normative structures of some societies have not been able to cope with the globalizing forces and revolutionizing technological changes such as internet and mobile phones. The traditional institutions such as family, education, and economy have been undergoing transformations. The globalization offshoots such as information overload, virtual communication systems, and commodification of culture has rendered individuals to anomic conditions. Resultantly, conflicts between collective goals and individual ambitions are more obvious. These tensions between the societal expectations and individual choices may have adverse effects on the health of the individuals, particularly mental health (Holm-Hadulla & Koutsoukou-Argyaki, 2015). While there is a dearth of studies delineating the association of mental disorders and globalizing forces, it is evident that the prevalence of mental disorders has increased manifold alongside globalization in the recent decades (Bhugra & Mastrogianni, 2004; Timimi, 2005).

Arguably, students are most exposed to the forces of globalization. University students use a range of global communication tools such as social networking sites, mobiles, and other gadgets (Holm-Hadulla & Koutsoukou-Argyaki, 2015). The academic life demands extensive interaction with international academic communities and students are exposed to

different cultures and societal values. Additionally, university students generally belong to the age group which is important with respect to cognitive and emotional development. As a result, university students are vulnerable to the effects of globalization. Within a globalized world, dilemmas related to personal identity, cultural values, conformity, and deviance are likely to arise. With advances towards a global economy (we are yet to observe the effects of regression in some parts of the world), career aspirations of young students have arguably become more ambitious. University students are under pressure to transcend beyond their current socioeconomic status (Holm-Hadulla & Koutsoukou-Argyaki, 2015). All these stressors cumulatively produce distress among students which increase their vulnerability towards mental illnesses.

2.4 Significance of the Study

Mental health issues have profound consequence for students' life experiences and the chances of their success in life. Living with mental health has personal as well as social costs. Given the complexity of mental health disorders and a general lack of knowledge about the severity of such issues, health seeking behavior is less common. Despite enhanced access to medical knowledge, stereotypes about mental health patients remain which result in frequent risk behaviors. While university students are almost invariably facing financial constraints, academic stress, and issues related with their psychological development, their perceptions regarding their mental health state is important to investigate. In a developing country, such as Pakistan, high levels of insecurity and unsatisfactory economic growth compound problems for the students. Health literacy in the country is low and traditional non-scientific ways of addressing mental health issues are often used. While Pakistan's educational indicators are on a low as compared to even its neighboring countries, only a handful of youth get a chance to study at the higher education level. Therefore, it is increasingly important that issues concerning educated youth may be dealt at priority to safeguard this rare intellectual capital.

In a broader context, the understanding of mental health issues not only reveal the prevalence of disorders in university students but also deliver a phenomenological picture of the life circumstances and thinking patterns of millennial generation. Such an enquiry is very relevant to public health debate which is increasingly making its way into modern health care systems. Particularly in developing countries where preventive and promotive approaches towards health are still nascent, this is a high time that dynamics of mental health may be incorporated

in legislative and administrative frameworks. It is anticipated that this study will prove to be a step in that direction.

Chapter 3: Material and Methods

Research is essentially a systematic attempt to find out or to establish facts (Bryman, 2012). There may be different possible valid ways of finding out something. The instruments and tools employed to investigate a phenomenon largely depends on the research question (Walliman, 2011). However, at a more fundamental level, the nature of research question being asked and the methodological tools have philosophical underpinnings. Enquiry emanates from assumptions and these assumptions need to be clearly spelled out for value freedom and transparency. In this context, this chapter outlines the research questions and hypotheses of this study. It is followed by philosophical debates concerning research on social phenomena and traditions in mental health research. The operationalization of important concepts in this study has also been detailed. Moreover, it explains the methodological procedures including selection criteria, sampling and ethical considerations of this study. The tool used to collect data has been described in detail. This chapter also delineates some challenges encountered in the field and some interesting fieldwork experiences. Finally, data analysis plan has been presented in detail.

3.1 Objectives, Research Questions and Hypotheses of the Study

Embedded in the stress theory, this study measures the determinants, prevalence and outcomes of mental health issues among university students of Pakistan. It takes into account the influence of health-related behaviors, academic and non-academic stressors on mental health issues. Academic and demographic characteristics of students are taken as confounding variables and their impact on stressors and mental health issues have been examined. Thereafter, the impacts of mental health issues on academic performance and subjective well-being of students have been measured. Finally, this study describes the coping strategies used by the students to mitigate mental health issues and the relation of these coping strategies with their demographic characteristics.

3.1.1 Specific Research Objectives

1. To ascertain the variations in perceived mental health issues among university students with respect to their socio-demographic and academic characteristics
2. To find out the prevalence of perceived mental health issues and their association with general health and health behaviors of university students

3. To identify the potential stressors which could determine perceived mental health issues among university students
4. To examine the association between perceived mental health issues on academic performance of university students
5. To examine the association between perceived mental health issues on the subjective well-being of university students
6. To explore the coping strategies and its relationship with respondents' social setting in the context of Pakistan

3.1.2 Research Questions

- 1. To what extent mental health issues are prevalent among public sector universities students?**
 - a. What are the perceptions of university students about the prevalence of perceived mental health issues among them?
 - b. How students' socio-demographic and academic characteristics are associated with their perceptions towards prevalence of perceived mental health issues?
 - c. To what extent the general health and health behaviors are associated with the prevalence of perceived mental health issues of university students?
- 2. Which stressors do the respondents perceive to be relevant to mental health outcomes?**
 - a. What are the perceptions of university students about major stressors affecting their lives?
 - b. To what extent the perceived stressors effect the mental health of university students?
 - c. How students' socio-demographic and academic characteristics are associated with their perceptions towards stressors they encounter in their university life?
- 3. How are the mental health issues associated with academic performance and subjective well-being of university students?**

- a. What is the association of mental health issues on academic performance of the university students?
- b. What is the association of mental health issues on the subjective well-being of the university students?

4. What are the coping strategies used by the university students and how are they related with respondents' social setting in the context of Pakistan?

3.1.3 Hypotheses of the Study

This study has five main hypotheses, which were developed based on the review of literature and were tested by applying different statistical tests.

1. There is an association between various socio-demographic factors, academic characteristic, and perceived mental health issues of university students;
2. There is an association between general health, health behaviors and perceived mental health issues of university students;
3. There is an association between perceived stressors and mental health issues of university students;
4. There is an association between perceived mental health issues and academic performance of university students;
5. There is an association between perceived mental health issues and subjective well-being of university students.

3.2 Ontological and Epistemological Considerations

Social world may be understood through various ways. These ways of interpreting social phenomenon are informed by philosophical debates concerning ontology and epistemology (Abbott, 1998). Ontology is concerned with the nature of being and existence. In social sciences, it is centrally concerned with the question that whether social reality may be understood as 'social facts' (existing independent of the individual's interpretations) or it may be seen as constructed through the perceptions and actions of social actors (Berger & Luckmann, 1991). In the present study, objectivist approach is used as opposed to subjectivist approach. In other words, it means that the ontological position of this study is realism. The

realism stance posits that there exist two kinds of entities: particulars and universals. Universals are the features which many objects may share whereas particulars refer to individual items and concrete entities. Realism is the ontological stance which accommodates both entities (Chakravartty, 2011). On the other hand, nominalism stresses that there are only particulars and no universals. As a principle, public health is concerned with health promotion and disease prevention by evoking collective social response. Therefore, it is more inclined towards exploring social patterns concerning health and illness, thereby investigating universals. In the present study, the focus is on understanding the prevalence and determinants of mental health among university students. This study holds that there may be commonalities (universals) between particular students' social, cognitive, and emotional circumstances which lead to mental illnesses. Therefore, it is ontologically inclined towards realism.

Epistemology is primarily concerned with the nature of knowledge or what constitutes knowledge (Steup, Turri, & Sosa, 2013). In social sciences, epistemology asks whether the knowledge about social world may be acquired with the same approach as used in natural science (Bryman, 2012; Lewis, Thornhill, & Saunders, 2007). Positivists argue that knowledge about the social phenomena can be obtained in terms of causal relationships (May, 2011). Positivism confines itself to measurable and observable phenomena. Contrarily, anti-positivists or interpretivists deny this stance that behavior of human beings can be studied in ways that are used for inanimate objects. Interpretive approach focuses on the subjective perceptions and judgments of social actors and considers the agency of social actors as constituent of reality (Crotty, 1998). While interpretive approach is geared towards gaining an in-depth understanding of individual perceptions, positivists aim for generalizability of findings to large populations. Resultantly, positivists apply survey techniques, experiments, and observations to understand the social phenomena.

Positivist approach is deductive i.e. it moves from general statements to specific conclusions (Walliman, 2011). Positivists bring forth theories and test them against empirical observations (Maanen, Sørensen, & Mitchell, 2007; Schiffman & Kanuk, 1987). In the present study, the main objective is to understand the prevalence of mental health issues among university students. An effort has been made to generalize the findings from the sample to university students' population. Secondly, the study has assessed the impact of mental health issues on academic performance and well-being of university students. Put

simply, the study found the association between these variables using statistical analyses. Both these objectives correspond closely to positivist school of thought. Interpretive approach could not be a viable epistemological stance in this study due to its inefficacy with regard to generalizability and causal relationships. Hence, this study has adopted positivist approach to address its research questions.

3.3 Traditions in Mental Health Research

Studies on mental health have generally focused on the prevalence and incidence of mental illness. This trend is reflective of the tradition in mental health to find out general patterns of disease and morbidity (Zubrick & Kovess-Masfety, 2004). Nonetheless, this tradition is arguably contradictory to the very definition of mental health which emphasizes physical, emotional, and cognitive well-being rather than merely the absence of disease (World Health Organization, 2001). Additionally, the diagnostic tools for mental illness have also undergone several transformations. This is partly due to the fact that symptoms of mental illness and illness trajectories considerably vary through age, sex and other such characteristics (Mechanic, 1999). Nonetheless, emphasis of mental health enquiry has recently shifted to life course studies where the social structures and social dynamics such as labor market, familial changes, and social support have been shown to affect the developmental processes. Social and epidemiological surveys have become more sophisticated and sensitive to responses from respondents of different age cohorts and circumstances (Horwitz & Scheid, 1999). However, given the elusive nature of mental health concept, it is important that methodological tool may be carefully selected, blended, and indigenized in order to ensure reliability and establishing valid associations between variables.

3.4 Operationalization of the Concepts

Given the broad range of meanings attributed with concepts such as stressors, mental health issues etc., it is pertinent to specify how these are defined here. This section explains how different concepts were made to use in the current research.

Determinants of mental health issues (Stressors): In this study, a list of these stressors has been drawn from the review of literature and from those issues which are largely limited to the study area and may not have been discussed in the available literature. These stressors are then divided into academic and non-academic stressors for analysis where academic stressors include factors which are related to studies whereas non-academic stressors include factors

which stem from university environment but are not directly related to studies. This distinction is based on the effort in this study to independently assess the impact of university related factors on mental health issues. Thereafter, this study measured the relative impact of academic and non-academic stressors on specific mental health issues. In addition to this, the perceptions of students about these stressors are evaluated in terms of their demography and academic characteristics.

Although a multitude of factors can be categorized as stressors, this study operationalized stressors as those factors which are external to individual, either academic or non-academic. However, mental health is also affected by issues which are intrinsic to an individual. These issues include health behaviors, self-rated physical health, psychosomatic complaints and chronic illnesses. There is evidence to suggest that these factors compound existing mental health issues and also contribute to the onset of mental illnesses (Jacob et al., 2012; Mikolajczyk et al., 2008). In this study, these internal factors are dealt parallel to the stressors explained above.

Mental health issues: Given the large number of mental health issues identified by the research, it is difficult to enlist them in totality or even provide a precise number which includes all mental health conditions. However, a general distinction can be made between mental illnesses and mental disorders. This study concerns itself with mental health issues only in terms of perceived stress, depressive symptoms and low psychological well-being which are insidious and generally precede mental disorders.

Outcomes of mental health issues: The impact of mental health issues on an individual's life is wide ranging and diverse (Vaez & Laflamme, 2008; Versaevel, 2014). It is perplexing that mental health issues also impact and intensify those factors which contributed to their onset in the first place. Thus, the sheer scope and complexity of their impacts makes it virtually impossible to capture them in their entirety. While not denying the effects mental health issues could have on various aspects of students' lives, this study limits itself to impact which mental health issues have on academic performance and subjective well-being of students. Academic performance is operationalized as objective performance in terms of grades and subjective performance in terms of student's satisfaction with grades. Subjective well-being is measured on various levels including financial conditions, general health condition, and satisfaction with life at university. In a university environment, academic performance defines a student and is a core output of a university life. Being a primary objective of a student's enrolment in a university, it is the most

vivid indicator where impacts of mental health issues can be ascertained. At a more personal level, mental health impacts well-being which can be conceptualized as a blanket term for various states in which impacts of mental health issues manifest themselves. In other words, low subjective well-being can be a cumulative product of all the impacts which mental health issues may have on an individual. Together, academic performance and subjective well-being provides a holistic account of impacts which mental health issues can potentially have on a university student.

Coping strategies: The final aspect of this study concerns the coping strategies used by university students to mitigate mental health issues. Students were asked about a range of coping strategies derived from literature in terms of frequency with which they use them. For analytical purposes, these coping strategies were classified as problem focused and emotion focused coping strategies. The relation of students' demographic characteristics with their use of particular coping strategies is also assessed. With the examination of coping strategies used by the students, this study investigated all the processes from stress generation to coping with mental health issues, as postulated by stress theory.

3.5 Research Design

The ontological and epistemological considerations provide a philosophical landscape for the research problem. However, the methodology of study is largely based upon the nature of research questions and research traditions of the discipline in which the study is conducted. This study is epidemiological in that it would find out the prevalence of mental health issues among students. Thus, it will be cross sectional in nature in order to include large sample. Additionally, the study has employed quantitative methods for the reason that data would be collected in predefined categories for concise and statistically valid information which may later be used for comparisons whenever possible. For the purpose of data collection, individual based survey method has been used, which included the characteristics of both descriptive and analytical surveys. This hybrid survey method was instrumental for the present study since the research objectives of this study were to measure both the prevalence (descriptive) and outcomes (analytical) of mental health issues. In view of above, a self-administered close ended questionnaire has been used as the tool for data collection. Since the present study is centrally concerned with mental health issues, it cannot be overlooked that a substantial amount of literature and theoretical frameworks already exist on the subject. Therefore, quantitative data collection techniques allowed testing of these theoretical

frameworks or hypotheses through rigorous statistical techniques. In this way, researcher was able to confirm, refine, or refute proposed relationships between variables.

3.5.1 Study Settings

Pakistan is the sixth most populous country in the world with an area of 7, 96, 096 sq. km and an estimated population of 192.8 million people (Government of Pakistan, 2015; UN data, 2016). Pakistan is home to ancient Indus Valley civilization. Pakistan has a multi ethnic population and UNHCR has reported that country is hosting the largest number of refugees in the world (United Nations High Commissioner for Refugees, 2014). Pakistan enjoys an important geo-strategic location in South Asia. It is bordered by India in the East, Afghanistan in the northwest, China in the north, Iran in the west, and Arabian Sea in the South (UN data, 2016). Pakistan has undergone significant demographic changes since its inception and urban population has increased manifold from year 1950 to 2014 (Government of Pakistan, 2015). Notwithstanding the high population growth rate in the past, fertility and birth rates have declined recently (Government of Pakistan, 2015). The average annual population growth rate was 2.1% during 2010-2015 (UN data, 2016). However, Pakistan is still the most populous country in Eastern Mediterranean region. Additionally, Pakistan has a large youth population with 54 million¹ people aged 15-29 years of age.

Due to a number of factors such as population growth rate, political instability, and governance related issues, economic progress of Pakistan has been slow (Ayub et al., 2012; Hossain & Hossain, 2012b; Husain, 2005b; Shaikh, Ejaz, Achakzai, & Shafiq, 2012). Resultantly, social services sectors such as health and education have suffered from lack of resources. Pakistan spends less than 1% of its GDP on health sector i.e. 0.42% of GDP for 2014-15 (Government of Pakistan, 2015) as compared with a global average of 8.2% (Afzal & Yusuf, 2013; Hate & Gannon, 2010). Due to poor access and availability of health services, majority of people seek health care through private sector. Consequently, Pakistan is among the countries with the highest proportion of private health expenditure (World Health Organization, 2010). Additionally, there exist severe disparities across rural urban divide and socioeconomic strata in provision of secondary health services such as those relating to mental health (Hate & Gannon, 2010; Mushtaq et al., 2011).

¹ Ministry for Planning, Development & Reforms of Pakistan, http://www.pc.gov.pk/annual%20plans/2012-13/chapter-15_youth_empowerment_sports_culture_and_tourism.pdf

The population for the present study is the students enrolled in three public universities of Pakistan. The research area of this study is the Punjab province. It is the largest province of Pakistan by population and a home to more than 100 million people (Government of Pakistan, 2015). Punjab also has the highest proportion of irrigable land as compared with other provinces. Similarly, the industrial sector of Punjab is the cornerstone of the economy of Pakistan. Punjab is remarkably ahead of other provinces in a number of development indicators including Human Development Index (Malik, 2013). As a result, Punjab attracts residents of other provinces who migrate mostly for employment and education purposes. Similarly, the universities in Punjab have a student population comprising of students from all parts of the country. Punjab has the highest number of universities in Pakistan which include both technical and general education universities (Higher Education Commission, 2012). Therefore, the universities in Punjab qualify as a favorable site for research on university students in Pakistan.

3.5.2 Respondents of the Study

According to official standards of the Government of Pakistan, citizens ranging 15-29 years are categorized as youth. With few possible exceptions, students taking admission in undergraduate courses are at least 18 years of age. On average, students passing out of university at M.Phil level (18 years of education) are of 28 years at maximum. To make the sample more inclusive, the age range of respondents was selected as 15-29 years. Students from doctoral programs were not included in the sample since a significant number of these students already had an established professional career. Moreover, their age group was further away from the desired population. Respondents for this study were enrolled students of 15-29 years of age from each of the selected public sector university. Respondents had studied at least two semesters of their program or had already spent one year at university. It was expected that this limitation would draw a sample of students having adequate understanding of university life. The eligibility criterion was as following:

- i) Respondent should be currently a student at one of the selected universities.
- ii) Age of respondent should be between 15-29 years.
- iii) Respondent should have studied at least two semesters or spent one year at university.

3.5.3 Selection Procedure of Universities

The province of Punjab has 22 public sector universities (Higher Education Commission, 2012). Among these universities, 12 are technical in nature i.e. they are related to a specific field of study whereas 3 are female specific. There are 7 public sector universities which provide education across different disciplines and provide educational facilities to both sexes. The details are given in Figure: 3.1. In order to get a holistic sample of students from diverse backgrounds and through different disciplines, it was decided to select universities that were government run and which offered courses related to different academic disciplines. Therefore, the basic criterion established for selecting a public sector university was as follows:

- i) Multiple disciplines should be offered in university.
- ii) Both sexes should be enrolled in university.
- iii) Based in the province of Punjab

For the selection of three public sector universities to meet the purpose of this study, a geographical division of the province was aspired. The province of Punjab was divided broadly into three zones: i) Central Punjab; ii) Lower Punjab; and iii) Upper Punjab. Central Punjab had five public universities, lower Punjab had two public universities and upper Punjab did not have any public university which could meet the selection criteria of this research. Based on this geographical division, three public universities, one from each zone, was desirable. However since Upper Punjab did not have a public sector university meeting the requirements of this study, two universities from Central Punjab and one from Lower Punjab were selected. Figure: 3.2 on next page illustrates the geographical locations of each university.

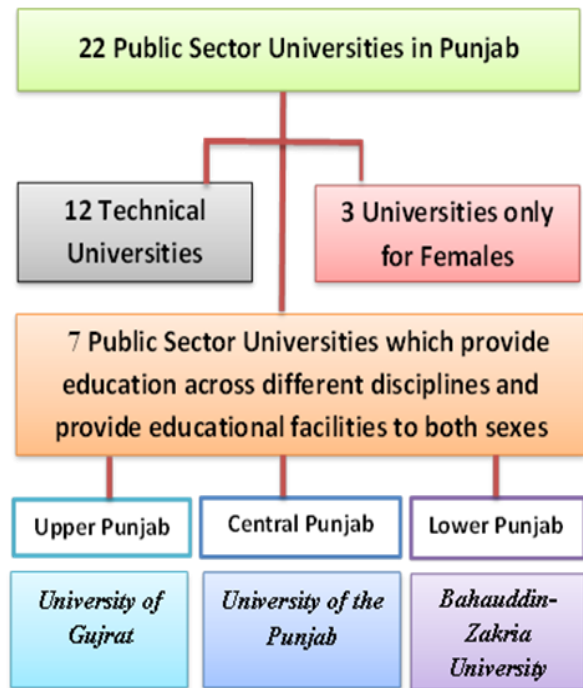


Figure 3.1: Selection procedure of universities

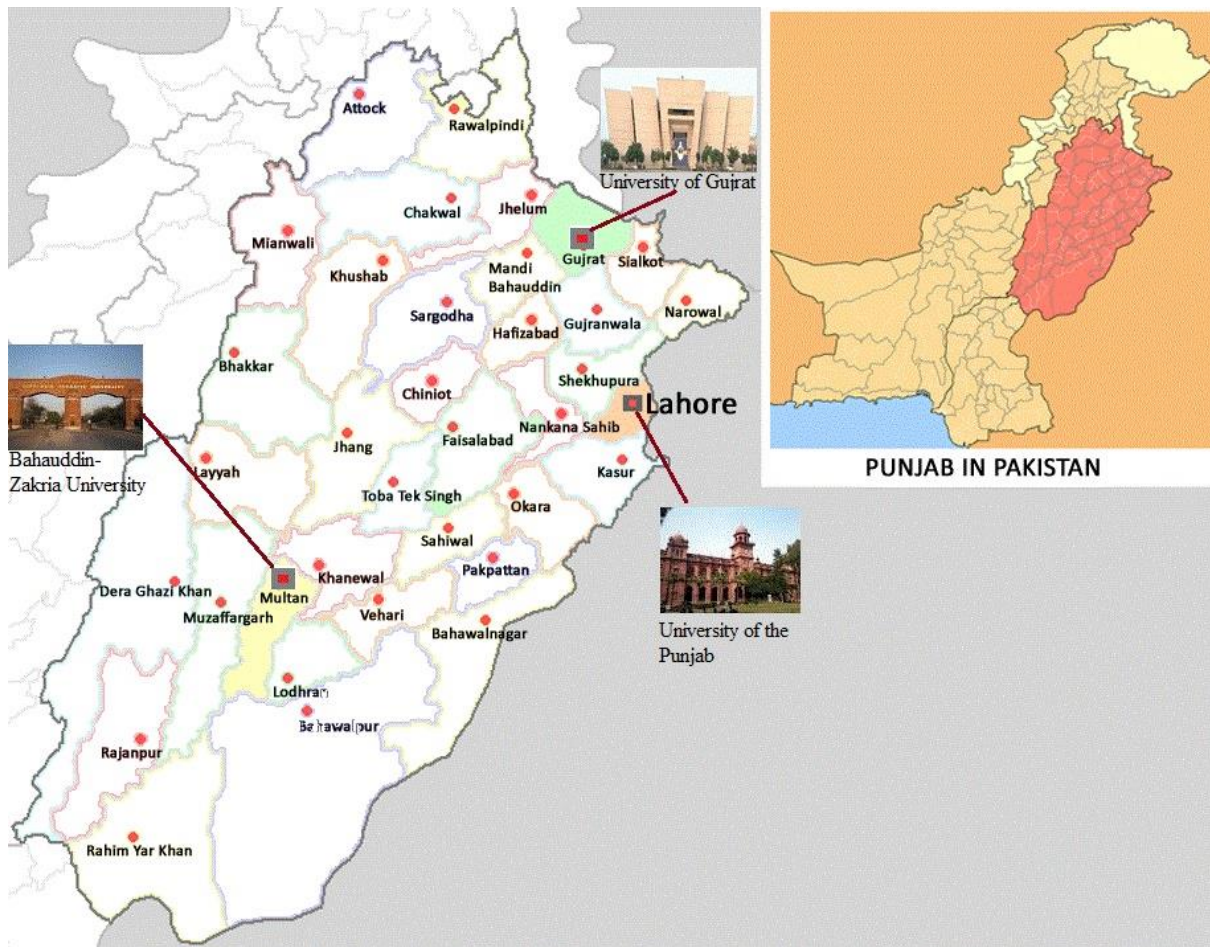


Figure 3.2: Geographical location of selected universities in Punjab

3.5.4 Sampling Procedures and Sample Size

Multistage cluster random sampling technique has been used for the selection of respondents in this study. In the first stage, three public universities in the province of Punjab were selected through purposive sampling techniques, ensuring that these cover the geographical and cultural centers of the province. Thereafter, sample size of respondents (students) in the selected universities was drawn on the basis of statistical formula ($n = N / (1 + N(e)^2)$) which is used to derive the sample size from known population (Israel, 1992). The number of respondents from each university was drawn through proportionate sampling technique based on the total population of each university. Finally, for the data collection, a specific selection criterion was devised for selected universities to maximize representation. This criterion was based on the number of different faculties and departments existing in each university. Finally, classes of students in departments were taken as clusters and everyone within those clusters was sampled. Following sub-sections delineate each stage of this process in detail.

Sample size: According to the Higher Education Commission, the University of the Punjab had the largest segment of enrolled students in these three public universities with 27,782 students and a proportion size of 0.55 among the three selected universities (Higher Education Commission, 2012). Bahauddin Zakariya University enrolled 13,910 students with a proportion size of 0.275. University of Gujrat had the lowest number of enrolled students with strength of 8,857 and a proportion size of 0.175. The total number of enrolled students in these three public sector universities was 50,549.

For the purpose of this study, sampling formula for known population ($n=N/1+N(e)^2$) was used (Israel, 1992; Yamane, 1967, 1992). The application of this formula required that assumption of normal population be valid. It was ascertained from the literature review that population distribution is normal and degree of variability with respect to the subject of the study was low.

Sample size was calculated by computing the values in the formula. The level of precision (e) was assumed to be $\pm 3\%$ because the true value of population was estimated to have varied over the period of time when the information was primarily collected. The sample size, after computing the values in formula was 1087. The chances of rejection were assumed as 10% which totaled 108.7. Therefore, the sample size for this study was rounded off as 1200.

Table 1.1:
Sample size calculation

No	Name of University	City	Enrollment	Proportion	Sample Size $n=N/1+N(e)^2$
1	University of the Punjab	Lahore	27782	0.55	
2	Bahauddin-Zakria University	Multan	13910	0.275	$n=50549/1+50549(.03)^2$
3	University of Gujrat	Gujrat	8857	0.175	n = 1087
Total			50549	1	1087

Source: *Student enrolment in HEC funded public sector universities (2012)*

Sample size (1200) was further distributed among the three universities on the basis of proportionate random sampling technique. The actual sample size was divided proportionately on the basis of number of enrolment in these universities. In this way, numbers of students selected randomly as sample were 660 for Punjab University (PU), 330 for Bahauddin Zakariya University (BZU) and 210 for University of Gujrat (UoG) (Figure:

3.3). In order to ensure optimum representation, data was collected across various departments within each faculty, various degrees i.e. Undergraduate/Graduates/Post graduates and regular/self-supporting sessions. Furthermore, although the number of males and females in each university were almost equal, care was taken to ensure that both genders are represented.

There were a number of academic faculties in three selected universities which had their own sets of academic departments. These faculties were grouped into three broader categories for the purpose of uniformity: pure sciences, engineering, arts and social sciences, and commerce and management. Among these categories, those departments were shortlisted where regular/self-supporting and undergraduate/masters programs were offered. From the list of shortlisted departments, 28 departments were randomly selected. These included 11 from PU, 10 from BZU, and 7 from UoG. Within these departments, whole classes of students were selected on the basis of inclusion criterion mentioned above. Students were asked to fill the questionnaire in classroom setting.

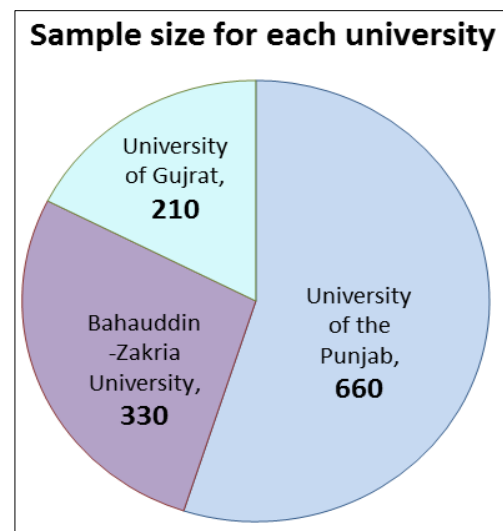


Figure 3.3: Sample distribution among selected universities

3.6 Tool for Data Collection

A pre-coded self-administered questionnaire was used for this study. Comprehensive review of literature was conducted to develop the tool for this study. During the course of review, it was transpired that the research questions of the present study corresponded closely to the questionnaire developed for Cross-National Student Health Study (CNSHS)². This assertion was further validated through rigorous consultation with public health experts and co-researchers in Bielefeld University. Nonetheless, this tool was developed for the European university students and several questions asked in the questionnaire were culturally and contextually sensitive. Since the present study was to be conducted in Pakistan, questionnaire from the CNSHS was modified according to cultural and contextual frame of Pakistan. In order to do this, draft questionnaire was shared with public health experts, university

² Cross-National Student Health Study (CNSHS), was conducted as an open collaboration of universities from several European and Mediterranean countries (El Ansari, Maxwell et al. 2007)

administrators, and psychologists in Pakistan. Upon their feedback, the questionnaire was modified. Additionally, since CNSHS's questionnaire is itself a compilation of different tools, attempts were made to edit this compilation to address the specific research questions of the present study. Before commencing data collection, pilot testing of the modified questionnaire was done to further refine the questions. The questionnaire was prepared in English language. Since medium of instruction in the selected universities was also English, it was anticipated that university students would be well conversant with English. This instrument was divided into ten sections. A detail of each section is given as under:

i) Personal details

The first part of this section dealt with the demographic details of the respondents which included age, gender, parents' education, place of residence, income, religion, height, weight, religiosity etc. The second subsection of personal details included questions about the academic background of student. These included questions relating to the academic department, degree program, semester number, nature of program (regular/self-supporting), and current place of living (university hostels/private residence). Third subsection of personal details included questions relating to the source of finances available with the student and student's level of satisfaction with the available finances. Personal and demographic characteristics of respondents were an important part of this study since they would help to understand variations in the outcome variables across demographic characteristics. Additionally, these variables helped in categorizing subpopulations with the university students which may guide health promotion policies and actions targeted at specific groups.

ii) General health

This section dealt with general health of the respondents. The questions related to health status and health awareness of students were intended to understand the association of general health status with the prevalence of mental health issues. In the first part of this section, questions about health awareness and general health were asked. General health was measured through two questions, how would you describe your general health? Response was measured on a five scale index ranging from '1'= Excellent and '5'=Worst. The second question was, 'Compared with the past year, how would you describe your health condition?' The response was measured on a five-point scale ranging from '1'=Much better to '5'=Much worse. Health awareness and health behaviors were measured through five questions, i) To what extent do you keep an eye on your health? The response was measured on a four scale

index ranging from '1'=Not at all to '4'=Very much. iii) How often do you spend time on physical activity? The response will be measured on a three scale index including '1'=Less than 1, '2'=Once or twice, '3'=At least three times. iv) Did you visit any doctor in the course of the last six months? The response was measured in terms of 'Yes' and 'No'. In case the answer was 'yes', student was asked about the frequency and reasons of visits. v) Were you, in the course of the last twelve months, so ill that you had to stay in bed? The response was measured in terms of 'Yes' and 'No'. In case the answer was 'yes', student was asked about the nature of illness. vi) Do you take any medicine regularly? The response was measured in terms of 'Yes' and 'No'. In case the answer was 'yes', student was asked about the medicine used.

iii) Psychosomatic health complaints

Psychosomatic Health Complaints (PHCs) were measured by a 22 item tool made by Stock et al. (2003). This tool measured the frequency of occurrence of a range of complaints in the last twelve months. It was a revised version of symptoms checklist of German Youth Health Survey (Hurrelmann & Kolip, 1994). The tool covered a broad range of self-reported health issues including headache, dizziness, stomach complaints, diarrhea, constipation, sleep disturbance, backache, neckache, and nervousness. Measuring a broad range of psychosomatic health complaints (PHCs) of respondents aimed at providing a comprehensive view of subjective health status of an individual. A four-point response scale was used from '1' = Never and '4' = Very Often

iv) Potential stressors

This section dealt with the potential stressors affecting students' lives. It was measured by an 18 item scale tool which was originally used in CNSHS. This tool measured academic stressors such as pressures related to course work and exams. In addition, it assessed respondents' relationship with the family and the peers, future aspirations, gender, subjective financial situation and social integration. Other variables such as family pressures, language issues in education, intimate relations, living conditions, homesickness and health problems were added in this section. Questions in this section were measured on a six points scale ranging from '1'= Not at all to '6'=very much.

v) Psychological well-being

Well-being was measured through WHO's well-being index The tool comprised of different items including happy and good mood, calm and relax, full of energy and felt active, felt

fresh, relax when woke up, and my day was full of things which interested me. The responses for these items were asked for the last two weeks. WHO-5 includes a six point scale from '1' = The whole time to '6' = Never.

vi) Perceived stress

This section dealt with the measurement of perceived stress among university students. The results of this section were expected to help in understanding the association of perceived stress with mental health issues. A 14 item Perceived Stress Scale (PSS of Cohen) was used to measure perceived stress. Specifically, this tool measured the extent to which the respondents deemed their life circumstances to be stressful. Additionally, it measured the perceived locus of control of respondents. PSS of Cohen is regarded as one of the most comprehensive tool to measure the perceived stress. The scale employed a five-point response category ranging from '1' = Never to '5' = Very often.

vii) Depressive symptoms

This section related to the prevalence of depressive symptoms among the respondents. Modified version of Beck Depression Inventory (M-BDI) was used to measure this. The original BDI had four items per symptom which was replaced in the modified version with a single statement. In the modified version, 'loss of weight' was also excluded. Additionally, the responses were sought for the frequency of symptoms in the last six weeks. Responses were measured on the six-point scale ranging from '1'=Never to '6'=Almost Always.

viii) Academic performance

Academic performance was measured by four questions, i) What was your Grade Point Average (GPA) in the last semester? ii) How would you rate your performance at the university in comparison to others? iii) How important is it for you to have good grades / or to achieve well at university? iv) To what extent are you satisfied with your grades? First question was open ended. The second question was measured on a five-point scale ranging from '1'=Much Better to '5'=Much Worse. The third question was measured on a four-point scale ranging from '1'=Very important to '4'=unimportant. The fourth question was measured on a six-point scale ranging from '1'=Very unsatisfied to '6'=Very unsatisfied.

ix) Satisfaction

This segment was related to the level of satisfaction of respondents with their social environment and personal development in terms of academic performance, career

opportunities etc. Tool developed by Stock & Kramer (2001) was modified to adjust for changes in study area. Some additional questions were asked from the respondents related to health, quality of food and drinking water, hygiene, extra-curricular activities, transportation facilities, and overall sociopolitical and economic situation. The responses were measured on a six-points scale ranging from '1'= very satisfied to '6'= very unsatisfied. This segment along with some questions from general health and demography were used to measure subjective wellbeing.

x) Coping strategies

This section dealt with the coping strategies used by students in the face of stress/depression. Sixteen coping strategies which included problem solving and emotion-focused strategies were listed. Since there could be a range of coping strategies, 4 questions were left blank so that students may write on their own if their coping strategies were not mentioned in the given list. Responses for this section were measured on a five point scale ranging from '1'=never to '5'=very often.

Feedback/comments

Some space was left at the end of questionnaire for any feedback or comments by the respondents.

3.6.1 Pre-testing

The questionnaire was pre-tested with 40 respondents which were randomly selected from the three universities. These respondents did not form part of the total sample size. After filling out the questionnaire, detailed interviews were held with some of the respondents to receive their comments about the questionnaire. Based on their review and feedback from the respondents, few important issues were identified. Some of the respondents had difficulty in understanding few terms involved in PHCs section such as constipation, tachycardia, and mood swings etc. In order to rectify this issue, Urdu translations were provided in brackets against each term. Before the pilot testing, it was thought to modify the language of a question related to sex in the depressive symptoms section on the basis of assumption that it would not be culturally suitable in the Pakistani context. However, pilot testing revealed that students felt comfortable with the question and hence the question was left unchanged. In the General Health section, respondents were asked about the 'type of medicine' they used. Responses to this question showed that students had difficulty in understanding what it meant by 'type'. Resultantly, this phrase was changed to 'which medicine' and the problem was

largely solved. In the Perceived Stress section, a number of students could not understand the word ‘nuisance’, thus ‘disturbances’ was used within brackets with ‘nuisance’. In the satisfaction section, the term ‘living conditions’ was replaced with ‘hostel/flat/house’. It was transpired during the pilot testing that on average, a student took 20 to 25 minutes to complete the questionnaire. Resultantly, time management for the subsequent field research was done accordingly.

3.6.2 Ethical Considerations

In many societies including Pakistan, mental issues are socially stigmatized. Since the present study examined the mental health issues of students, the foremost ethical consideration involved in this research was to ensure anonymity of the respondents. To ensure this, no information such as name, registration number, and contact details were acquired throughout the data collection process which could identify the respondent. Following the principle of informed consent, an information sheet was added before the questionnaire detailing the nature and scope of the research. It was also explicitly stated therein that respondents were at liberty to leave the questionnaire uncompleted at any stage.

Among the three selected universities, only Punjab University had a board responsible for granting ethical approval to research projects. An application along with the research proposal and questionnaire was submitted to the Institution Review Board (IRB), Punjab University for ethical approval. After due consideration, IRB approved the present research. Since the other two universities did not have their own ethical committees or boards, they relied on the approval granted by Punjab University.

3.7 Field Experiences

For survey, the researcher went to each department and sought permission from the administration to conduct field work. Normally, administrators used to introduce me to teachers who then finalized the timings for survey as per students’ class schedule. At the said time, the researcher used to approach in their class rooms, normally after the lecture. At the outset, the researcher used to brief about the objectives of study and assured them about the confidentiality of information, anonymity of respondents, and their freewill to leave the questionnaire at any stage. During the completion of questionnaire by the students, the researcher set up the weight machine and measuring scale. After the completion of questionnaire, each student was requested to get his/her weight and height measured. The

fieldwork was conducted during 22 January to 28 March, 2015, roughly in middle of last and forthcoming examinations. Primary researcher was available throughout to help student fill the questionnaire as and when requested. The researcher was also accompanied by two field assistants whose main job was to distribute and collect questionnaires from the students. After the questionnaires were collected, the researcher diarized the questionnaires and kept questionnaires from each class separately.

When the researcher went to classrooms to get the questions filled, students asked many questions about the use of this data and whether the results would be shared with them. They were also curious why they have been selected for this study. While measuring weight and height, it was observed that female students were conscious of making sure that their male counterparts were not having a look at their weight and height. Male students especially those with muscular bodies enjoyed the process of measuring weight and height and they would come out of the classroom showing their muscles like bodybuilders. Some male students also made fun of those fellows whose weights were low. In order to make sure that no one was humiliated in the process, the researcher tried to have only those people in the classroom whose weight and height was to be measured. Another interesting observation was that when filling their questionnaires, many respondents used to ask their class fellows whether the former looked happy or if their hands trembled or not etc. The respondents were quickly told in most cases that they ought to respond on the basis of their own perceptions about themselves.

Challenges

The foremost challenge in conducting fieldwork was the unavailability of university student data across gender, departments, and place of residence etc. In order to address this issue, the researcher conducted meetings with university administrators and got manual data from them. After the retrieval, the data were sorted it as per the requirements of this study. Another challenge was to seek permissions from the administrators, teachers, and sometimes, intermediary staff. More often than not, there was a mismatch of timings and visits on consecutive days were required to do the survey. In some cases, administrators did not allow the field work to be conducted with a class because examinations of some other classes were underway at that time. In UoG and BZU, the researcher had to wait several days to get permission for fieldwork because staff elections were going on at that time, and most of the administrators were not available for meetings.

3.8 Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS version 22). At the outset, the data were checked for a range of possible errors including double coding, inconsistencies, typographical mistakes and induced missing values. Thereafter, the data were scanned for the outliers. In terms of analysis, a few variables were recoded and descriptive statistics were computed including frequencies and percentages. Finally, analytical statistics were obtained based on the hypotheses of the study. This section presents the details of descriptive and inferential analyses applied in this study.

Descriptive analysis: This segment describes the analysis plan for understanding the socio-demographic characteristics, self-rated health status and health related behaviors, perceived stressors, prevalence of mental health issues, academic performance, level of satisfaction and coping strategies

Socio-demographic characteristics: The age of respondents were divided into four subgroups i.e. ≥ 20 , 21, 22, and ≤ 23 . The height and weight of respondents were measured to calculate BMI and the cut off score for the BMI was adopted from World Health Organization (WHO) BMI standard for Asians (Ahmer, Am Khan, & Iqbal, 2008; World Health Organization, 2004). The religiosity level of the respondents was measured with two questions: i) To what extent you consider yourself as a religious person? and ii) How strongly can you agree with the following statement: “My belief has the biggest influence on my life.” A four-point scale was used to record responses to the first question ranging from ‘1=little extent’ to ‘4=very great extent’. This scale was recoded into two categories i.e. ‘1=low’ and ‘2=high’. For the second question, a five-point scale was used, ranging from ‘1=fully agree’ to ‘5=fully disagree’ with ‘3=undecided’. These responses were recoded and those ranging from 1-2 were recoded into ‘1’=high, 4-5 were recoded into ‘2’=low whereas ‘3’=undecided was recoded into ‘0’. The recoded responses to both the questions were summed up into a new variable indicating religiosity level. The new variable had a score from 1-4. The religiosity level of the respondents scoring 1-2 on this variable was categorized as low, a score of 3 was categorized as medium, and a score of 4 was categorized as indicating a high religiosity level. Finally, the family income was divided into five sub groups i.e. ≥ 20000 , 20001-40000, 40001-60000, 60001-80000, and ≤ 80001 .

Self-rated Health Status and Health related behaviors: The respondents were asked about the current general health status and their responses were measured on a five-point scale ranging from '1'=Excellent to '5'=Worse. For analysis, these responses were recoded into '1'=good, '2'=fair, and '3'=poor. The respondents were asked if their health has improved, worsened or remained the same compared with the last year. The responses were measured on a five-point scale ranging from '1'=much better to '5'=much worse. These responses were recoded into '1'=better, '2'=same, and '3'=worse. The respondents were asked if they kept an eye on their health. The responses were measured on a four-point scale ranging from '1'=not at all to '4'=very much. These responses were recoded into '1'=not at all, '2'=quite little and '3'=very much.

With regard to the time for physical activity, the responses were measured on a five-point scale ranging from '1'=very rarely to '5'=very frequently. These responses were recoded into '1'=rarely, '2'=occasionally and '3'=frequently. In terms of psychosomatic health complaints (PHCs), the responses were measured on a four-point scale ranging from '0'=never to '3'=very often. The responses were recoded into '0'=no and '1'=yes by grouping never and rarely into 'no' and often and very often into 'yes' (El Ansari, et al., 2013; Stock et al., 2003).

Perceived Stressors: The respondents were asked about a range of stressors. A total of 21 stressors were listed which were broadly divided into academic and non-academic stressors. In addition to these stressors, respondents were asked about the overall burden they faced. The responses were measured on a five point scale ranging from '1'=not at all to '6'=very much. These responses were recoded into two categories, low and high.

Prevalence of Mental Health Issues: Perceived stress of the respondents was measured through the 14 item Perceived Stress Scale (PSS) of Cohen. The responses were measured on a five-point scale ranging from '0=never' to '4=very often'. In order to interpret the results, seven items of the scale were reverse coded and the individual scores of all the 14 questions were summed up into a single score. PSS has a possible score range of 0-56. The operational cut off point of 28 has been used by several previous studies on university students and the same was adopted for the current study (Shah, et al. 2010). The respondents scoring ≤ 28 were categorized as stressed whereas the respondents scoring >28 were categorized as not stressed.

The depressive symptoms of the respondents were measured through Modified Beck Depression Inventory (M-BDI). M-BDI is a 20-item inventory measured on a six point scale

ranging from '0=never' to '5=almost always'. A cumulative score was obtained by summing the responses of all the 20 items by a respondent. The possible range for the cumulative score was 0-100. The cut off score for this inventory was 35 which is also used in several previous studies with similar populations (Hope & Henderson, 2014; Mikolajczyk et al., 2008). A cumulative score of ≥ 35 was considered indicative of clinically relevant depression whereas a cumulative score of < 35 was indicative of non-clinically relevant depression (Mikolajczyk., et al. 2008; Sebena., et al, 2012).

The psychological well-being of respondents was measured from the WHO-5 well-being index which included five questions on a six-point scale ranging from '0=never' to '5=the whole time'. The range of possible sum score of all these questions was 0-25. As reported in the previous studies (Oliver et al., 2012), the cut off score for the well-being was 13. Respondents scoring lower than 13 were considered as having low well-being while those scoring ≥ 13 were considered as having high psychological well-being.

Academic performance: The academic performance of the respondents was measured through two questions. The first question concerned the academic grades respondents have achieved during their last semester. It is a matter of common observation that grading system in public universities of Pakistan is such that the students' grades generally fall within a narrow range. The grade point average (GPA) lies between 0-4. However, a GPA of less than 2.5 in most public universities of Pakistan is considered too low for students to continue their studies. Thus, it was reasonably expected that the respondents for this study who are currently enrolled should be having a GPA of more than 2.5. Thus, in order to measure the academic performance of the students, it was feasible to group the GPAs into quintiles. These quintiles were ≤ 3.0 GPA (1st quintile), 3.0-3.3 GPA (2nd quintile), 3.31-3.70 (3rd quintile) and 3.71-4.00 (4th quintile).

The second question was related to the respondents' subjective opinions about their grades relative to other students' performance. The responses were measured on a five point scale ranging from '1=much better' to '5=much worse'. These responses were recoded into '1-2=better', '3=same', '4-5=worse'. The respondents were also asked how important they feel it was to achieve good grades at the university. The responses were measured on a five-point scale ranging from '1=very important' to '4=unimportant. The data was recoded into two categories i.e. important and unimportant.

Level of satisfaction: The respondents were asked about their level of satisfaction with various spheres of their life primarily those affecting their university experiences. This segment had 22 items which were measured on a six-point scale ranging from ‘1=very unsatisfied’ to ‘6=very satisfied’. These responses were recoded into two categories i.e. unsatisfied and satisfied.

Coping strategies: The respondents were asked about the coping strategies they used when they faced stress or depression. This segment contained 16 coping strategies along with four blank spaces for the respondent to add more coping strategies if their coping strategies were not already listed. The responses were measured on a five-point scale ranging from ‘0=never’ to ‘4=very often’. These responses were recoded into three categories i.e. never, sometimes, and often.

Inferential analysis: This segment discusses the inferential statistics used for the analysis of these study hypotheses.

Association between socio-demographic, academic characteristic and mental health issues: A research question of this study was to ascertain the variation in perceived mental health issues among students with respect to their socio-demographic and academic characteristics. First, simple binary logistic regression analyses were performed with each independent and dependent variable separately. Second, those independent variables that were found to have a statistically significant association with one or more of the dependent variables in bivariate analysis were entered in a multiple binary logistic regression model to examine if these variables retained their significance with dependent perceived stress (PS), depressive symptoms (DS), and low psychological well-being (LWB).

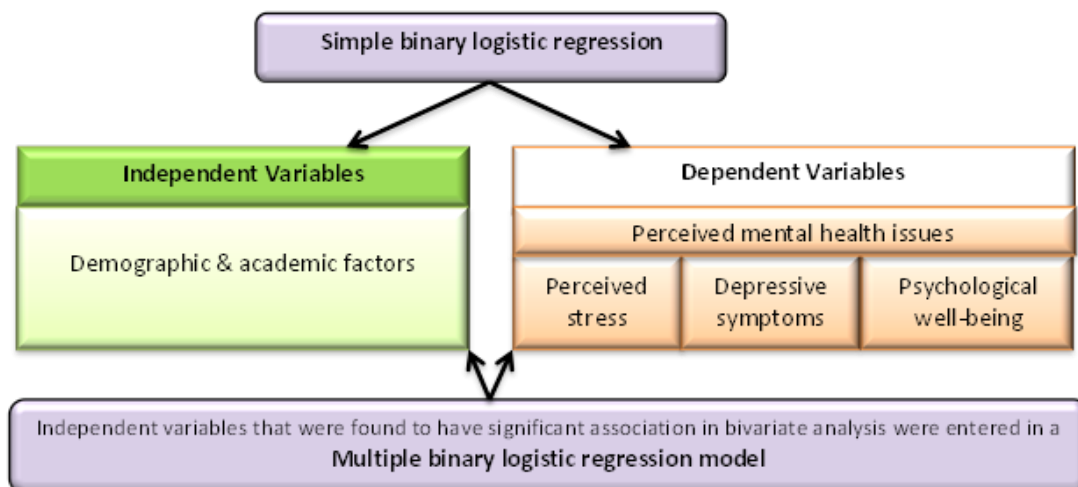


Figure 3.4: Analysis plan for association between socio-demographic, academic characteristic and mental health issues

Association between general health, health behaviors and mental health issues: The second research question of this study was to assess the impact of general health and health related behaviors on the prevalence of students' mental health issues. Students' general health, operationalized as self-rated health, was measured with four variables including BMI, perceived general health status, severe illness and PHCs. Health related behaviors were measured with two variables including 'keep an eye on health' and 'time for physical activity'. Simple binary logistic regression analyses were performed with each independent and dependent variable separately with sex as a confounding variable.

Association between perceived stressors and mental health issues: As this study contained 21 potential stressors, Principal Component Factor Analysis (PCA) was conducted to combine these stressors into appropriate components. Prior to conducting PCA, the suitability of data was assessed. The Kaiser-Meyer-Olkin value was 0.87, exceeding the recommended value of 0.6 (Kaiser 1970, 1974), and Barlett's Test of Sphericity (1954) reached statistical significance, supporting the factorability of the correlation matrix. Varimax rotation with a Kaiser Criterion for factor extraction was performed. PCA revealed the presence of two components with Eigen values exceeding 1, explaining 41.1% of the

variance. These two components were academic and non-academic stressors. Academic stressors included studies in general, exams, assignments/term papers and presentations. Two stressors i.e. English as a medium of instruction and problem with specific subjects were dropped due to cross loading. Remaining fifteen stressors were grouped under non-academic stressors. Bivariate association was determined using Chi-square test. This test examined the severity of stressors in relation to variations in demographic and academic characteristics.

One of the hypotheses of this study concerned with the impact of stressors on perceived mental health issues of university students. Multiple binary logistic regression analysis was conducted between each type of stressor i.e. academic and non-academic, and each type of

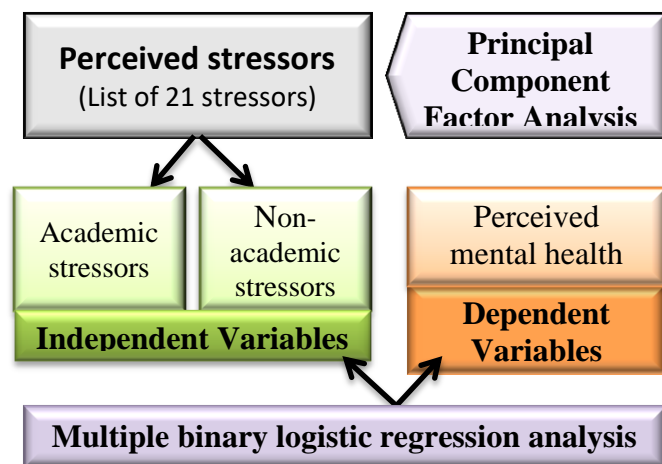


Figure 3.5: Analysis plan for association between perceived stressors and mental health issues

perceived mental health issues, after controlling for the confounders including sex, family income, academic faculty, year of study, and perceived income sufficiency.

Association between perceived mental health issues and academic performance: A primary research objective of this study was to examine the association between mental health issues on academic performance of university students. Academic performance was measured as objective performance (Cumulative Grade Point Average (CGPA)) and subjective performance (satisfaction with one’s grades). CGPA was divided by mean into two categories i.e. high and low. Similarly, subjective academic performance was divided into two categories i.e. satisfied and unsatisfied. By combining these two variables, we got four combinations which were i) low grades-unsatisfied with grades; ii) low grades-satisfied with grades; iii) high grades-unsatisfied with grades; iv) high grades-satisfied with grades. The bivariate association between demographic, academic details and academic performance was checked by using Chi-square test. To measure the impact of mental health issues on academic performance, multinomial logistic regression analysis was conducted between academic performance and each type of mental health issue, after controlling for the confounding variables which were found associated at the bivariate level.

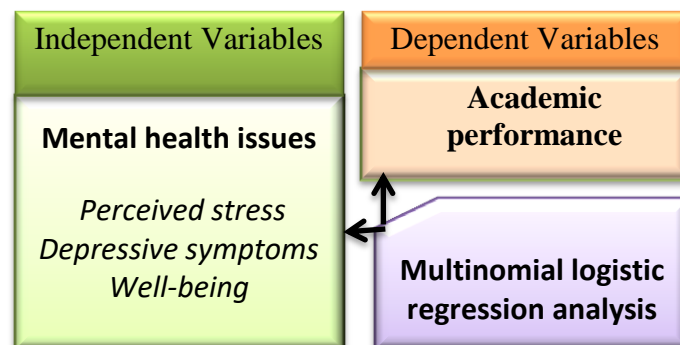


Figure 3.6: Analysis plan for association between perceived mental health issues and academic performance

Association between perceived mental health issues and subjective well-being: The final research question of this study was to ascertain the association between PS and DS on the subjective well-being of university students. The risks to high well-being i.e. dissatisfaction with various spheres of life, income insufficiency and poor self-rated health status were used as dependent variables whereas PS and DS were used as independent variables. Multiple binary logistic regression analysis was used with each independent variable and the level of satisfaction with various spheres of life. Confounding variables which were found associated at the bivariate level were controlled in the model.

Chapter summary

The fieldwork for this study was conducted between January and March, 2015. Data collection process was completed smoothly. During the fieldwork, prior planning and comprehensive sampling plan helped to complete the field work in an efficient and effective manner. During the process, presence of gate keepers was important for negotiating access to the respondents. The researcher's previous experience as a university lecturer was of substantial importance to build rapport with the university administration as well as the students. Despite a general lack of research culture in Pakistan, respondents were found to be cooperative.

Chapter 4: Results

4.1 Descriptive Results

This first section of the chapter outlines the major findings from the descriptive analysis of the data which included 1308 completely filled questionnaires with a response rate of 91.4%. Firstly, it describes the results pertaining to demography, academic details and socioeconomic background. Secondly, findings related to self-rated health, health behavior and psychosomatic health complaints have been shown. Thirdly, the perceived burdens, perceived stress, low psychological well-being and depressive symptoms have been described and illustrated through graphical and tabular presentation. Fourthly, this chapter reports academic performance of the respondents and their satisfaction with different areas of life. Finally, this chapter describes coping strategies used by the respondents to counter mental health issues.

4.1.1 Socio-demographic Characteristics

This segment discusses the socio-demographic characteristics of the respondents which includes the respondents' age, sex, marital status, place of birth, body mass index (BMI), current employment status, religion, and level of religiosity. In the sample, age of the respondents varied between 16 to 28 years (Mean= 21.5; Standard Deviation (SD) = ± 1.7).

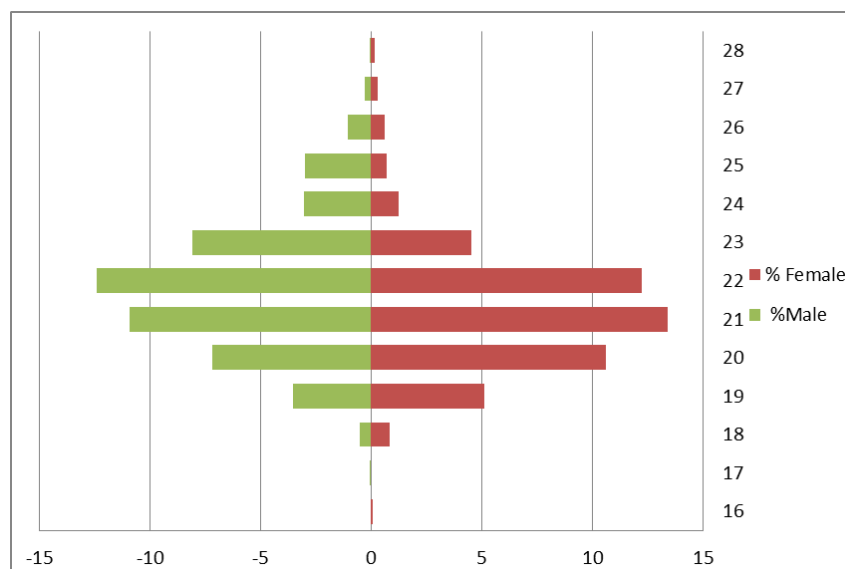


Figure 4.1: Age and sex distribution

The data showed that 366 (28%) respondents were lesser than or equal to 20 years of age. About half (48.9%) of the respondents were 21 or 22 years of age with 319 (24.4%) and 321

(24.5%) respondents respectively. A total of 302 respondents were aged 23 years or above, comprising 23.1% of sample. The sample was almost equally divided between males and females with 657 males (50.2%) and 651 females (49.8%). Figure 3.1 shows the age distribution of the respondents by sex whereas the other results are summarized in Table 4.1.

Table 4.1
Demography (N=1308)

Variable	Frequency	Percent
Age (in four groups)		
≤20	366	28.0 %
21	319	24.4 %
22	321	24.5 %
≥23	302	23.1 %
Sex		
Male	657	50.2 %
Female	651	49.8 %
Place of birth		
Rural	466	35.6 %
Urban	805	61.5 %
Marital status		
Un-married	1247	95.3 %
Married	45	3.4 %
Divorced	2	0.2 %
Separated	6	0.5 %
BMI- group data		
Under weight	268	20.5 %
Normal weight	728	55.7 %
Overweight	167	12.8 %
Obesity	57	4.4 %
Satisfaction with current weight		
Satisfied	720	55 %
Unsatisfied	497	38 %
Current employment status		
Unemployed	1166	89.1 %
Employed	113	8.6 %
If employed (n=113)		
Part time	81	71.6 %
Full Time	17	15.1 %
Religion		
Muslim	1294	98.9 %
Non-Muslim	8	0.6 %
Consider yourself a religious person		
Little Extent	224	17.1 %
Some Extent	598	45.7 %
Great Extent	336	25.7 %
Very Great Extent	118	9.0 %
Religious Belief		
Fully Agree	686	52.4 %
Agree	496	37.9 %
Undecided	82	6.3 %
Disagree	14	1.1 %
Fully Disagree	6	0.5 %

Most respondents i.e. 805 (61.5%) were from urban areas while 466 (35.6%) belonged to rural areas (n=1271). The data showed that an overwhelming majority of respondents i.e. 1247 (95.3%) were unmarried whereas 45 (3.4%) of the respondents were married, 2 (0.2%) were divorced and 6 (0.5%) were separated (n=1300).

The mean BMI of the respondents was 21.6 (SD = ±4.4; Range = 11.8-65.5). The data showed that 268 (20.5%) of the respondents were underweight, 728 (55.7%) were normal weight, 167 (12.8%) were overweight, and 57 (4.4%) of the respondents were obese (n=1220). The respondents were asked about their satisfaction with current weight. The data revealed that more than a half of the respondents (55%) were satisfied with their weight. Interestingly, a substantial number of underweight, overweight, and obese people reported to be satisfied with their current weight whereas a number of people (51%) having normal weight were unsatisfied with it. Figure 4.2 shows the weight categories of respondents against their satisfaction level whereas Fig 4.3 shows sex distribution among the respondent's satisfaction with the current weight.

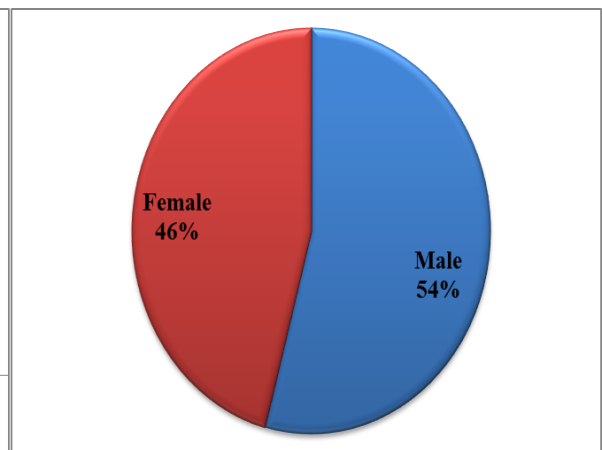
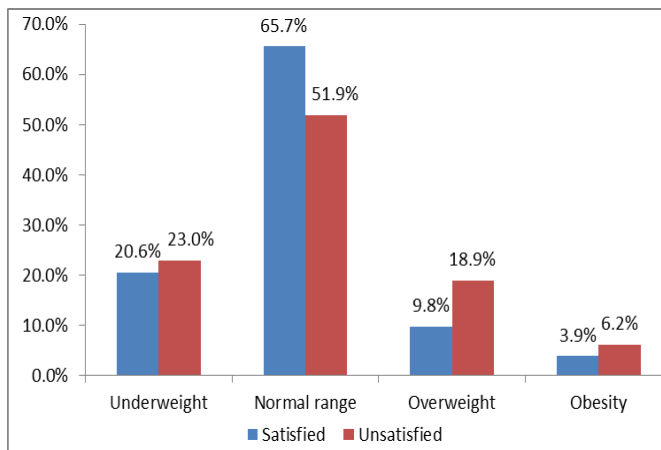


Figure 4.2: Satisfaction level with BMI

Figure 4.3: Satisfaction with current weight by sex

A significant majority of the respondents (89.1%) were unemployed whereas only 8.6% were employed (n=1279). Among the employed respondents, 81 (71.6%) were engaged in part time jobs whereas only 17 (15.1%) were doing full time job (n=98). Consistent with the national demography, an overwhelming majority of the respondents was Muslim and only 8.6% of the respondents identified themselves as non-Muslims (n=1294).

Level of religiosity: The data regarding level of religiosity showed that 90 (6.9%) respondents had a low religiosity level as compared to 421 (32.2%) respondents who had a high

religiosity level. Most respondents (57.7%) in the sample reported to have a medium religiosity level (n=1218).

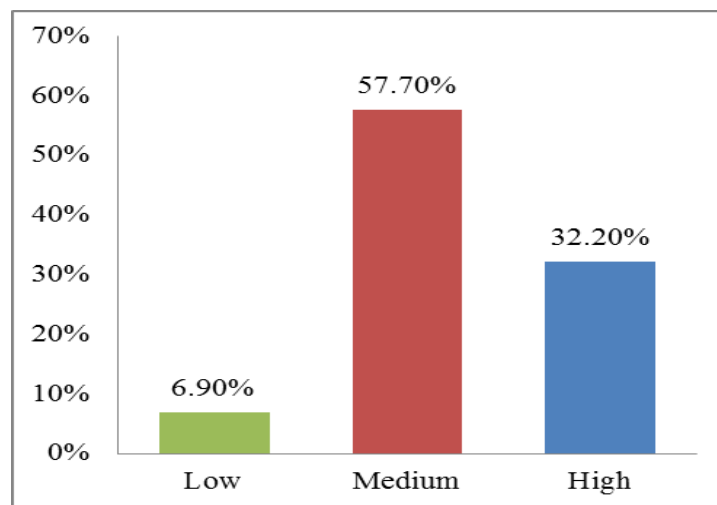


Figure 4.4: Level of religiosity

Family background: Table 4.2 shows the familial characteristics of the respondents which includes parents' education, number of siblings, and family income. With regard to father's education, 135 respondents (10.3%) reported that their fathers had no formal schooling. The fathers of 46 (3.5%) respondents only had up to 5 years of schooling whereas fathers of 343 (26.2%) respondents had 6-10 years of schooling. The fathers of 232 (17.7%) respondents had college education and a significant number of fathers i.e. 542 (41.4%) had university education. When asked about their mother's education, 273 (20.9%) respondents reported that their mothers had no formal schooling. The mothers of 114 (8.7%) respondents had less than five years of schooling. A significant number of mothers (47.8%) had 6-12 years of schooling. Only 286 (21.9%) mothers had university education.

The respondents were asked about the number of their siblings. Only 42 (3.2%) respondents reported to have no siblings. A significant number of respondents (40.2%) had 1-3 siblings whereas 485 (37%) respondents had 4-5 siblings. The rest of the respondents (19.5%) had more than 5 siblings.

The mean monthly family income of the respondents was PKR 57,037.74 (approx. USD 570). However, the unequal distribution of wealth was evident as the monthly family income of the respondents ranged from PKR 8,000 (approx. USD 80) to PKR 1,000,000 (approx. USD 10,000) and the SD was ± 71323.5 . The data showed that 212 respondents (16.2%) had a monthly family income of less than or equal to PKR 20,000. A significant number of respondents (30%) had a family income between PKR 20,001 to 40,000 whereas 326 (24.9%)

respondents had family income between PKR 40,001 to 60,000. A small number of respondents (8.5%) had a family income between PKR 60,001 to 80,000 whereas 164 (12.5%) respondents had a monthly family income of more than PKR 80,000.

Table 4.2:
Family background (N=1308)

Variable	Frequency	Percent
Father education		
No education	135	10.3 %
Up to 5 years of schooling	46	3.5 %
6 to 10 years of schooling	343	26.2 %
College Education	232	17.7 %
University Education	542	41.4 %
Mother education		
No education	273	20.9 %
Up to 5 years of schooling	114	8.7 %
6 to 10 years of schooling	443	33.9 %
College Education	182	13.9 %
University Education	286	21.9 %
Number of siblings		
0	42	3.2 %
1	78	6.0 %
2	179	13.7 %
3	268	20.5 %
4	270	20.6 %
5	215	16.4 %
6	111	8.5 %
7	76	5.8 %
≥ 8	68	5.2 %
Family Income in five groups		
≤ 20001	212	16.2 %
20000-40000	392	30.0 %
40001-60000	326	24.9 %
60001-80000	111	8.5 %
≥80000	164	12.5 %

Academic Details: The respondents for this study were selected from three universities of the Punjab namely Bahauddin Zakariya University (BZU), University of Gujrat (UoG), and University of the Punjab (PU). Among the respondents, 353 (27%) were from BZU (55% males; 45% females), 281 (21.5%) were from UoG (53.4% males; 44.6% females), and 674 (51.5%) were from PU (46.4% males; 53.6% females). The respondents from the Faculty of Science in these universities made up 40.7% of the total sample and it had a higher number of males (61.5%) as compared with females (38.5%). The respondents from the Faculty of

Social Sciences made up 32.3% of the total sample but in this faculty, females (61.1%) outnumbered males (38.9%). The number of respondents from Faculty of Commerce and Management was lowest in the sample (27%) and male-female ratio in this faculty was relatively homogenous with 53.3% females and 46.7% males.

Table 4.3:
Academic details by sex (N=1308)

	What is your sex?						<i>P Value</i>
	Male		Female		Total		
	<i>N</i>	<i>Row %</i>	<i>n</i>	<i>Row %</i>	<i>n</i>	<i>column %</i>	
University							
Bahauddin Zakariya University	194	55.00%	159	45.00%	353	27.00%	.017
University of Gujrat	150	53.40%	131	46.60%	281	21.50%	
University of the Punjab	313	46.40%	361	53.60%	674	51.50%	
Total	657	50.2%	651	49.8%	1308	100.0%	
Academic faculties							
Arts & Social Sciences	164	38.90%	258	61.10%	422	32.30%	< 0.01
Commerce & Management	165	46.70%	188	53.30%	353	27.00%	
Science & Engineering	328	61.50%	205	38.50%	533	40.70%	
Total	657	50.2%	651	49.8%	1308	100.0%	
Degree/ programme							
B.A./ B.S. (Hons)	280	50.30%	277	49.70%	557	42.60%	.980
Masters'	377	50.20%	374	49.80%	751	57.40%	
Total	657	50.2%	651	49.8%	1308	100.0%	
Type of degree/ programme							
Regular (morning)	384	48.90%	402	51.10%	786	60.10%	.223
Self-support (evening)	273	52.30%	249	47.70%	522	39.90%	
Total	657	50.2%	651	49.8%	1308	100.0%	
Year of study							
2nd year	528	51.50%	497	48.50%	1025	78.40%	< 0.01
3rd year	71	36.40%	124	63.60%	195	14.90%	
4th year	58	65.90%	30	34.10%	88	6.70%	
Total	657	50.2%	651	49.8%	1308	100.0%	
Current place of living							
University hostel	151	51.50%	142	48.50%	293	22.50%	< 0.01
Private hostel	126	82.40%	27	17.60%	153	11.70%	
Home	368	43.60%	476	56.40%	844	64.70%	
Total	645	50.0 %	645	50.0%	1290	100.0%	
Financial Support							
Family Support	583	48.90%	610	51.10%	1193	91.30%	0.01
Occupation during semester	29	80.60%	7	19.40%	36	2.80%	
Occupation during breaks	4	57.10%	3	42.90%	7	0.50%	
Scholarship	27	51.90%	25	48.10%	52	4.00%	
Student Loan	5	100.00%	0	0.00%	5	0.40%	
Other	9	64.30%	5	35.70%	14	1.10%	
Total	657	50.30%	650	49.70%	1307	100.0%	
Perceived sufficiency of money							
Sufficient	522	49.40%	535	50.60%	1057	81.20%	.167
Insufficient	133	54.30%	112	45.70%	245	18.80%	
Total	655	50.30%	647	49.70%	1302	100.0%	

The respondents, enrolled in Masters' programme, were 57.4% of the total sample as compared with respondents enrolled in B.A. /B.S. (Hons) programs (42.6%). The numbers of males and females in both the programs were evenly distributed. The academic programs in the public universities of Pakistan can be divided into two categories i.e. regular programs and self-supporting programs. Regular programs are those which are subsidized by the government and the classes of these programs are normally held in morning time. On the other hand, as the name suggests, self-supporting programs have higher academic fees and classes of these programs are normally conducted in evenings. Due to these reasons, the merit of regular (morning) programs is almost invariably higher than that of the self-supporting (evening) programs. In the sample, the number of regular students was 786 (60.1%) as compared with 522 (39.9%) self-supporting students. The percentages of morning and self-supporting students in our sample are consistent with the general distribution of these students in the selected universities.

The inclusion criterion for this study required the respondent to have spent at least two semesters/one year of study at the university. Most of the respondents in the sample (78.4%) were in their second year of study followed by 14.9% in the third year and only 6.7% in their fourth year of study. With regard to current place of living, 64.8% of the respondents reported that they lived in their homes whereas 34.2% of the respondents lived in either university hostels (22.5%) or private hostels (11.7%). The male-female ratio in university hostels was almost the same but interestingly among those living in private hostels, the number of females was substantially lower (17.6%) than that of males (82.4%). Most of the respondents (91.2%) were financially supported by their families. whereas the rest of the respondents supported themselves by other means such as employment (3.3%), scholarship (4%), and student loans (0.4%).

It is interesting to note that most of the scholarship holders fell in lower quintiles of monthly family incomes. An overwhelming majority of the respondents (80.8%) were satisfied with the amount of money they had at their disposal. Figure 4.5 shows the income levels of respondents who were satisfied with the money they have whereas Figure 3.6 shows the income level of respondents who have scholarships.

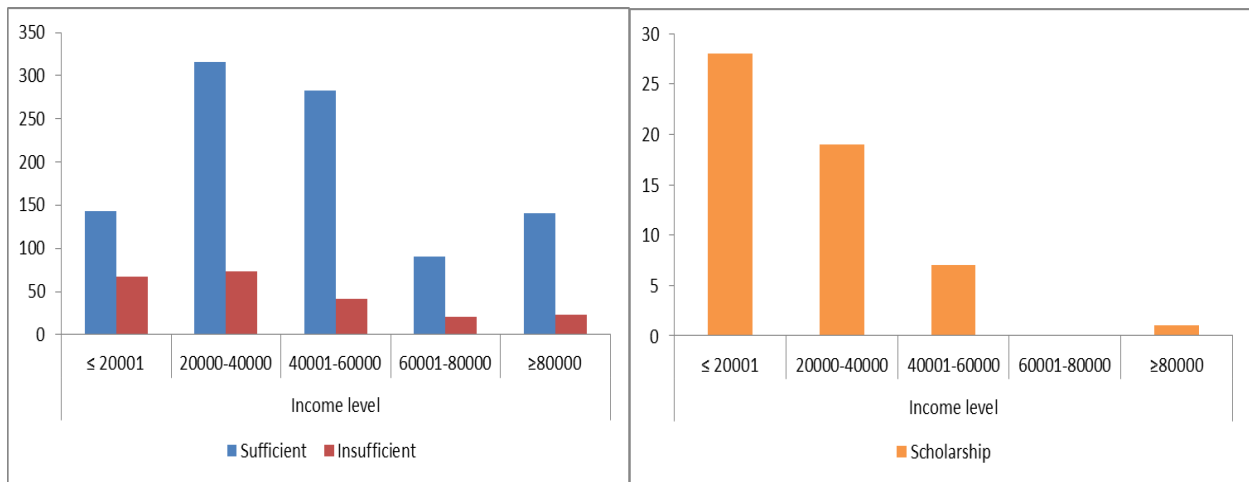


Figure 4.5: Perceived sufficiency of money by income level. Figure 4.6: Family income level of scholarship holders by income level.

4.1.2 Self-rated Health Status and Health Related Behavior

This segment describes the self-rated health status of the respondents which is summarized in Table 4.4. The data showed that 54.8% of the respondents reported to have fair health, followed by 36.6% who reported good health, and 8.6% who reported poor health. There was a significant variation between the responses of males and females. A large number of respondents who reported good health were males (62.1%) as compared with only 37.9% females. Consistent with this result, 61.6% of those who reported poor health were females as compared with 38.4% males. Most of the respondents (84.1%) reported to have better or same health whereas 15.9% reported that their health had worsened than last year.

More than one fifth of the respondents stated that they do not keep an eye on their health at all. A majority (51.8%) of the respondents reported that they keep an eye on their eye quite little whereas 26% reported to keep an eye on their health very much. It is pertinent to note that among the respondents who kept an eye on their health very much, only 36.9% were females as compared with 63.9% males. The data showed that a majority (57.6%) of the respondents rarely gave time to physical activity, followed by 25.3% who occasionally allocated time to physical activity, and a very small proportion (17.1%) of respondents regularly gave time to physical activity.

The data regarding medical assistance and illness showed that more than one third of the respondents (36%) had visited a doctor in the course of last six months with a slightly higher proportion of females than that of males. Around one fourth of the respondents (24.9%) reported that they had fallen seriously ill during last twelve months and they had to stay on

the bed. Furthermore, 12.4% of the respondents were suffering from chronic illness as they had been taking medicines regularly.

Table 4.4:
General health by sex distribution

	What is your sex?						<i>P Value</i>
	Male		Female		Total		
	<i>n</i>	<i>Row %</i>	<i>n</i>	<i>Row %</i>	<i>n</i>	<i>Column %</i>	
General Health Status							
Good	297	62.1%	181	37.9%	478	36.6%	< 0.001
Fair	316	44.2%	399	55.8%	715	54.8%	
Poor	43	38.4%	69	61.6%	112	8.6%	
Total	656	50.3%	649	49.7%	1305	100.0%	
General Health Status (Compare with the last year)							
Better	389	57.8%	284	42.2%	673	51.6%	< 0.001
Same	181	42.7%	243	57.3%	424	32.5%	
Worse	86	41.5%	121	58.5%	207	15.9%	
Total	656	50.3%	648	49.7%	1304	100.0%	
Keep an eye on your health							
Not at all	135	47.2%	151	52.8%	286	22.2%	< 0.001
Quite little	298	44.6%	370	55.4%	668	51.8%	
Very much	212	63.1%	124	36.9%	336	26.0%	
Total	645	50.0%	645	50.0%	1290	100.0%	
Time for physical activity							
Rarely	326	43.6%	421	56.4%	747	57.6%	< 0.001
Occasionally	196	59.6%	133	40.4%	329	25.3%	
Frequently	129	58.1%	93	41.9%	222	17.1%	
Total	651	50.2%	647	49.8%	1298	100.0%	
Visit to any doctor							
No	445	67.9%	387	60.0%	832	64.0%	0.003
Yes	210	32.1%	258	40.0%	468	36.0%	
Total	655	50.4%	645	49.6%	1300	100.0%	
How often (if yes, n=468)							
1-2	90	67.7%	91	67.9%	181	67.8%	0.999
3-4	26	19.5%	26	19.4%	52	19.5%	
≥5	17	12.8%	17	12.7%	34	12.7%	
Total	133	49.8%	134	50.2%	267	100.0%	
So ill that you had to stay in bed							
No	504	51.8%	469	48.2%	973	75.1%	0.116
Yes	151	46.7%	172	53.3%	323	24.9%	
Total	655	50.5%	641	49.5%	1296	100.0%	
Take any medicine regularly							
No	596	52.4%	542	47.6%	1138	87.4%	< 0.001
Yes	59	36.0%	105	64.0%	164	12.6%	
Total	655	50.3%	647	49.7%	1302	100.0%	

4.1.3 Psychosomatic Health Complaints

The respondents were asked about a number of psychosomatic health complaints (PHCs) they had during the course of last year. Figure 3.7 shows that the most frequent PHCs reported by the respondents were tiredness/weariness (52.2%), headache (48.5%), mood swings (37.6%),

depressive mood (36.0%), low-back pain (35.8%), weight loss/gain (32.8%) and concentration difficulties (30.5%). Among the lesser reported PHCs were trembling (11.3%), trembling hands (11.6%), breathing difficulties (12.1%), fear phobia (14.3%), tachycardia (15.3) diarrhea (16.8%), and constipation (18.5%). The moderately reported PHCs were lack of appetite (27.1%), sleep disorder (25.0%), stomach trouble (24.7%), nervousness and anxiety (23.4%), neck & arm ache (22.1%), nightmares (22.0%), speech disorder (21.9%) and abdomen disorder (19.7%).

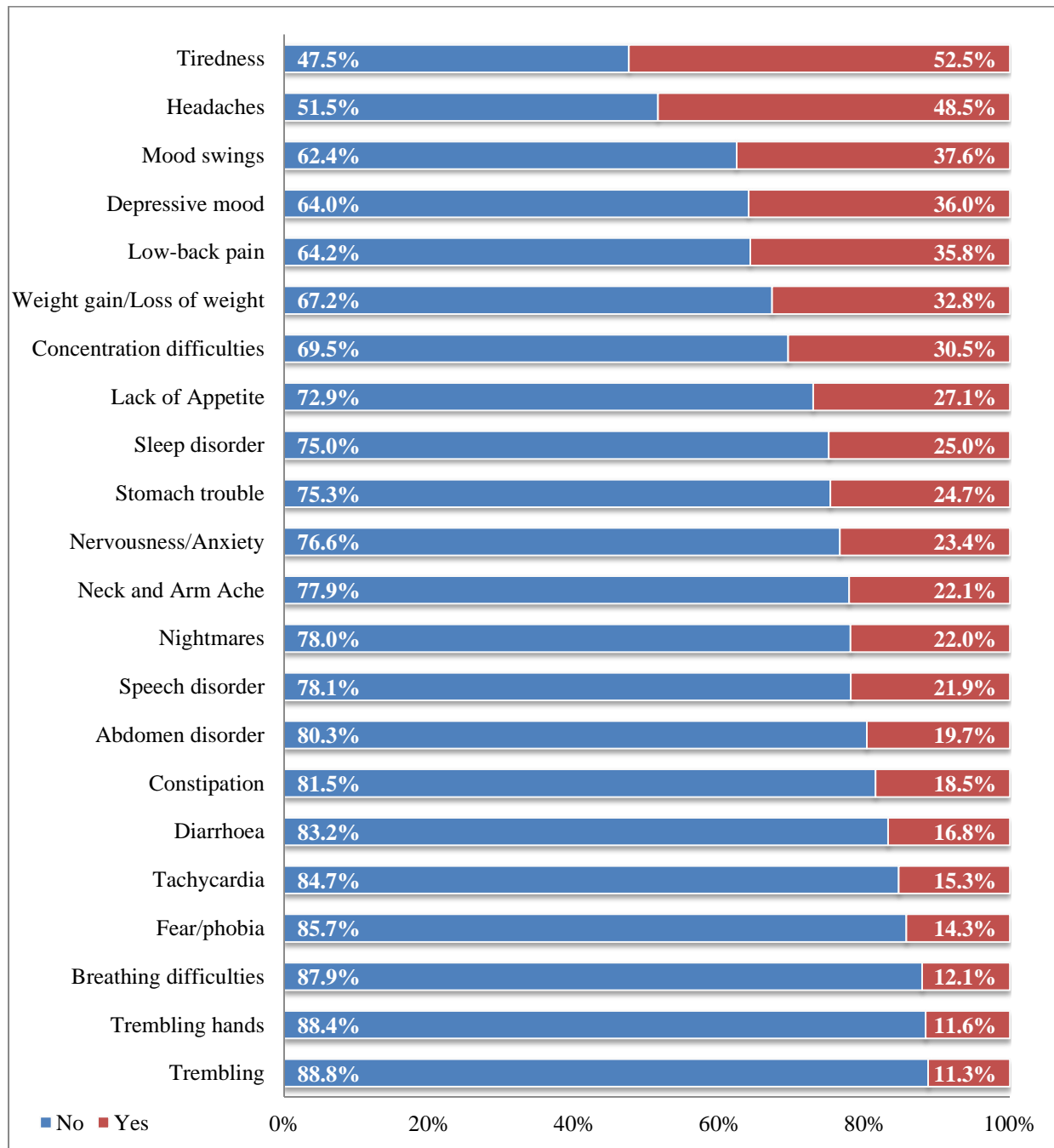


Figure 4.7: Percentage distribution of psychosomatic health complaints (PHCs)

4.1.4 Perceived Stressors

The data showed that 41% students regarded studies in general as a stressor. Among the academic stressors, work related stressors i.e. exams (67.3%), assignments/term papers (60.1%) and presentations (62.2%) fared highly as stressors. In comparison with work related stressors, other university factors such as anonymity at university (23.5%) and isolation at university (27.5%) were not regarded by many as high level stressors. Among the relationships related stressors, emotional disturbance in personal relations (45%) was regarded as most stressful. Family expectations were regarded by a majority of respondents (52.2%) as a high-level stressor among non-academic stressors.

Table 4.5:

Perceived stressors

	Low		High		Total	
	n	%	n	%	n	%
Studies in General	769	59.3%	527	40.7%	1296	100.0%
Exam	425	32.7%	874	67.3%	1299	100.0%
Assignments or term papers	516	39.9%	778	60.1%	1294	100.0%
Presentations	483	37.8%	795	62.2%	1278	100.0%
English language (medium of instruction)	801	63.3%	465	36.7%	1266	100.0%
Problems with specific subject (s)	781	61.3%	493	38.7%	1274	100.0%
Isolation at the university	928	72.5%	352	27.5%	1280	100.0%
Isolation in general	921	73.7%	328	26.3%	1249	100.0%
Anonymity at university	946	76.5%	290	23.5%	1236	100.0%
Problems with fellow students	959	74.8%	323	25.2%	1282	100.0%
Problems with friends	851	66.0%	438	34.0%	1289	100.0%
Interaction with opposite gender	875	69.3%	387	30.7%	1262	100.0%
Emotional disturbance (in personal relations)	710	55.1%	578	44.9%	1288	100.0%
Family problems	896	69.3%	397	30.7%	1293	100.0%
Home sickness	912	72.0%	355	28.0%	1267	100.0%
Family expectations	611	47.8%	667	52.2%	1278	100.0%
Career aspirations	875	70.9%	360	29.1%	1235	100.0%
Lack of practical relevance of studies	793	63.2%	461	36.8%	1254	100.0%
Health problems	852	66.7%	425	33.3%	1277	100.0%
Hostel/Living conditions	934	73.8%	331	26.2%	1265	100.0%
Financial situation	834	65.3%	444	34.7%	1278	100.0%
Overall burden in general	676	60.8%	435	39.2%	1111	100.0%

Within the career related stressors, 36.8% of the respondents considered practical irrelevance of studies with job as stressful. Financial burden was considered by around one third of the

respondents (34.7%) as stressful. The comparison between the stressors and demographic characteristics showed some important variations. First, more male respondents considered family expectations and interaction with opposite gender highly stressful than their female counterparts whereas health issues were considered by more female respondents as stressful as compared with male respondents. Second, respondents from rural areas regarded i) English as a medium of instruction, ii) interaction with opposite gender, and iii) family expectations as more stressful than their urban counterparts. Third, respondents from PU considered problem with fellow students more stressful than respondents from the other two universities while respondents from PU and BZU considered homesickness as a high level stressor than respondents from UoG. Fourth, respondents from PU and UoG did not regard lack of hostel facilities as a high level stressor as compared with respondents from BZU.

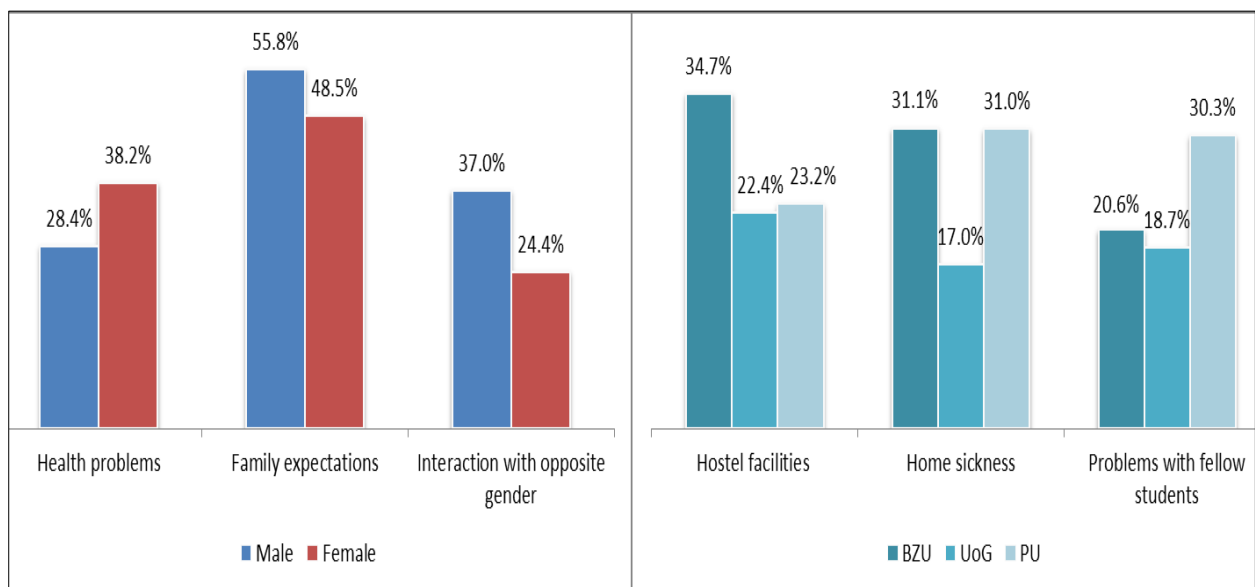


Figure 4.8: Comparative differences of stressors by sex and university

4.1.5 Prevalence of Mental Health Issues

Psychological well-being: Most of the respondents (81.0%) had high psychological well-being whereas only 19.0% of the respondents reported to have low psychological well-being. The data showed that the mean score of all the respondents was 16.5 (SD \pm 4.9).

Perceived Stress: The response was measured through the 14-item Perceived Stress Scale (PSS) of Cohen. The data showed that the mean value of sum score of all the respondents on PSS was 27.6 (SD \pm 8.3). As per the cut off value, around 38% of the respondents were not stressed as compared with around 46% respondents who were stressed. The missing values in this segment accounted for around 16% of the respondents. Excluding the missing values, 45.1% of the respondents were not stressed as compared with 54.1% stressed respondents.

There were some important variations between different set of respondents in terms of perceived stress. The respondents in their fourth year of studies were under less perceived stress as compared with respondents in the second and third year of studies. Additionally, around 60% of the female respondents were more stressed as compared with only 50% of the male respondents. Around 62% of the respondents who considered their financial resources less sufficient were under perceived stress which was the highest proportion of stress level in any given category of respondents.

Depressive Symptoms: The depressive symptoms of the respondents were measured by Modified Beck Depression Inventory (M-BDI). The data from the present study showed that mean cumulative score was 33.8 (SD \pm 16.2). As per the cut off score, 33.3% of the respondents were depressed as compared with 42.1% who were not depressed. Excluding the missing values, 55.8% of the respondents were not depressed as compared with 44.2% depressed respondents. Cross tabulations of this inventory with respondent characteristics showed that females were more depressed (48%) than their male counterparts (40%). The respondents from BZU were less depressed (37%) than respondents from PU (47%) and UoG (46%). Across the degree programs, the respondents from B.A./BS (Hons) were more depressed (48%) than the respondents who were enrolled in Master degree (41%). Finally, those respondents who considered their financial resources insufficient were more depressed than the other respondents.

Table 4.6:

Frequencies and percentages of well-being, perceived stress and depression

		Frequency	Valid Percent
Well-being	Low	243	19.0%
	High	1034	81.0%
	Total	1277	100.0%
Perceived Stress	Not stressed	499	45.1%
	Stressed	607	54.9%
	Total	1106	100.0%
Depression	Not depressed	551	55.8%
	Depressed	436	44.2%
	Total	987	100.0%

4.1.6 Academic Performance

The data for the academic performance showed that 23.9% of the respondents belonged to 1st quintile (the lowest grades) and 25.2% of the respondents belonged to 2nd quintile. A large

number of respondents i.e. 35.8% belonged to the third quintile whereas only 15.1% of the respondents belonged to the 4th quintile (highest grades).

Table 4.7:
Academic grades

	Frequency	Valid Percent
GPA ≤ 3.0	302	23.9%
GPA 3.0-3.3	319	25.2%
GPA 3.31-3.70	453	35.8%
GPA 3.71-4.00	191	15.1%
Total	1265	100.0%

There were notable variations between the academic performances of males and females respondents. Only 16.6% of the female respondents had the lowest grades as compared with 30.9% of the male respondents. Similar pattern emerged between rural and urban students where around 30% of the rural respondents had the lowest grades as compared with around 20% of their urban counterparts. With respect to universities, only 17% of the respondents from PU had the lowest grades as compared with BZU respondents (28%) and UoG respondents (36%). This variation also held at the 4th quintile where 18% of the respondents from PU had the highest grades as compared with BZU respondents (15%) and UoG respondents (9%). With regard to academic faculties, 32.1% of the respondents from the Faculty of Science had the lowest grades as compared with 25.2% of the respondents from the Faculty of Commerce and Management and only 12.2% of the respondents from the Faculty of Social Sciences. With respect to the degree programs, there were substantial differences in grades obtained, for instance, only 8.7% of the respondents in Master degree had the highest grade as compared with 23.6% of their B.A/B.S. (Hons) counterparts. Interestingly, 19.5% of respondents with perceived insufficiency of funds had the lowest grades as compared with 25% of the respondents with perceived sufficient funds.

In terms of subjective performance, 72.9% of the respondents considered their academic performance better than their fellow students as compared with 27.1% of the respondents who thought that their performance was either the same or worse than the other students. There was variation in this measure across the faculties. A larger proportion of respondents from the Faculty of Social Sciences (81.4%) considered their academic performance better than their fellow students as compared with the Faculty of Science (67.3%) and the Faculty of Commerce and Management (71.3%).

Table 4.8:
Performance at the university in comparison to others

	Frequency	Valid Percent
Better	934	72.9%
Same	194	15.1%
Worse	153	11.9%
Total	1281	100.0%

A large majority of students (91.4%) of the respondents considered achieving good grades as important whereas only 7.5% of the students did not consider good grades as important to them. There were no substantial variations in the responses across different categories.

4.1.7 Satisfaction with different areas of Life

The data showed that the university factors other than the study related factors were an important source of dissatisfaction among the respondents. These included quality of food at university cafeteria with which 60.7% of the respondents were dissatisfied, in addition to safe drinking water (62%), general hygiene situation (63.8%), extra-curricular activities (56.4%), transportation facilities (54.2%), and health facilities (56.5%). The respondents were particularly satisfied with their relations with family (83.7%), relations with friends (79.1%), and private life (69.9%). However, a substantial majority of the respondents (73.9%) were dissatisfied with their living conditions. Another area of major concern among the respondents was related to broader structural conditions of the country.

An overwhelming majority of respondents expressed dissatisfaction with country's security situation (81%), economic situation (79.1%), and political situation (78.8%) whereas 52.9% of the respondents were apprehensive about the employment prospects. The data revealed that female respondents were more satisfied with the study related factors than their male counterparts such as grades in university, teaching methods, and integration at university. Female respondents were more dissatisfied (67%) with hygiene facilities than male respondents (60%). On the contrary, male respondents are more dissatisfied with their relationships than female respondents e.g. regarding relationships with family, 21.2% males were dissatisfied as compared with 11% females. There were notable variations among the respondents from the three universities in terms of university related facilities. A larger proportion of respondents from PU were satisfied with university related facilities than the other respondents. For instance, a half of the respondents from PU (54.3%) were satisfied with the transportation facilities as compared with BZU (41%) and UoG (31%) respondents.

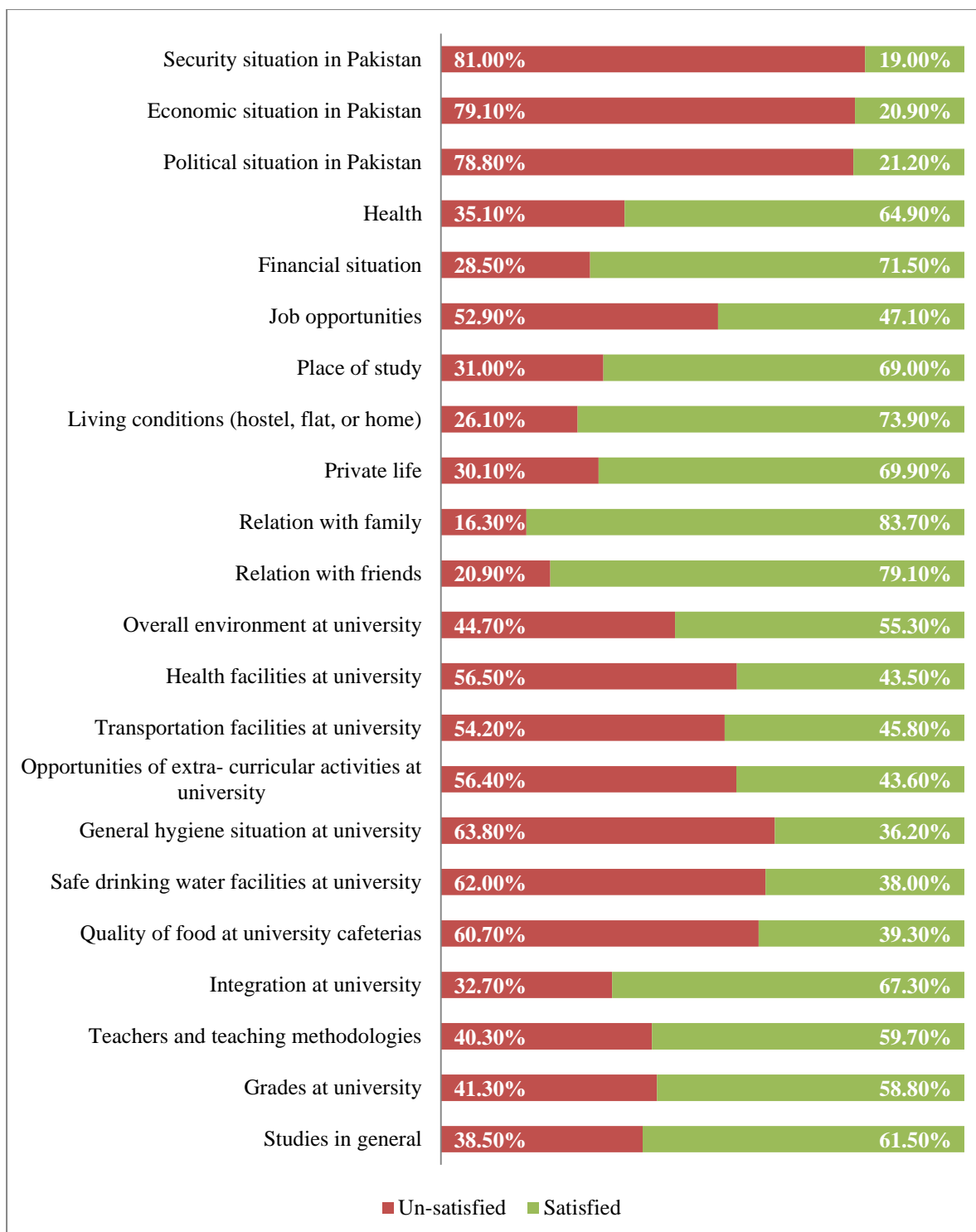


Figure 4.9: Level of satisfaction with various spheres of their life

4.1.8 Coping Strategies

Most frequent coping strategies used by students were spending time with friends (52.5%), use of internet (50.1%), and offering prayers (49%). Contrarily, only few respondents often employed strategies such as smoking (11.4%), substance abuse (11.9%) and self-injury (12.5%). When compared across religiosity level, a smaller proportion of respondents who

were highly religious (39.8%) often used prayers as a coping strategy as compared with moderately religious respondents (53.7%). These results were also consistent when examined using meditation/spirituality as a coping strategy.

Table 4.9:
Frequency & percent coping strategies

	Never		Sometime		Often		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sleep	108	8.4%	587	45.6%	592	46.0%	1287	100.0%
Music	141	10.9%	587	45.6%	560	43.5%	1288	100.0%
Watching television or movies	129	10.0%	588	45.5%	574	44.5%	1291	100.0%
Use of internet	110	8.6%	529	41.3%	641	50.1%	1280	100.0%
Changing eating habits	237	18.5%	719	56.1%	325	25.4%	1281	100.0%
Isolation	291	22.9%	636	50.1%	343	27.0%	1270	100.0%
Smoking	966	75.1%	174	13.5%	146	11.4%	1286	100.0%
Substance use	827	64.6%	301	23.5%	153	11.9%	1281	100.0%
Self-injury	666	53.8%	417	33.7%	155	12.5%	1238	100.0%
Offering prayers	92	7.2%	557	43.8%	623	49.0%	1272	100.0%
Meditation/spirituality	243	19.2%	618	48.9%	403	31.9%	1264	100.0%
Spend time with friends	127	9.8%	491	37.7%	684	52.5%	1302	100.0%
Visiting relatives	238	18.6%	741	58.0%	299	23.4%	1278	100.0%
Sports	302	23.6%	676	52.8%	302	23.6%	1280	100.0%
Utilization of health services	230	18.1%	725	57.1%	315	24.8%	1270	100.0%
Act to resolve the problem	186	14.6%	678	53.3%	409	32.1%	1273	100.0%

Across the gender, data showed that female respondents more often employed sleeping as their coping strategy (51.3%) than their male counterparts (40.7%). With regard to smoking as a coping strategy, male respondents (17.1%) used it more often as compared with females (5.6%). Regarding offering prayers as a coping strategy, the data revealed that females used them more often (55.5%) than males (42.6%). There were stark variations in the use of sports as a coping strategy between males and females. As compared with 30.9% of the males, only 16.3% of the females often used sports as a coping strategy. With regard to place of residence, respondents living at home (48%) more often watched TV/movies as a coping strategy than hostel residents (38.4%). Finally when compared across universities, a larger proportion of the respondents (16%) in PU used self-injury as a coping strategy as compared with 8% of the respondents in UoG. With regard to the other coping strategies used by the

students, literary activities, crying, smartphone use, indoor sports, aggression, discussing with mother, and hanging out were cited by a number of respondents.

4.2 Analytical Results

In the previous section, descriptive findings of the study were discussed. This section is based on the results of inferential statistics to address the research questions. Simple and binary logistic regression analyses were used for socioeconomic and academic factors associated with mental health. Same procedures were applied for impact of self-rated health status and health related behaviors on mental health issues. Stressors were first divided into academic and non-academic stressors using principal component factor analysis and then the impact of both these types of stressors on mental health issues was examined. Finally, the impact of mental health issues on academic performance and well-being was measured by applying multinomial logistic regression analysis. The results of the analyses are presented in order of the research objectives of this study.

4.2.1 Factors Associated with Perceived Mental Health Issues

The null hypothesis of no relationship between each socio-demographic and academic characteristic, and each type of perceived mental health issues was to be rejected if p-value of test statistic was less than 0.05. The following section describes the results of factors associated with perceived prevalence of mental health. This section is divided into two parts. The first part deals with results of bivariate analysis whereas the second part deals with results of multivariate analysis.

Results of simple binary logistic regression analysis: Table 4.10 shows the results of simple binary logistic regression analysis with odd ratios at 95% Confidence Interval (CI). It was found that the factors predicting the likelihood of experiencing mental health issues were somewhat different across different types of mental health issues. However, sex was one of those factors which influenced all types of mental health issues. Male students in our study were less likely to perceive mental health issues in comparison to female students, i.e. PS (OR=0.74, 95% CI=0.58-0.94), DS (OR=0.75, 95% CI=0.58-0.96), and LWB (OR=0.70, 95% CI=0.53-0.93). The university had a bearing on the risk of perceived mental health issues. The students from BZU were 34% less likely to experience DS than the students from PU. Additionally, students enrolled in BA/BSC programs were at higher risk of DS than their master degree counterparts. Among BA/BSC students, those in second year of their study had a high risk of PS (OR=1.92, 95% CI=1.18-3.12) compared to students of third and fourth year at the same degree level.

Table 4.10:

Factors associated with perceived prevalence of mental health issues vs. non prevalence of mental health (Simple binary logistic regression analysis employed separately with each type of mental health issue, N=1308)

Respondent characteristics	Mental Health Issues		
	Perceived stress	Depressive symptoms	Psychological well-being
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age (Yrs)			
≤20	1.39 (0.99-1.94)	1.22 (0.85 - 1.73)	1.17 (0.79 - 1.74)
21	1.09 (0.78-1.54)	1.08 (0.75 - 1.55)	1.60 (0.77 - 1.74)
22	1.08 (0.77-1.52)	0.74 (0.51 - 1.07)	0.89 (0.58 - 1.35)
≥23	1.00	1.00	1.00
Sex			
Male	0.74 (0.58-0.94)**	0.75 (0.58 - 0.96)*	0.70 (0.53 - 0.93)*
Female	1.00	1.00	1.00
Marital status			
Un-married	1.37 (0.73-2.56)	0.51 (0.27 - 0.97)*	0.60 (0.32 - 1.14)
Ever-married	1.00	1.00	1.00
Place of birth			
Rural	0.90 (0.70-1.16)	0.87 (0.66 - 1.13)	0.91 (0.67 - 1.23)
Urban	1.00	1.00	1.00
Monthly family income			
≤ 20001	1.15 (0.73 - 1.79)	1.02 (0.62 - 1.59)	0.90 (0.54 - 1.49)
20000-40000	1.03 (0.67 - 1.48)	0.96 (0.63 - 1.46)	0.83 (0.53 - 1.31)
40001-60000	1.13 (0.75 - 1.70)	0.94 (0.61 - 1.44)	0.76 (0.48 - 1.22)
60001-80000	0.874 (0.51 - 1.74)	0.998 (0.58 - 1.70)	0.69 (0.37 - 1.30)
≥ 80000	1.00	1.00	1.00
Employment status			
Unemployed	1.23 (0.82 - 1.86)	0.96 (0.62 - 1.48)	1.11 (0.66 - 1.86)
Employed	1.00	1.00	1.00
University			
Bahauddin Zakariya University	0.92 (0.69 - 1.22)	0.66 (0.48 - 0.91)**	0.68 (0.47 - 0.97)*
University of Gujrat	1.05 (0.74 - 1.35)	0.94 (0.69 - 1.28)	1.01 (0.71 - 1.43)
University of the Punjab	1.00	1.00	1.00
Academic Faculty			
Social Sciences	1.06 (0.80 - 1.40)	1.23 (0.91 - 1.65)	1.33 (0.96 - 1.84)
Commerce & Management Science	1.01 (0.75 - 1.35)	1.06 (0.77 - 1.45)	0.98 (0.68 - 1.40)
	1.00	1.00	1.00
Degree/ programme			
B.A/ B.S (Hons)	1.15 (0.90 - 1.46)	1.33 (1.03 - 1.71)*	1.22 (0.92 - 1.61)
Master	1.00	1.00	1.00
Type of your degree			
Regular (morning)	0.79 (0.62 - 1.01)	0.90 (0.70 - 1.17)	1.25 (0.94 - 1.68)
Self-support (evening)	1.00	1.00	1.00
Year of study			
2 nd year	1.92 (1.18 - 3.12)**	1.02 (0.61 - 1.69)	1.55 (0.80 - 2.98)
3 rd year	1.74 (1.01 - 3.03)*	1.13 (0.63 - 2.02)	2.03 (0.99 - 4.15)*
4 th year	1.00	1.00	1.00
Current place of living			
University hostel	0.82 (0.61 - 1.10)	0.78 (0.57 - 1.07)	0.50 (0.34 - 0.74)**
Private hostel	0.63 (0.43 - 0.92)*	0.69 (0.46 - 1.04)	0.57 (0.25 - 0.94)*
Home	1.00	1.00	1.00
Sufficiency of Financial Support			
Fully sufficient	0.70 (0.52 - 0.96)*	0.53 (0.38 - 0.74)***	0.53 (0.38 - 0.73)***
Insufficient	1.00	1.00	1.00

Notes: 1= Reference category

OR= Odds ratio; CI= Confidence interval

*p < 0.05; **p < 0.01; ***p < 0.001

Students living in hostel were 50% less likely to experience LWB than students living at their homes. Students who had sufficient financial support were less likely to have all types of mental health issues than their counterparts i.e. PS (OR=0.70, 95% CI=0.52-0.96), DS (OR=0.53, 95% CI=0.38-0.74), and LWB (OR=0.53, 95% CI=0.38-0.73). Since variation in age was quite narrow in our sample, age variable was dropped for all further analyses (Table 4.10). Monthly family income, employment status, academic faculty, type of degree, and place of birth were not significantly associated with any of the mental health issues. Similarly, age was not found to be associated with any of the dependent variables.

Results of multiple binary logistic regression analysis: Following the data driven approach, independent variables which showed significance at the earlier stage were entered in multiple binary logistic regression model with each type of mental health issues. Table 4.11 shows the results of factors associated with PS i.e. sex, year of study, current place of living, and sufficiency of financial support. As may be seen from the table, all the independent variables retained their significance despite slight variations in OR. Adjusted odd ratios (AOR) for the variables which were retained in the final model are presented in the result (Table 4.2).

Table 4.12 presents the probability of prevalence of DS when taken with a set of co-variants which were significantly associated in the simple binary logistic regression. Except marital status (AOR=0.53, 95% CI=0.28-1.01), all the other independent variables i.e. sex, university, degree program, and sufficiency of financial support retained their significance. AORs for all the variables did not change significantly, except that of university (AOR=0.71, 95% CI=0.52-0.98) which increased by 5%.

Table 4.13 demonstrates the results of multiple binary logistic regression analysis with the predictors of LWB which were significant in the simple binary logistic regression analysis. As per the results, university and year of study lost their significance. In contrast, sex, current place of living and sufficiency of financial support retained their significance in the model. Current place of living and sufficiency of financial support were stronger predictors of LWB than sex. Students living in university hostels and having highly sufficient financial support were 50% less likely to experience LWB than their counterparts. AOR for sex did not change significantly in the model (AOR=0.70, 95% CI=0.52-0.94). The detailed results based on the AORs for the variables retained in the final model are provided in the following tables.

Table 4.11:

Impact of socio-demographic and academic characteristic on perceived stress (Multiple binary logistic regression model, N=1091)

Respondent characteristics	Perceived stress
	<i>Stressed (588) vs. Not-stressed (503)</i> <i>Adjusted odd ratios (95% CI)</i>
Sex	
Male	0.76 (0.59-0.97)*
Female	1.00
Year of study	
2 nd year	1.76 (1.07 - 2.88)*
3 rd year	1.50 (.85 - 2.65)
4 th year	1.00
Current place of living	
University hostel	0.84 (.62 - 1.13)
Private hostel	0.67 (0.46 - 0.99)*
Home	1.00
Sufficiency of Financial Support	
Fully sufficient	0.70 (0.51 - 0.95)*
Insufficient	1.00

Notes: 1= Reference category, OR=Odd ratios were adjusted for the other variables (respondent characteristics) retained in the final model. ; CI= Confidence interval, *p < 0.05; **p < 0.01; ***p < 0.001

Table 4.12:

Impact of socio-demographic and academic characteristic on depressive symptoms (Multiple binary logistic regression model, N=979)

Respondent characteristics	Depressive symptoms
	<i>Depressed (432) vs. Not-depressed (547)</i> <i>Adjusted odd ratios (95% CI)</i>
Sex	
Male	0.76 (0.59 - 0.99)*
Female	1.00
Marital status	
Un-married	0.53 (0.28 - 1.01)
Ever-married	1.00
University	
Bahauddin Zakariya University	0.71 (0.52 - 0.98)*
University of Gujrat	0.94 (0.69 - 1.30)
University of the Punjab	1.00
Degree/ programme	
B.A./ B.S.	1.33 (1.03 - 1.73)*
Master	1.00
Sufficiency of Financial Support	
Fully sufficient	0.53 (0.38 - 0.74)***
Insufficient	1.00

Notes: 1= Reference category, OR=Odd ratios were adjusted for the other variables (respondent characteristics) retained in the final model. ; CI= Confidence interval, *p < 0.05; **p < 0.01; ***p < 0.001

Table 4.13:

Impact of socio-demographic and academic characteristic on psychological well-being (Multiple binary logistic regression model, N=1256)

Respondent characteristics	Psychological well-being <i>Low well-being (239) vs. High well-being (1017)</i> Adjusted odd ratios (95% CI)
Sex	
Male	0.70 (0.52 - 0.94)*
Female	1.00
University	
Bahauddin Zakariya University	0.74 (0.5 - 1.64)
University of Gujrat	1.20 (0.83 - 1.74)
University of the Punjab	1.00
Year of study	
2 nd year	1.70 (0.85 - 3.39)
3 rd year	2.09 (0.98 - 4.47)
4 th year	1.00
Current place of living	
University hostel	0.50 (0.34 - 0.74)**
Private hostel	0.57 (0.34 - 0.94)*
Home	1.00
Sufficiency of Financial Support	
Fully sufficient	0.52 (0.37 - 0.73)***
Insufficient	1.00

Notes: 1= Reference category

OR=Odd ratios were adjusted for the other variables (respondent characteristics) retained in the final model.

*p < 0.05; **p < 0.01; ***p < 0.001; CI= Confidence interval

4.2.2 Association between General Health and Mental Health Issues

The second research question of this study was to assess the impact of general health and health related behaviors on the prevalence of students' mental health issues. To accept or reject this hypothesis, simple binary logistic regression analyses were performed with each independent and dependent variable separately with sex as a confounding variable. Sex adjusted odd ratios with 95% CI are presented in Table 4.14. The null hypothesis of no relationship between each self-rated health status indicator and health related behavior, and each type of perceived mental health issues was to be rejected if p-value of test statistic was less than 0.05.

The indicators of self-rated health i.e. perceived good general health, no severe illness, and no PHCs were significantly and negatively associated with all three types of mental health issues. Students' with good health in our sample were 49% less likely to experience stress as

compared with students who reported poor health. Similar patterns were observed in relationship between good health and DS (AOR=0.21, 95% CI=0.12-0.37), and good health and LWB (AOR=0.27, 95% CI=0.17-0.44).

Having no severe illness was found to be a protective factor for all three types of mental health issues, including stress (AOR=0.71, 95% CI=0.53-0.94), DS (AOR=0.51, 95% CI=0.38-0.68), and LWB (AOR=0.75, 95% CI=0.42-0.78). Similarly, absence of PHCs was a protective factor for stress (AOR=0.48, 95% CI=0.36-0.63), DS (AOR=0.15, 95% CI=0.11-0.21), and LWB (AOR=0.24, 95% CI=0.17-0.36). Conversely, students experiencing mental health issues were at a higher risk of experiencing PHCs (Table 4.15). However, BMI was not found to be associated with any type of mental health issues discussed in this study.

Table 4.14:

Impact of self-rated health status (SRHS) & health related behaviors on perceived mental health issues (Binary logistic regression analysis employed separately with each type of mental health issue)

Self-rated health status & health related behaviors	Mental Health Issues		
	Perceived stress	Depressive symptoms	Psychological well-being
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Self-rated health status			
BMI (grouped)			
Under weight	1.22 (0.65 - 2.28)	1.04 (0.53 - 2.06)	0.72 (0.32 - 1.64)
Normal range	1.29 (0.72 - 2.31)	0.99 (0.53 - 1.87)	1.06 (0.50 - 2.24)
Overweight	1.49 (0.78 - 2.85)	1.121 (0.55 - 2.25)	1.10 (0.48 - 2.50)
Obesity	1.00	1.00	1.00
General Health Status			
Good	0.51 (0.32 - 0.82)**	0.21 (0.12 - 0.37)***	0.27 (0.17 - 0.44)***
Fair	0.82 (0.52 - 1.29)	0.38 (0.22 - 0.63)***	0.44 (0.28 - 0.68)***
Poor	1.00	1.00	1.00
Severe illness			
No	0.71 (0.53 - 0.94)*	0.51 (0.38 - 0.68)***	0.57 (0.42 - 0.78)***
Yes	1.00	1.00	1.00
Psychosomatic health complaints (PHCs)			
No	0.48 (0.36 - 0.63)***	0.15 (0.11 - 0.21)***	0.24 (0.17 - 0.36)***
Yes	1.00	1.00	1.00
Health related behaviors			
Keep an eye on your health			
Very much	0.53 (0.37 - 0.75)***	0.69 (0.47 - 1.00)*	0.66 (0.44 - 1.00)*
Quite little	0.744 (0.54 - 1.01)*	0.72 (0.52 - 0.99)*	0.76 (0.54 - 1.07)
Not at all	1.00	1.00	1.00
Time for physical activity			
Frequently	0.67 (0.48 - 0.94)*	0.65 (0.46 - 0.93)*	0.53 (0.34 - 0.83)*
Occasionally	0.75 (0.56 - 0.99)*	0.98 (0.73 - 1.33)	0.67 (0.47 - 0.95)*
Rarely	1.00	1.00	1.00

Notes: 1= Reference category

OR= odd ratios (sex adjusted); CI= 95% confidence interval, *p < 0.05; **p < 0.01; ***p < 0.001

Table 4.15 also shows significant association between health-related behaviors i.e. keep an eye on health and time for physical activity, and perceived mental health issues after controlling for sex. It shows that the students who kept an eye on their health very much were less likely to experience mental health issues as compared with issues who did not keep an eye on their health. Similarly, students who performed frequent physical activity had lower odds of experiencing stress (AOR=0.67, 95% CI=0.48-0.94), DS (AOR=0.65, 95% CI=0.46-0.93) and LWB (AOR=0.53, 95% CI=0.34-0.83) as compared with those who did so rarely.

Table 4.15:

Impact of psychosomatic health complaints (PHCs) on mental health issues (Binary logistic regression analysis employed separately with each type of mental health issue)

Mental Health Issues	Psychosomatic Health Complaints (PHCs)
	OR (95% CI) ^b
Perceived Stress	
Stressed	2.07 (1.56 - 2.75)***
Not stressed	1.00
Depressive symptoms	
Depressed	6.35 (4.57 - 8.83)***
Not depressed	1.00
Psychological well-being	
Low	4.04 (2.77 - 5.87)***
High	1.00

Notes: 1= Reference category

OR= odd ratios (sex adjusted); CI= 95% confidence interval, *p < 0.05; **p < 0.01; ***p < 0.001

4.2.3 Factors Influencing Students' Perceptions towards Stressors

This study aimed to examine how students' socio-demographic and other academic characteristics were associated with their perceptions towards stressors they encounter in their university life. The null hypothesis of no relationship between each independent variable and academic and non-academic stressors was to be rejected if p-value of test statistic was less than 0.05.

Table 4.16 shows that sex, academic faculty, year of study and perceived income sufficiency were significantly associated with academic burdens whereas family income, academic faculty and economic sufficiency were associated with non-academic stressors.

Table 4.16:*Bivariate association between respondent characteristics and mental issues with stressors*

Respondent characteristics	Academic Stressors		P-Value	Non-Academic Stressors		P-Value
	Low	High		Low	High	
Sex						
Male	56.2%	44.2%	.000*	48.8%	49.0%	0.94
Female	43.8%	55.8%		51.2%	51.0%	
Total	100.0%	100.0%		100.0%	100.0%	
Family Income						
≤ 20001	17.7%	17.1%	0.57	12.7%	23.1%	.001*
20000-40000	31.7%	32.6%		31.6%	29.9%	
40001-60000	26.9%	27.6%		30.7%	25.4%	
60001-80000	8.2%	10.1%		9.6%	9.4%	
≥ 80000	15.4%	12.6%		15.4%	12.2%	
Total	100.0%	100.0%	100.0%	100.0%		
Academic faculties						
Social Sciences	36.2%	28.5%	.010*	29.5%	35.1%	.016*
Commerce & Management	24.3%	29.4%		30.1%	22.3%	
Sciences	39.5%	42.0%		40.5%	42.6%	
Total	100.0%	100.0%		100.0%	100.0%	
Year of study						
2nd year	79.7%	76.5%	.042*	76.4%	79.0%	0.07
3rd year	12.6%	17.3%		15.9%	16.8%	
4th year	7.8%	6.1%		7.8%	4.2%	
Total	100.0%	100.0%	100.0%	100.0%		
Perceived income sufficiency						
Sufficient	82.5%	79.9%	0.23	85.4%	75.3%	.000*
Insufficient	17.5%	20.1%		14.6%	24.7%	
Total	100.0%	100.0%		100.0%	100.0%	

Notes: a. The Chi-square statistic is significant at the .05 level.

4.2.4 Impact of Perceived Stressors on Student's Mental Health Issues

This study set out to examine the impact of stressors on perceived mental health issues of university students. The null hypothesis for this research question was that there is no impact of stressors on perceived mental health issues of university students. Results showed the students who perceived academic and non-academic stressors as highly stressful, were at higher risk of experiencing all three types of mental health issues as compared to their counterparts. We found that non-academic stressors were stronger predictors of stress (AOR=2.23, 95% CI=1.66-2.99), DS (AOR=6.48, 95% CI=4.62-9.09), and LWB (AOR=5.11, 95% CI=3.41-7.64) than academic stressors which were not as strong predictors

of stress (AOR=1.45, 95% CI=1.12-1.88), DS (AOR=2.17, 95% CI=1.64-2.86) and LWB (AOR=1.81, 95% CI=1.32-2.48) (Table 4.17).

Table 4.17:

Impact of perceived burdens on mental health issues of university students (Multiple binary logistic regression analysis was employed separately between each type of stressor and mental health issue)

Burdens/burdens	Mental Health Issues		
	Perceived stress	Depressive symptoms	Psychological well-being
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Academic Burdens			
High	1.45 (1.12 - 1.88)**	2.17 (1.64 - 2.86)***	1.81 (1.32 - 2.48)***
Low	1	1	1
Non-Academic Burdens			
High	2.23 (1.66 - 2.99)***	6.48 (4.62 - 9.09)***	5.11 (3.41 - 7.64)***
Low	1	1	1

Notes: 1= Reference category

OR= odd ratios; CI= 95% confidence interval

Adjust odd ratios for (sex, family income, academic faculties, year of study & perceived income sufficiency)

*p < 0.05; **p < 0.01; ***p < 0.001

4.2.5 Impact of Mental health Issues on Academic Performance

A primary research objective of this study was to examine the association between and impact of mental health issues on academic performance of university students. Table 4.18 shows that sex; place of birth, university, academic faculty, degree and current place of living are significantly associated with academic performance.

The null hypothesis of no association between perceived mental health issues and academic performance was to be rejected if p value of test statistic was less than 0.05 (Table 4.19). The analysis showed that students with higher level of mental health issues were at greater risk of falling under low grades-unsatisfied and high grades-unsatisfied categories in comparison with the reference category i.e. high grades and satisfied (Table 4.19). Low grades and satisfied with grades category was not found to be associated with any of the three mental health issues. Thus, it could be seen that irrespective of the grades (objective academic performance), low satisfaction with the grades (subjective academic performance) was significantly influenced by mental health issues in all categories.

Table 4.18:

Association between respondent characteristics and mental issues with academic performance

Respondent characteristics	Academic Performance				P-Value
	Low grades & unsatisfied with grades	Low grades & satisfied with grades	High grades & unsatisfied with grades	High grades & satisfied with grades	
Sex					
Male	57.4%	57.0%	48.6%	42.0%	
Female	42.6%	43.0%	51.4%	58.0%	.000*
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	
Place of birth					
Rural	41.9%	38.3%	31.2%	32.7%	
Urban	58.1%	61.7%	68.8%	67.3%	.026*
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	
University					
BZU	28.5%	30.3%	18.9%	27.3%	
UoG	25.8%	27.8%	13.7%	18.2%	
PU	45.6%	41.9%	67.4%	54.5%	.000*
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	
Academic faculties					
Social Sciences	19.5%	31.4%	35.4%	39.6%	
Commerce & Management	33.3%	16.2%	32.6%	27.1%	.000*
Science	47.1%	52.3%	32.0%	33.3%	
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	
Degree/ program					
B.A/ B.S (Hons)	40.5%	30.0%	53.7%	47.8%	
Master	59.5%	70.0%	46.3%	52.2%	.000*
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	
Current place of living					
University Hostel	24.6%	20.5%	15.0%	24.9%	
Private hostel	14.6%	10.6%	11.6%	10.6%	.044*
Home	60.8%	68.9%	73.4%	64.5%	
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	

Notes: a. The Chi-square statistic is significant at the .05 level.

Table 4.19

Impact of mental health issues on academic performance (Multinomial logistic regression model)

Mental health issues	Academic Performance		
	Low grades & unsatisfied with grades	Low grades & satisfied with grades	High grades & unsatisfied with grades
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Perceived Stress			
Stressed	1.66 (1.19 - 2.31)**	1.15 (0.82 - 1.62)	1.72 (1.16 - 2.55)**
Not Stressed	1.00	1.00	1.00
Depressive symptoms			
Depressed	1.56 (1.10 - 2.20)*	0.81 (0.56 - 1.19)	1.98 (1.30 - 3.02)**
Not depressed	1.00	1.00	1.00
Psychological well-being			
Low	1.29 (0.88 - 1.90)	0.74 (0.47 - 1.15)	1.67 (1.09 - 2.55)*
High	1.00	1.00	1.00

Notes: 1= Reference category

OR= odd ratios; CI= 95% confidence interval

Adjust odd ratios for (Sex, Place of birth, University, academic faculties, Degree and Current place of living)

*p < 0.05; **p < 0.01; ***p < 0.001

4.2.6 Impact of Mental Health Issues on Subjective Well-being

The final research question of this study was to ascertain the association between and impact of PS and DS on subjective well-being of university students. The null hypothesis of no association between PS, DS and risks to well-being was to be rejected if p value of test statistic was less than 0.05. The results showed that both PS and DS were strong predictors of dissatisfaction. For instance, students with higher DS were 2.49 times more likely to be unsatisfied with various spheres of their lives as compared to those having no DS.

Binary logistic regression analysis was used with each independent variable and perceived income insufficiency. Confounding variable i.e. monthly family income was controlled in the model. PS was not found to be associated with perceived income insufficiency. However, those with higher level of DS were 1.83 times more likely to be dissatisfied with their financial resources. Finally, multinomial logistic regression analysis was used with each dependent variable and good self-rated health status. Sex was controlled in the model. Results showed that students with high levels of PS (AOR=0.60, 95% CI=0.46-0.77) and DS (AOR=0.55, 95% CI=0.42-0.73) were less likely to have good self-rated health status than their counterparts. Overall, it could be concluded that stress and depression are risk factors for high well-being.

Table 4.20:

Impact of mental health issues on well-being (Multiple binary logistic regression & multinomial logistic regression models)

Mental health issues	Well-being			
	Level of dissatisfaction	Insufficiency of Financial Support	Self-rated health status	
			Good	Poor
	OR ^a (95% CI) ^b	OR ^b (95% CI) ^c	OR ^c (95% CI)	OR ^c (95% CI)
Perceived Stress				
Stressed	1.77 (1.34 - 2.33)***	1.27 (0.92 - 1.75)	0.62 (0.48 - 0.81)***	1.23 (0.77 - 1.90)
Not stressed	1.00	1.00	1.00	1.00
Depressive symptoms				
Depressed	2.49 (1.85 - 3.33)***	1.83 (1.30 - 2.57)***	0.57 (0.43 - 0.75)***	2.61 (1.57 - 4.40)***
Not depressed	1.00	1.00	1.00	1.00

Notes: 1= Reference category; OR= odd ratios; CI= 95% confidence interval

a. Odd ratios were adjusted for: (Sex, University, academic faculties, degree and year of study)

b. Odd ratios were adjusted for: (monthly family income)

c. Sex adjusted odd ratios and results based on multinomial logistic regression model

*p < 0.05; **p < 0.01; ***p < 0.001

Schematic presentation of major statistical findings

The following Figure 4.10 represents the summary of the statistical findings of this study. It can be seen that non-academic burdens are a greater risk factor for mental health in comparison with academic burdens. Additionally, perceived stress and depressive symptoms adversely affect academic performance than the low psychological well-being. Finally, a depressed person is at more than two times risk of having subjective low well-being.

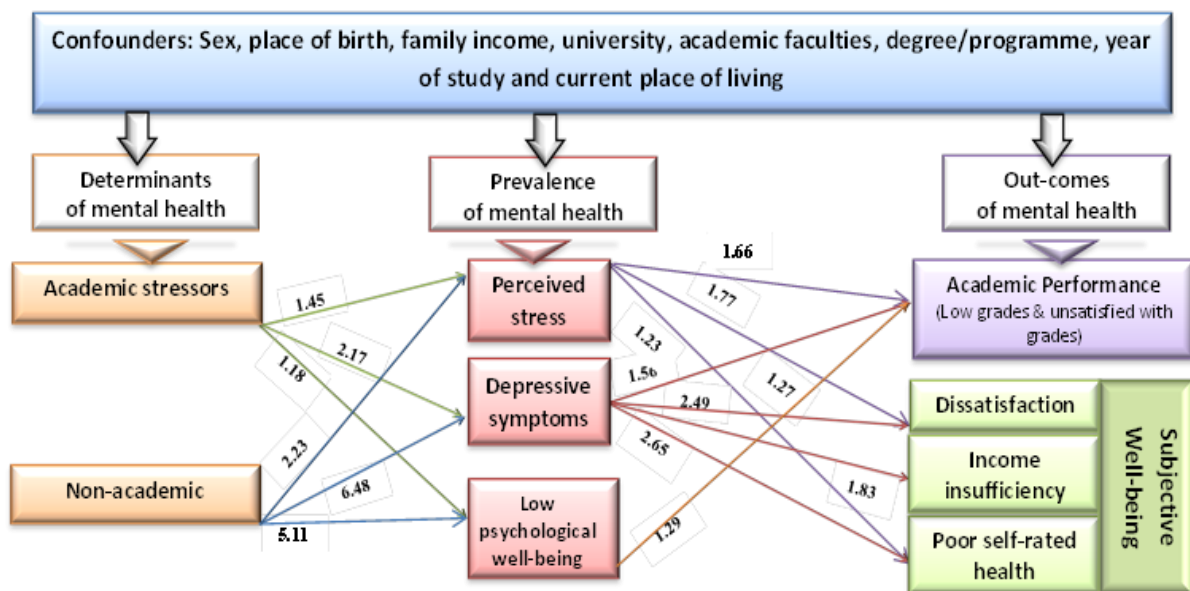


Figure 4.10: Model representing summary of statistical findings

4.3 Summary of Major Findings

- Less variation in age with near to equal sex distribution.
- Most respondents were from urban areas.
- An overwhelming majority of respondents were unmarried.
- The mean BMI of the respondents was 21.6 (SD = ± 4.4 ; Range = 11.8-65.5).
- More than one fifth of the respondents were underweight while around one sixth were overweight or obese.
- A substantial number of underweight and overweight people reported to be satisfied with their current weight whereas most people having normal weight were unsatisfied with it.
- Underweight females and overweight males were likely to be satisfied with their weight.
- Most students' fathers were more educated than their mothers.
- Most students belonged to middle class families.
- An overwhelming majority of students were financially supported by their families.
- Students from Master's program were around 15% more than undergraduates in the study sample.
- Most of the respondents in the sample (78.4%) were in their second year at university
- More than one third of the students lived in hostels or private accommodation.
- The number of females in hostel or private accommodation was substantially lesser than males.
- The factors predicting the likelihood of experiencing mental health issues were somewhat different across different types of mental health issues.

- Male students were less likely to experience mental health issues than female students.
- Among BA./BS. students, those in second year of their study had a high risk of PS compared to students of third and fourth year at the same degree level.
- Students who had sufficient financial support were less likely to have all studied types of mental health issues.
- Age, monthly family income, employment status, academic faculty, type of degree, and place of birth were not significantly associated with any of the mental health issues.

General health and healthy behaviors

- More than half of the students reported to have fair health, followed by around one third who reported good health, and less than one tenth who reported poor health.
- More males reported good health than females.
- Most students reported to have paid little attention to their health.
- Most students rarely took part in physical activities
- Around one tenth of students were suffering from chronic illnesses.
- Highly reported psychosomatic health complaints (PHCs): Tiredness/weariness, headache, mood swings, depressive mood, low-back pain, weight loss/gain and concentration difficulties.
- Moderately reported PHCs: Lack of appetite, sleep disorder, stomach trouble, nervousness and anxiety, neck & arm ache, nightmares, speech disorder and abdomen disorder.
- Less reported PHCs: Trembling, trembling hands, breathing difficulties, fear/phobia, tachycardia, diarrhea and constipation.
- Perceived good general health, no severe illness, and no PHCs were negatively associated with all three types of mental health issues.

- Students experiencing mental health issues were at higher risk of experiencing PHCs.
- BMI was not associated with any type of mental health issues.
- Keeping an eye on health and time for physical activity had significant association with perceived mental health issues after controlling for sex.

Perceived burden as the deterrents of mental health issues

- Exams, assignments/term papers and presentations fared highly as burdens.
- Anonymity at university and isolation at university were not regarded by many as burdens.
- Emotional disturbance in intimate relations was regarded as most stressful.
- Male students considered family expectations and interaction with opposite gender more stressful than their female counterparts.
- Health issues were considered by more female students as stressful in comparison with males.
- Respondents from rural areas regarded i) English as a medium of instruction, ii) interaction with opposite gender, and iii) family expectations as more stressful than their urban counterparts.
- Non-academic burdens were stronger predictors of the mental health issues than academic burdens.
- Students who perceived academic and non-academic burdens as highly stressful, were at higher risk of experiencing all three types of mental health issues.

Satisfaction

- Students were dissatisfied with poor quality of services at universities.
- Most of the students were extremely concerned about the country's security, economic and political situation.

Prevalence of mental health issues

- Well-being: Only 19.0% of the respondents reported to have low well-being.
- Perceived stress: More than half of the students thought they were under stress.
- Respondents in their fourth year of studies were under less perceived stress as compared with respondents in second and third year of studies.
- Depressive symptoms: Around half of the students were depressed.

Academic Performance

- Female students performed better in in terms of academic performance than males.
- Sex, place of birth and current place of living were significantly associated with academic performance.

Impact of mental health issues on academic performance and subjective well-being

- Students with higher level of stress and depression were at a higher risk of poor academic performance.
- Students with higher grades but suffering from mental health issues were likely to be unsatisfied with their grades.
- Both stress and depression were strong predictors of dissatisfaction with different areas of life, poor general health and insufficient financial support.

Coping strategies

- Spending time with friends, use of internet and offering prayers were the most often used coping strategies.
- Around one tenth of the respondents used negative coping strategies such as smoking, substance abuse and self-injury.
- More than one third of the students used religious practices as a coping strategy.

Chapter 5: Discussion

This chapter discusses the descriptive and analytical results to address the research questions of this study. A number of key findings can be ascertained from the results section. Firstly, most of the socio-demographic factors did not influence the mental health issues among university students. Secondly, although students felt more burdened by academic factors, the non-academic factors posed greater risk to students' mental health issues. Thirdly, general health and mental health complemented each other. Fourthly, all the mental health issues under study were fairly prevalent among the study population. These mental health issues adversely affected academic performance of the students and challenged their overall well-being. Finally, students used a range of coping strategies to deal with mental health issues depending upon their personal circumstances. Through the rest of this chapter, these findings will be interpreted and explained in view of the study context and contemporary research.

5.1 Descriptive Results

This section discusses the descriptive results of this study.

5.1.1 Socio-demographic and Academic Characteristics

The study sample included students aged 16-28 years; however, an overwhelming majority of students at the universities were 20-24 years of age. The mean age of students in this study was 21.5 which is similar to the mean age of students in other studies conducted in Asia and Africa (Abolfotouh, Bassiouni, Mounir, & Fayyad, 2007; El Ansari, Khalil, & Stock, 2014; Khan, 2013), but lower than studies conducted in Europe and Australia (El Ansari & Stock, 2011; Stock et al., 2008). There is ample evidence to suggest that age is one of the most important factors affecting mental health. Amongst other factors, the age at which students generally enroll in university make them vulnerable to a variety of mental health issues. However, in this study, the age variation was narrow and for this reason, it did not appear to have a bearing on students' mental health.

The proportion of male and female students was almost equal in the study sample. The overall enrolment data of the universities under study reflected a similar sex distribution. A majority of respondents (61.5%) in the sample belonged to urban areas. This characteristic of the sample is reflective of the overall universities' population and it is also indicative of a general pattern in education sector across the country. The awareness about education in rural

areas of Pakistan is substantially lower than urban areas due to variety of factors including scarcity of educational institutions in rural areas (Nasir & Nazli, 2010), patriarchal culture (with regard to female education) (Chaudhry & Rahman, 2009b; Malik & Courtney, 2011) and limited access to mass media (Mushtaq et al., 2011). Additionally since the means of production in rural areas are predominantly agriculture based, it is generally thought that education in rural areas is not as relevant to economic activity as in the areas with industrial and service sectors.

An overwhelming majority of students in the study sample were not engaged in any type of employment. This finding is in sharp contradiction with the studies conducted in other parts of the world where a sizable proportion of students were involved in paid employment (Saïas et al., 2014; Stallman, 2010b; Tavolacci et al., 2013). One reason for this discrepancy is a general lack of part time employment opportunities in the job market of Pakistan (Bashir & Ramay, 2008; Javed, Rafiq, Ahmed, & Khan, 2012). Moreover, a majority of population in Pakistan live in classic extended family system (Shaikh, Haran, & Hatcher, 2008; Shamama-tus-Sabah & Gilani, 2010) where parents provide complete financial support for children's educational expenses to the university level. Although this financial cover appears to be a protective factor against possible mental health issues, it also burdens the student with the responsibility of providing for family needs throughout their employed life. A large majority of students (81%) in this study reported that they have sufficient financial means. This finding is consistent with studies conducted in Egypt (El Ansari, Labeeb, Moseley, Kotb, & El-Houfy, 2013), Libya (El Ansari et al., 2014), Spain and Germany (Stock et al., 2003) but contrasts with studies conducted in United Kingdom (El Ansari & Stock, 2011) and Lithuania (Stock et al., 2003). The high rate of students reporting financial sufficiency in this study could be attributed to comprehensive family support and lower academic fees in public universities.

The study sample represented students from diverse family backgrounds in terms of parents' education, family income etc. This is because the selected universities are among the largest public sector universities in the province which attract students from all segments of society. Furthermore, the sampling plan of this study accounted for the number of students in different faculties, degree programs and years of studies in university, which is why the study sample was proportionate with the study population in these respects. Around one third of students in the sample lived in either university accommodation (22%) or private hostels

(12%). Expectedly, most of the students in hostels belonged to rural areas. Although university accommodation costs less than private hostels, it is not available to students from all degree programs which could be the reason for students living in private hostel. There could also be students who belonged to affluent backgrounds and opted for premium private accommodation over university hostels.

5.1.2 General health and Health Related Behavior

A majority of students in the study sample were normal weight, followed by underweight, overweight and obese students respectively. This finding is consistent with studies conducted in Europe (El Ansari & Stock, 2011; Peltzer et al., 2014) but contrasts with a study conducted in seven universities of Pakistan where the proportion of underweight students was substantially higher (Memon et al., 2012; Shah, Hasan, Malik, & Sreeramareddy, 2010). However, the study relied on reported BMI whereas in the present study, height and weight of students were measured at the research sites. Interestingly, a substantial proportion of normal weight students were unsatisfied with their weight whereas a sizable number of abnormal weight students were satisfied with their weight. Moreover, females were more likely to be unsatisfied with their current weight than males. A number of previous studies have shown that females with normal weight tend to consider themselves overweight whereas males with normal weight tend to consider themselves as underweight (Memon et al., 2012; Mikolajczyk et al., 2010; Peltzer et al., 2014). This gender differential in perception could be explained by the media portrayals of 'ideal' weight for men and women. Media positively portrays muscular, heavily build men and lean females. A study conducted in the USA found that 39% women with normal weight reported their desire to lose weight due to influence of media images and portrayals (Malinauskas et al., 2006). These observations have public health implications as efforts to lose or gain weight by normal weight people could lead to eating disorders and supplement other chronic diseases in the longer run (Memon et al., 2012).

A majority of students reported good or fair health which is consistent with a study from Pakistan and some recent studies conducted in North America and Europe (Hope & Henderson, 2014; Mikolajczyk, Brzoska et al., 2008; Stock et al., 2008; Vaez & Laflamme, 2008). Sex was also relevant with regard to perceived general health and more males reported good health than the females. While another study conducted in Pakistan confirmed this result (Khan, 2013). But in contrast to these findings the studies conducted in Germany

,United Kingdom and Egypt found that females had reported better health than males (El Ansari, Oskrochi, & Haghgoo, 2014; El Ansari, Oskrochi, & Stock, 2013; El Ansari & Stock, 2011; Mikolajczyk, Brzoska et al., 2008; Stock et al., 2008). A possible reason for this contrast could be that women in Pakistan are disadvantaged in terms of employment, life chances and social mobility, all of which are risk factors to their physical and psychological health. Additionally, more than three fourth of the students in study sample had kept an eye on their health. This proportion is lower than a sample in the United Kingdom but similar to samples in Lithuania and Egypt (El Ansari et al., 2013; El Ansari et al., 2014; Stock et al., 2003). Furthermore, lesser females kept an eye on their health as compared with males, which is also found by another study conducted in Pakistan (Khan, 2013) but the studies conducted in western countries found that more female students kept eye on their health than the male counterparts (El Ansari et al., 2014; El Ansari & Stock, 2010).

The proportion of people engaged in physical activities in Pakistan is lower as compared with other countries in the region. A study reported that only one quarter of Pakistani adults take part in regular physical activities (Khuwaja & Kadir, 2010). The present study also had a similar finding where only 17% of students reported frequent physical activity. Another study which measured physical activity in terms of vigorous exercise, light exercise and walk also found that a substantially low number of people in Pakistan engage in physical activities (Khan, 2013). In the present study, male students engaged substantially more in physical activities than female students. Similar findings have been reported by other studies conducted in Norway, Australia, United Kingdom and United States (Babakus, 2013; Babakus & Thompson, 2012; Hjellset, Ihlebæk, Bjørge, Eriksen, & Høstmark, 2011; Hosper, Deutekom, & Stronks, 2008; Pollard & Guell, 2012; Råberg, Kumar, Holmboe-Ottesen, & Wandel, 2010). However, the proportion of females engaged in physical activities in Pakistan is substantially lower than these countries. The extremely low participation of females in physical activities could be explained by the fact that Pakistan is a patriarchal society whose cultural norms restrict access of women to public spaces. Additionally, most of the sports facilities and fitness gyms at the university campuses are heavily dominated by males and presence of females at these facilities is rare.

With regard to chronic illnesses and psychosomatic complaints, one third of the students reported that they have suffered from a chronic illness in the last six months. Among these students, the proportion of females was higher than males. Female students were also found

to visit doctors more regularly than male students. For both sexes, the proportion of students who visits doctor is higher in a number of developed countries such as United Kingdom, Spain, Germany and Lithuania (El Ansari et al., 2013; Stock et al., 2003; Stock et al., 2008). This discrepancy may be due to better access to health services and more health awareness in developed countries. Moreover, self-medication is quite prevalent in Pakistan and people tend to consult doctor only in emergency situations and severe illnesses. The leading psychosomatic complaints reported by students in this study were tiredness, headache, mood swings, depressive moods and low back pain. Most previous studies vary slightly in terms of most reported psychosomatic complaints by university students (Ali et al., 2015; Tran, 2015; Vaez & Laflamme, 2008). For instance, A study conducted in Egypt reported fatigue as the leading psychosomatic complaint followed by headache and concentration difficulties (El Ansari et al., 2013). Similarly, research from United Kingdom reported back pain as the most reported psychosomatic complaint followed by insomnia (El Ansari & Stock, 2010). Overall proportion of students reporting psychosomatic complaints in the present study were substantially lower than a number of previous studies (Amir, Gilany, & Hady, 2010b; Bothmer & Fridlund, 2005; Khuwaja & Kadir, 2010; Mikolajczyk, Brzoska et al., 2008). During fieldwork, it was ascertained that a sizable number of students had difficulty in understanding what different complaints meant. In Pakistan, psychosomatic issues such as insomnia, tachycardia and concentration difficulties etc. are neither discussed in social settings nor in the mass media. More importantly, psychological issues are generally not considered 'real' health concerns in the mainstream Pakistani society. Resultantly, the level of awareness about such issues is low even among the university student population.

5.1.3 Perceived Stressors of University Students

A number of previous studies conducted in Egypt, United Kingdom, Iran, Sweden and Denmark have found academic factors to be more stressful for students than non-academic factors (Borjalilu, Mohammadi, & Mojtahedzadeh, 2015; El Ansari et al., 2014; Mikolajczyk et al., 2008; Vaez & Laflamme, 2008). Similarly in the present study, students were found to be more burdened by academic stressors than their non-academic counterparts. Apart from the stressors common with students across the world, the present study also incorporated some stressors which were thought to specifically affect Pakistani students such as family expectations, interaction with persons from opposite sex and English as the medium of instruction. These three factors were considered as stressors by a sizable number of students

while family expectation was reported more than the other two. In order to appreciate this finding, it is pertinent to note that the proportion of students who reported financial situation as a stressor was substantially lower in the present study as compared with other previous studies (Babar et al., 2015; Dachew, Bisetegn, & Gebremariam, 2015; Eisenberg, Hunt, & Speer, 2013; Shah et al., 2010c; Stallman, 2010). Thus, it could be argued that since families provide extensive financial support to students in Pakistan, students are not much concerned about finances. However, the financial support from families also raises their expectations towards students both in terms of returning financial favors later in life and achieving high grades.

Most of the students in the study sample did not consider their career aspirations as stressor, a finding which contradicts with studies conducted elsewhere (Dachew et al., 2015; El Ansari et al., 2013; Mikolajczyk, Maxwell, Naydenova, Meier, & El Ansari, 2008; Vazquez & Blanco, 2006). One possible reason for this could be that a majority of students in the study sample were not in their final year and understandably were more concerned about their academic performance rather than their career choices. Measures of social interaction such as isolation at university, isolation in general, anonymity at university and problems with fellow students were considered by fewer students as stressors than previous studies (Babar et al., 2015b; Dyrbye, Thomas, & Shanafelt, 2006; Jacob, Gummesson, & Nordmark, 2012; Mikolajczyk et al., 2008). This discrepancy could be explained by the fact that Pakistani society is closely knit and community ties as well as interpersonal interaction are higher than in many other Western societies (Ayub et al., 2012). Additionally, a sizable number of students in universities come from rural areas where community based living is predominant and cosmopolitan culture is relatively nascent. Finally, interactional issues are more likely to be encountered by international students which are in a very low proportion in Pakistani public sector universities. While interactional issues were not reported by many students as a stressor, emotional disturbance in intimate relations was reported as stressor by almost half of them. This finding is consistent with a number of similar studies where students of university age were found to struggle in keeping up with intimate relationships (Ahmed, Riaz, & Ramzan, 2013; Sreeramareddy et al., 2007; Vaez & Laflamme, 2008).

5.1.4 Prevalence of Mental Health Issues

The prevalence of mental health issues is reported differently by studies conducted in different countries. Global Burden of Disease (GBD 2010) found that the mental health issues

contribute a significant portion to overall disease burden in Pakistan (Institute for Health Metrics and Evaluation, 2013) where mental health services are severely limited (Gadit, 2004; Jafar et al., 2013). Since awareness about mental health issues in Pakistan is quite low, it is intertwined with a range of cultural beliefs and social stigmatization (Jafar et al., 2013; Karim, Saeed, Rana, Mubbashar, & Jenkins, 2004b; Shah et al., 2010). Keeping this situation in view, it is not sufficient to undertake clinical diagnosis of mental health issues but it is also pertinent to understand students' perceptions about the mental health issues and their effect on students' well-being.

In the present study, the prevalence of perceived stress and depression was quite high as compared with low psychological well-being. The prevalence of perceived stress in the present study was 54%. Other studies conducted within universities including those in Pakistan reported prevalence rates between 25% and 58% (Al-Daghri et al., 2014; Borjalilu et al., 2015; Chen, Wong, Ran, & Gilson, 2009; Dachew et al., 2015; Mikolajczyk, El Ansari, & Maxwell, 2009; Sohail, 2013; Tavolacci et al., 2013; Versaevel, 2014). In studies where the prevalence of perceived stress was lower than the present study, tools other than PSS of Cohen were used (Chen et al., 2009; Iqbal, Gupta, & Venkatarao, 2015; Saïas et al., 2014). A study using PSS of Cohen found 58% prevalence of perceived stress in medical students of Pakistan which is proximate to the present study (Shah et al., 2010). The prevalence of perceived stress in studies conducted in Saudi Arabia (Al-Daghri et al., 2014), Ethiopia (Dachew et al., 2015), Canada (Versaevel, 2014) and France (Tavolacci et al., 2013) was higher than the present study but those conducted in Germany, Poland, Bulgaria and Denmark (Mikolajczyk et al., 2009) reported lower prevalence. Consistent with studies conducted in Egypt, Malaysia, India, United States and Europe (Babar et al., 2015; El Ansari et al., 2014; Gnilka et al., 2015; Iqbal et al., 2015; Stock et al., 2008), females in the present study sample reported higher prevalence of perceived stress.

It is evident from the foregoing paragraph that a linear relationship cannot be drawn between prevalence of mental health issues and the development levels of countries. This observation highlights an important issue which is to consider mental illnesses as products of macro-structural factors such as poverty, unemployment and war effected zones (Baingana et al., 2005; Patel & Kleinman, 2003; World Health Organization, 2014). There are at least two implications of this approach. Firstly, it implies that mental health is merely a product of broader societal conditions and thus doesn't need independent efforts for its management.

Secondly, this approach takes the focus away from the fact that within similar conditions, some segments of population are more vulnerable and need attention even while the efforts to alleviate larger social problems are underway. Inevitably, most research focuses on entire populations and there is a dearth of studies on population segments which could experience higher level of mental strains than the rest within identical conditions. Thus, the policies emanating from such research struggle to cater to needs of population groups below the level of generalized remedies which are thought to fit all.

With regard to years spent at university, the present study found that students in their second or third year were likely to experience more stress than the final year students. This finding is contradicted by another study which found that final year students were more distressed (Jacob et al., 2012). This discrepancy could be accounted by the finding that career aspirations, which is a major concern for final year students, were not perceived as a stressor by a majority of students in the present study. Moreover, a majority of students in the present study reported course related issues as a major stressor which is not applicable in the case of final year students who mostly work on their projects or dissertations. Consistent with previous studies, the present study reported that student with insufficient financial means were more likely to be distressed than their counterparts (Hyun, Quinn, Madon, & Lustig, 2007; Macaskill, 2013; Sañas et al., 2014; Said, Kypri, & Bowman, 2013; Stallman, 2010).

A number of studies have measured the prevalence of depressive symptoms among university students and there is significant variation among results ranging from 15%-46% (Amir et al., 2010; Ayub et al., 2012; Bostanci et al., 2005; Chen et al., 2015). The present study found 44% prevalence of depressive symptoms in the study sample which is on the higher end of the spectrum. This finding corresponds closely to studies conducted in some Central Eastern Europe (Wardle et al., 2004) and Middle Eastern countries (El Ansari et al., 2013; El Ansari et al., 2014) where the prevalence rate of depressive symptoms was 43% and 45% respectively. However, research from Western Europe (Mikolajczyk, Brzoska et al., 2008; Mikolajczyk et al., 2008; Vazquez & Blanco, 2006), USA and Canada have reported lower prevalence (Dyrbye et al., 2006; Eisenberg et al., 2013; Eisenberg et al., 2007; Versaevel, 2014). This pattern is consistent with a number of earlier findings where students in developed countries are found to be less vulnerable to the mental health issues (Amir et al., 2010; Hamdan-Mansour, Halabi, & Dawani, 2009; Iqbal et al., 2015; Rodrigo et al., 2010). It is pertinent to note that the foregoing discussion did not include medical students in which

case the prevalence of depressive symptoms has been as high as 69% (Alvi et al., 2010; Hope & Henderson, 2014; Jadoon et al., 2010; Khan et al., 2006). Since, it is well acknowledged that medical students are highly vulnerable to the mental health issues as compared with other students, it is important that medical group be differentiated in cross-comparisons among research conducted in different countries.

Similar to the perceived stress, females reported more depressive symptoms in the present study than their male counterparts. It is argued that this discrepancy is due to the tendency of males not to express their fragility in terms of health, particularly with regard to 'mental toughness' which is a highly desirable trait for men in many societies. In addition to this, students in Bachelors program reported more depressive symptoms than Master students in all three universities. This is probably because Bachelors students spend more years at the university and face academic and non-academic burdens for a longer period; it is well established that prolonged stress is more likely to result in mental health issues than the short-term stress (Abdulghani et al., 2011; Chen, Wong, Ran, & Gilson, 2009; El Ansari et al., 2014).

In contrast with perceived stress and depressive symptoms, low psychological well-being was reported by less than one fifth of students in the study sample. This finding was largely unanticipated in view of higher prevalence of stress and depression. To complicate further, WHO-5 which was used to measure psychological well-being in this study is also used in some studies to measure depression, which is high in the present study. A retrospective review of studies conducted in South Asian countries with the same tool (WHO-5) revealed similar findings. A study conducted with medical students in India found 17% prevalence of low psychological well-being (Pranita, Apte, & Joshi, 2013). Similarly, a study conducted in slums of Dhaka, Bangladesh reported 20% prevalence of low well-being (Gruebner et al., 2012).

Although a separate study need to be conducted to explain the low prevalence of low psychological well-being in these countries, it is plausible to think that the answer to this lies in the cultural values of these countries. The questions asked in the WHO-5 are affirmative as opposed to negative questions in M-BDI. It is a matter of common observation in Muslim population as well as in South Asian countries that people customarily report higher well-being when asked directly about it. There is a dearth of research comparing the results of WHO-5 index across developed and developing countries (Awata et al., 2007; Löve,

Andersson, Moore, & Hensing, 2014; Saipanish, Lotrakul, & Sumrithe, 2009). A recent study conducted a systematic review and found WHO-5 efficacious as a generic well-being scale (Topp et al., 2015). However, the study was based solely on research conducted in a Western country. The present study suggests a need to test the efficacy of WHO-5 in non-Western contexts and a probable need to rephrase its questions in way that are sensitive to sociocultural milieu of the concerned population.

5.1.5 Academic Performance and University Life

Academic performance of students varied according to their demographic characteristics. Rural students had lower grades as compared with their urban counterparts. Similarly, male students had lower grades than females across all three universities. Numerous studies have also reported similar findings (Ali et al., 2015; Shah et al., 2010; Shaikh et al., 2004). The explanation put forth to discuss the variation in academic performance of rural and urban students lied in better facilities in urban areas (Chaudhry & Rahman, 2009; Mushtaq et al., 2011). In the context of Pakistan, mobility of female students is restricted (Khan, 2013; Malik & Courtney, 2011). They tend to spend most of their time at home or hostels and consequently, they probably give more time to their studies. Relating better academic performance with the quantity of time spent on studies is itself problematic as a number of studies show that social interaction and communication have a positive effect on critical thinking skills (Guiller, Durndell, & Ross, 2008). However, in the context of Pakistan, it is widely acknowledged that a strict syllabus and course outline is followed and students tend to cram the subject matter in order to secure higher grades. Thus, time spent on studies in quantitative terms might be predictive of better academic performance across universities in Pakistan.

The present study shows variable academic performance of students belonging to different universities. However, this finding could not be used to compare academic achievements among students as methods of assessment and general pattern of assigning grades substantially vary by university, department as well as by the specific course under consideration. In the absence of a uniform evaluation criterion, students' academic performance could be best compared within their own class. Interestingly, student with insufficient financial means fared better than the students with sufficient finances. In public sector universities of Pakistan, fee structure and other living expenses are quite low as compared with private universities which may mitigate the adverse effects of insufficient

financial means on students' performance e.g. with regard to paying fees, buying books and stationery etc. Furthermore, students from modest economic background are more likely to put effort into their studies to secure employment opportunities. Finally, Bachelor students performed better than Master students in all three universities. It may be noted that in the present study, only those students were selected who had at least spent one year at the university. Since Master Programs are generally two year programs, the Master students in the sample were final year students. Having spent only one year at the university, they are less likely to get accustomed to the semester system employed in universities as compared with the quite different annual system in secondary and higher secondary education boards. Bachelor students, on the other hand, spend four years at university and are likely to better adapt to university's academic conditions.

5.1.6 Satisfaction with Life at University

With respect to students' dissatisfaction with different areas of life, students in the study sample were most dissatisfied with the political, economic and security situation of the country. Pakistan is currently hit with militant insurgency which has led to deteriorating law and order situation and increased fear of crime (Ahmad, Ali, & Ahmad, 2014; Khan, 2012). Due to security situation and other internal and external factors, economic growth has been sluggish as compared with other South Asian countries such as India and Bangladesh (Ahmad et al., 2014; Hossain & Hossain, 2012; Komal & Abbas, 2015; Rahman, 2009). At the time when fieldwork of this study was conducted, the political situation was uncertain and a movement to overthrow the incumbent government was also underway. Understandably, these country level factors not only influence the employment prospects of university students but also affect the funding and consequent facilities available with public sector universities. Studies conducted in other parts of the world found higher satisfaction level of students with regard to these country level factors (El Ansari & Stock, 2010; Gnilka et al., 2015; Guney, Kalafat, & Boysan, 2010; Khalil, 2011).

Availability of safe drinking water and hygienic food is an important public health issue as these facilities directly affect the physical health of students. With regard to facilities at universities, a high proportion of students expressed their dissatisfaction with hygiene, safe drinking water and transportation. This finding is in contrast with findings from a number of previous studies conducted in other parts of world (Abolfotouh et al., 2007; Gnilka et al., 2015; Hyun et al., 2007; Khalil, 2011; Mahmoud, Staten, Hall, & Lennie, 2012; Versaevel,

2014). Public sector universities of Pakistan are undergoing rapid expansion and greater number of students applies for admission each year (Government of Pakistan, 2015). Consequently, a number of sub-campus of major public universities have been established. However, this infrastructural expansion has outpaced the improvement in the provision of facilities to students. Additionally, university cafeterias are outsourced to third parties and there is a lack of rigorous mechanism to ensure the quality of food and hygienic conditions. A partial explanation for these persistent issues is the lack of coordination between students and university administrations. In Pakistan, there is a ban on student unions and there is a dearth of active student platforms to raise students' issues (Butt, 2009). However, there was variation among universities with regard to students' satisfaction where students in University of the Punjab were most satisfied with the facilities. This university is the largest among the three universities, generates the highest revenue and has the largest budget.

With regard to the health facilities in universities, there was a general dissatisfaction among students from all three universities whereas no mental health service provision was observed. One could argue that the primary function of educational institutions is to impart education and contribute to intellectual growth of students (Versaevel, 2014). However, it is also important for these institutions to ensure optimum physical and mental health of students as these directly affect their ability to maximize their academic potential. Students coming into educational institutions especially universities are exposed to a number of unfamiliar structures, rules, policies, and sets of expectations attached to them (Berryman et al., 2012). Adaptation to the social environment at universities while meeting the demands of their courses makes students vulnerable to mental health issues (Tran, 2015). However, unlike societies, universities with their specialized structures, exclusive facilities and infrastructure are better placed to alter these conditions for the mental well-being of students (Versaevel, 2014). To devise informed policies for mental health needs of students, it is imperative for the universities to have data about the prevalence of different mental health issues and the factors which contribute to onset of these issues.

5.1.7 Coping Strategies

Most reported coping strategies used by students as a response to the mental health issues included spending time with friends and family, using internet and offering prayers. Negative coping strategies such as smoking, substance use and self-injury were less common as compared with findings from a number of previous studies (Gnilka et al., 2015; Rahimi,

Baetz, Bowen, & Balbuena, 2014; Sreeramareddy et al., 2007). It is likely that adoption of these coping strategies were underreported due to the fear of social exclusion and stigma. Additionally, substance abuse is an illegal activity in Pakistan and students were likely not to report it. In the study sample, very few females reported doing smoking as a coping strategy as compared with males. In the studies conducted in Western countries, the proportion of smokers was almost equal across sexes (Gnilka et al., 2015; Palmer & Rodger, 2009; Wolfson, McCoy, & Sutfin, 2009). In Pakistan, it is a taboo for females to smoke in public places and some shopkeepers would even refuse to sell cigarettes to females, although there is no sex specific legal bar on smoking. Additionally, unlike studies conducted in Western countries, the present study reported that a high proportion of students used recourse to religion as a coping strategy. Pakistan has a high religiosity level and religion enjoys state patronage (Iqtidar, 2012). Finally, around one fourth of students used problem focused coping strategies which is similar to some of the studies conducted in other parts of the world (Arslan et al., 2009; Gnilka et al., 2015; Rahimi et al., 2014; Sreeramareddy et al., 2007).

5.2 Determinants of University Students' Mental Health

The following section discusses the determinants of university students' mental health in three distinct categories. Demographic and academic factors, which are intervening variables in this study, are discussed first. The other two categories include self-rated health status and health related behaviors, and academic and non-academic stressors

5.2.1 Demographic and Academic Factors

Among a range of demographic factors, sex and financial sufficiency were associated with all three types of mental health issues. Females were more likely to suffer from stress, depression and low well-being than their male counterparts. This finding is largely supported by studies conducted in other parts of the world including Europe (El Ansari et al., 2013; Mikolajczyk et al., 2008; Sañas et al., 2014; Vazquez & Blanco, 2006), Middle East (Al-Daghri et al., 2014; Amir et al., 2010; Babar et al., 2015; Borjalilu et al., 2015; Hamdan-Mansour et al., 2009) and North America (Dyrbye et al., 2006; Eisenberg et al., 2007; Hope & Henderson, 2014), however, none of these studies has taken into account stress, depression and low well-being together. Some other studies conducted in Pakistan (Saleem, Mahmood, & Naz, 2013; Shah et al., 2010; Sohail, 2013), Nepal (Sreeramareddy et al., 2007), Egypt (Amir et al., 2010) and India (Iqbal et al., 2015) found that female university students were

more vulnerable to stress and depression. Additionally, studies conducted in Turkey (Bostanci et al., 2005), Canada (Dyrbye et al., 2006; Versaevel, 2014) and Denmark (Mikolajczyk et al., 2008) found significant associations between sex and depression with women being more likely to suffer. A longitudinal study in Sweden studied university students for three years and concluded that females were more likely to experience depression during the course of their studies (Vaez & Laflamme, 2008).

As expected, financial insufficiency was associated with perceived mental health issues. This finding is also consistent with studies conducted in USA (Hope & Henderson, 2014), Turkey (Bayram & Bilgel, 2008; Bostanci et al., 2005) and France (Saïas et al., 2014; Tivolacci et al., 2013). Other demographic factors such as monthly family income and employment status were not associated with perceived mental health issues in the present study whereas other studies have found them to be significant (Chen et al., 2013; Dachew et al., 2015; Gnilka et al., 2015). As discussed earlier, families in Pakistan generally provide comprehensive financial support to the student and thus students are not much affected by the overall family income. Concomitantly, most students did not engage in employment and therefore the employment status was not found to have a bearing on perceived mental health issues.

With regard to the academic characteristics, year of study was associated with perceived stress and low well-being but not with depression. In the study sample, stress and low well-being generally increased through the semesters but decreased in the final year or final semester of studies. (Iqbal et al., 2015) also found that perceived stress was higher in students of semester 3 and 5. In the present study, students living in either hostels or private accommodation were less likely to experience stress and low well-being. It is understandable as family pressure to achieve in Pakistan are much stronger than most modern societies and individuals living away from the family are less likely to experience mental health issues additionally they get more social support from their hostel fellows. As compared with Master students, those studying in Bachelor degree were less likely to experience depression. It is argued that the age from 10 to 21 years is protective for depression. As Master students are likely to be older than the Bachelor students, it could be speculated that they are more vulnerable to depression. With regard to university, students from Bahauddin Zakariya University (BZU) were more likely to face depression and low well-being than students from Punjab University and Gujrat University. A likely reason for this could be that BZU has the

largest proportion of rural students and students from this university were more likely to face culture shock and difficulty in adapting to the university environment.

One of the research questions of this study was to ascertain how variations in socio-demographic factors and academic characteristics account for prevalence of perceived mental health issues. It could be seen that few demographic factors were associated with all the three mental health issues. Moreover, academic characteristics of students were found to have a bearing on one or more mental health issues. The reason for discrepancy between results of previous studies and the present study mostly lied in the sociocultural context of the study population and academic landscape of Pakistan. Additionally, most of the previous studies focused on only one university, were conducted mostly on medical students, and only a few of them examined students from multiple disciplines (Ali et al., 2015; Alvi et al., 2010; Babar et al., 2015; Iqbal et al., 2015). As medical students are considered to stand out in terms of mental health issues, some discrepancy between this study and previous studies was understandable. With regard to the conceptual framework of this study, it was postulated that socio-demographic factors and academic characteristics confound the relationships among determinants of mental health issues, the prevalence of mental health issues and its impact on academic performance and well-being.

5.2.2 General Health and Mental Health Issues

The present study had hypothesized that poor general health affects the mental health of university students. General health and health related behaviors were found to be highly associated with students' mental health issues across all three universities. Students with no psychosomatic health complaints and good general health were less likely to experience mental health issues. This finding is consistent with similar studies conducted with university students in Pakistan and elsewhere (Ali et al., 2015; Vazquez & Blanco, 2006).

If students kept an eye on their health and spent more time on physical activity, they were less likely to have mental health issues. Khan (2013) conducted research with university students in Pakistan and argued that while physical activity is positively associated with mental health, its effectiveness depends on the frequency and intensity of physical activity (Khan, 2013). It remains to be seen what level of intensity and frequency of physical activity actually serve as a protective factor against mental illnesses. Despite association and impact of physical activity with mental health, it was a matter of concern that most students in the

study sample, particularly females, did not regularly participate in physical activity. The findings from other studies show that university students in Pakistan are much less physically active than students from other countries which make them vulnerable to a variety of physical and mental health issues. One possible reason for relatively less physical activity by the student is the emphasis of government on curative health services on the expense of health promotion and disease prevention initiatives. Therefore, any health promotion intervention to address the prevalence of mental health issues among university students in Pakistan need to take account of this factor for optimum results.

5.2.3 Impact of Stressors on Mental Health Issues

Numerous stressors impact students' mental health and overall well-being. A number of previous studies have attempted to understand the variable impact of these stressors on students' mental health. Understandably, the impact of different stressors on students' mental health varied according to the personal circumstances of students and the context of study area. Additionally, any division between different stressors could be made for the purpose of analyses but in fact, these divisions are arbitrary and any combination of different stressors could impact the students' mental health. However, since there are very few studies on this subject in Pakistan, an attempt was made to delineate those stressors which have a significant impact on students' mental health as to guide any future intervention to address mental health issues of university students.

In the present study, the stressors facing students were conceptualized as academic and non-academic whereas a number of other studies have conceptualized them in different ways. For instance, Shah et al (2010) divided non-academic stressors into psychological and health related stressors (Shah et al., 2010c). Similarly, another study conducted in Europe separated non-academic stressors into three different sub-scale future, relationships and isolation (Mikolajczyk et al., 2008). The present study found that non-academic stressors have more impact on students' mental health than academic stressors after controlling for confounding variables. Some of the other studies have reported academic stressors to be more significantly associated with the mental health issues (Eisenberg, Golberstein, & Hunt, 2009; El Ansari et al., 2014) but again, divisions between academic and non-academic stressors as well as the stressors within these categories varied substantially across studies. Moreover, this study found that academic and non-academic stressors were stronger predictors of depressive symptoms than perceived stress and low psychological well-being. Previous studies on

students' stressors have reported varied results where some studies have found most effect on perceived stress (Ahmed et al., 2013; Borjalilu et al., 2015b; Shah et al., 2010; Sohail, 2013b; Tran, 2015) and others have found a stronger effect on depressive symptoms (Ayub et al., 2012b; Babar et al., 2015; Khan, 2013; Shaikh et al., 2004). One of the research hypotheses of this study was to ascertain the differential impact of stressors on specific mental health issues. It can be seen that while perceived stress was most prevalent mental health issues among university students in Pakistan, these were the depressive symptoms which were strongly affected by academic and non-academic stressors.

5.3 Outcomes of Mental Health issues

This section discusses the primary hypothesis of this study by interpreting the findings related to the impact of mental health issues on academic performance and subjective well-being.

5.3.1 Academic Success: The Impact of Mental Health Issues

Academic performance was measured as subjective and objective academic performance. This dichotomous classification highlights that in addition to the objective evaluation by the teacher in form of module marks or grades, it is also important to gauge the extent to which students are satisfied with their academic performance. Since the present study largely relied on the perceptions of students towards different sphere of life, it was imperative that their subjective perceptions about their objective academic performance were taken into account. A majority of studies have only used module marks or grades as the measure of academic performance (Richardson, Abraham, & Bond, 2012; Shah et al., 2010). Some studies have also followed trifurcated classification where subjective performance was further divided into importance attached to grades and comparative performance (El Ansari & Stock, 2010). The present study did not use these measures for academic performance because the satisfaction attached with grades involves elements of both importance attached to grades as well as comparative performance.

A number of previous studies have argued that academic performance is determined by a range of factors including the mental health issues (Ali et al., 2015; Richardson et al., 2012; Versaevel, 2014). For this reason, it was imperative to control those factors in order to assess the impact of mental health issues on academic performance. Additionally, some factors which had an association with the academic performance at bivariate level were also controlled. The present study found that students with higher levels of perceived stress and

depressive symptoms had poor subjective and objective academic performance. Low psychological well-being also negatively affected academic performance but the association was not statistically significant.

Mental health issues are known to adversely affect the cognitive functioning, learning abilities, adaptive capacities and resilience among the patients. These capabilities are indispensable for students' mental development and academic progress. It is, therefore, understandable that students suffering from mental health issues were less likely to fare better in academics. The studies that have attempted to understand the relationship of academic performance with any one mental health issue have also reported a negative association. For instance, Many studies found that depression negatively affected academic performance whereas other studies found perceived stress to have a negative effect on academic performance (Saleem et al., 2013; Shah et al., 2010). The present study also found that students with better objective academic performance but poor mental health were more likely to rate their subjective academic performance as poor. The study shows that this group of students i.e. those having high grades but dissatisfied with grades were most affected by the mental health issues. This finding could explain the relatively recent trend of intense competition between students over academic grades. Students with above average grades in universities are increasingly dissatisfied with their performances, which could be indicative of rising prevalence of mental health issues among them.

5.3.2 Mental Health Issues as a risk to Subjective Well-being

This study has operationalized subjective well-being in terms of risks to well-being. Due to high internal correlation between psychological well-being and risks to subjective well-being, only perceived stress and depressive symptoms were used to understand the impact. The present study found that both stress and depression had adverse effect on students' well-being. In comparison to stress, depression had a stronger effect on all dimensions of well-being. Although a number of studies have reported adverse effects of stress and depression on well-being (Eisenberg et al., 2009; El Ansari et al., 2013; Gnilka et al., 2015), the present study employed a range of dimensions to encapsulate well-being including dissatisfaction with various spheres of life, financial insufficiency and poor self-rated health. Although the present study examined the impact of the mental health issues on well-being, the reverse might also be true as low well-being is an established risk factor for both physical and mental health. It is also likely that academic performance is independently affected by well-being.

Additionally, low well-being expedites the transition from stress to distress and could expedite the progression of mental illnesses. The early stages of professional career require energy and enthusiasm; low well-being of university students could be detrimental to their success in professional life.

5.4 The Implications of Current Research in wider Context

The findings of this study have largely supported the conceptual framework of this study. The conceptual framework of this study was inspired by the stress theory. The present study showed that burdens (called stressors in the stress theory) variably impacted students' mental health based on their socio-demographic and academic characteristics (called contextual factors in the stress theory). Furthermore, the study found that while most of the students considered burdens as stressful, only a low proportion of them reported to be suffering from the mental health issues. As per the stress theory, the rest of the students might have used coping strategies at alarm stage to avoid transformation of stress to distress and depression. Consistent with the stress theory, the present study also identified a range of coping strategies used by the students in order to avoid mental health issues. Overall, it was found that the general steps defined by the stress theory were applicable in the study context.

The political, economic and security situation of the country are arguably related with the prevalence of mental health issues among population. A study has shown that the countries with prolonged conflicts have higher proportion of population suffering from mental illnesses (Murthy & Lakshminarayana, 2006). While these structural determinants are widely recognized as the stressors for university students, these are not independent of the demographic characteristics of individuals. Age, gender, and socio economic status of students have been found to intervene in the relationship of these determinants with mental health issues. These mental illnesses are found to be detrimental to optimum functioning of students and are thought to influence their academic performance. Hence, the students may suffer from low well-being as well. Nonetheless, students may not be the passive recipients of stress and mental health issues. As a response to stress and mental illness, students may either engage in health risk behaviors such as drug use and alcohol consumption or they may adopt positive coping strategies such as altering the appraisal of stressors.

There is significant empirical evidence that mental disorders form a substantial portion of the Global Burden of Disease. In fact, these disorders along with substance use disorders are

responsible for most YLDs. Biological factors may be a determinant for various mental disorders but demographic patterns regarding their prevalence suggest that social, economic and environmental conditions also play an important role. The social and economic costs associated with mental illnesses are extremely high and it is a cursory approach to cater mental health issues with only the provision of mental health care services. Concerted efforts to impart awareness and to control for the external determinants of mental illnesses should remain a priority for effective management of mental health. That said, research on mental health issues on students could be of course used in informing the counseling and health services both within and outside the university.

Mental health is also a subject of fundamental human rights. It has been suggested that improved living conditions along with civil and political liberties are significantly associated with incidence of mental disorders. The realization of economic, social, and cultural rights of people plays an instrumental role in providing conditions conducive to positive mental health outcomes. Furthermore, mental illnesses disproportionately affect disadvantaged and marginalized segments of society. The vulnerability of these segments is augmented by their limited capability to access mental health services. At the cultural turf, mental health patients are faced with stigmatization which extends from health care settings to the community; and from family to the wider society. The interplay of a multitude of factors affecting mental health demands structural interventions in the society.

Given the relative incurability of mental disorders and virtually unbearable economic costs, it can be argued that mental health promotion and mental disorders prevention are effective tools to combat incidence of mental disorders. These public health approaches complement each other and covers variety of social spheres including education, employment, and economy. Public health strives to address mental health by creating sensitization of mental health in the policy formulation as well as the distribution of resources. In addition to its deterrence effect towards mental disorders, public health strategies are relevant for the effective management of mental health care initiatives.

Chapter 6: Conclusion, Study Limitations and Recommendations

6.1 Conclusion

This study was probably the first attempt to examine the prevalence of mental health issues among students across different universities of Pakistan. The health context of Pakistan, which is marked by a high burden of mental health issues and scant provision of mental health services, was especially relevant to this study. This study focused on students from each faculty of the universities and this approach distinguished it from other studies which focused on students from a particular discipline. This study was based on the argument that student's perception about their mental health is an important indicator to clinical diagnosis and as such, it can guide public health practitioners to informed policy decisions. In this study, three of the most important mental health issues i.e. perceived stress, depression and psychological well-being were measured. The findings of this study were generally consistent with studies conducted in other part of the world, however, with some substantial variations. The prevalence of perceived stress and depression was high whereas that of psychological well-being was low.

The study sample represented students from diverse demographic and academic backgrounds. The reason for diversity in demographic background was that the selected universities were among the largest public sector universities in the country. Additionally, the participation of students from all the sections of the universities was ensured by accounting for them in the sampling plan. Consequently, the sample of this study was mostly representative of the population even in minute details.

This study examined the impact of demographic and academic factors on the mental health issues discussed in this study. Demographic characteristics, barring sex and financial sufficiency, were not found to have an impact on the mental health issues. Females and students with insufficient finances were more likely to experience mental health issues. In terms of academic characteristics, students enrolled in Bachelors program, living in hostels or private accommodation were more affected by the mental health issues. The place of living may have affected the extent of social support available to a student which in turn could affect mental health.

This study sought to understand the relationship of general health and health related behaviors with mental health. It was found that there were variations among students with regard to health related behaviors. For instance, female students did not look after their health as much as males and they visited doctors more often. As compared with other studies in the world, proportions of students engaged in physical activity and those consulting doctors were very low. This may be because self-medication is very common in Pakistan and people consult doctors only in situations of emergency or when the self-medication proves futile. Chronic illnesses and psychosomatic health complaints were higher among students in our study than most other studies across the world. Within the study sample, female students reported these issues more than their male counterparts. Among the psychosomatic health complaints, headache, low back pain and tiredness were most common. It was observed that many students could not understand the meaning of different psychosomatic complaints. This may be because psychosomatic complaints are not considered serious issues in Pakistani society and are rarely discussed. Overall, poor general health and lack of positive health related behaviors were found to have a negative impact on mental health issues.

The study showed that students feel more burdened by academic stressors, however, it was non-academic stressors which contributed to mental health issues. Interestingly, perceived stress was most prevalent but it was depressive symptoms which were most sensitive to stressors. The reasons for this variation could lie in the nature of mental health issue or coping resources but this can well be an interesting research question for future studies. In this study, some stressors were introduced which were thought to be specifically relevant in Pakistani context. These stressors namely family expectations, interaction with opposite gender and English language as medium of instruction were all found to stress students. Financial situation was not considered by many students as a substantial stressor unlike most previous studies. This again could be explained in terms of Pakistani culture in which parents usually assume complete responsibility of their children's education related expenses. While an attempt was made to single out different stressors which affect mental health but in real life situations, these stressors generally complement each other. They are frequently interwoven in a way that it becomes a futile exercise to examine them independent of each other.

The educational grading system in Pakistan is far from uniform and it is difficult to construct a valid measure of academic performance which could be applied to all or most of the

universities in Pakistan. It is often argued that the most successful students in Pakistan are those who tend to be better in memorizing the text rather than those who critically interpret and evaluate it. In this study, academic performance was conceptualized as objective and subjective academic performance. It was found that regardless of the subjects they study, rural students and male students have lower grades in this study than their counterparts. Mental health issues adversely affect the physical and cognitive abilities of individuals. This study examined the effect of mental health issues on academic performance of university students. It was found that both subjective and objective academic performances were negatively affected by the prevalence of mental health issues. Even students with better objective academic performance did not rate their performance well subjectively if they were suffering from mental health issues. This may be due to high expectations of students and intense competition between them which contribute to decline in subjective academic performance and could also be detrimental to mental health.

Pakistan is going through a turbulent phase of its history which is marred by slow economic growth, militancy, political instability and low expenditure on social services. This situation is further exacerbated by declining employment opportunities and chronic energy shortfall which could worsen in wake of increasing population and rising energy needs (Afzal & Yusuf, 2013; Ahmad et al., 2014; Chaudhry & Rahman, 2009). In this context, this study asked students about their level of satisfaction with different spheres of life. When this study was conducted, anti-government protests were also going on in major cities of Pakistan. Consequently, most students expressed their dissatisfaction with the political, economic and security situation of the country. Within the university, students were dissatisfied with the facilities such as drinking water, hygiene situation, health and sports. This was understandable as the public universities in Pakistan have budgetary constraints and are substantially under-funded as compared with universities in developed countries. Additionally, students are not part of decision making processes in universities and there is disconnect between university administration and students.

Similar to the academic performance, both stress and depression adversely affected subjective well-being of the students. Low subjective well-being can be an intermediary factor which could impede a student's performance in almost every sphere of life. Even with high grades, students with low subjective well-being or mental health issues could struggle in their early careers as they would lack self-esteem, locus of control and efficacy.

The propensity of stressors to translate into distress and mental disorders is mediated by coping resources of individuals. This study included questions related to a number of coping strategies which students use to counter stress. It was found that spending time with friends and family, internet usage and prayers were often used coping strategies. Some negative coping strategies included smoking, substance use and self-injury. As compared with other studies, the proportion of students using religion as a coping strategy was much higher. Very few students sought professional services to address their mental health issues. This could be due to unavailability of mental health services and even if it was available in some cases, students might not have the required level of awareness to utilize them.

The theoretical framework of this study was based on the stress theory. Stress theory postulates that stressors create stress and their relationship is mediated by contextual factors. This stress could be transformed into distress and other mental health issues if not managed by the use of coping strategies. The present study has analyzed each of these segments of the stress theory and found them to be linked in the same order as hypothesized. While the study was generally successful in achieving its stated objectives, limitations were identified throughout the research process which could have restricted the extent to which these results could be generalized. Additionally, the limitations of this study could guide future research not only on mental health but also studies on other subjects conducted in Pakistan. These limitations are discussed in detail in the next section.

6.2 Study Limitations

- Several limitations of this study were cognizable at the outset, most of which were related to its research designs. Yet there were some limitations which got revealed late in the research process. In this section, these limitations are described in the order of their potential impact on this study.
- Firstly, there was no baseline study on the prevalence of mental health issues among university students in Pakistan. Due to this, there were no guidelines on efficacy of different tools in the study context. This study had to take leads from studies conducted elsewhere to decide on tools to examine mental health issues among university students. In order to account for this, some stressors which were particularly relevant to Pakistani context were introduced. However, this reliance on

previous literature which came mostly from Western Europe had implications for this study where cultural factors led to differential responses to certain questions.

- In social sciences, there rarely exists a tool with universal validity. With regard to mental health, the measurement of different issues is substantially influenced by the social setting of respondents. Some significant differences were observed in this study between the results of WHO-5 index and M-BDI although both of these tools measured depression. Being a native citizen of Pakistan, the author thinks that the respondents' responses to WHO-5 questions were largely influenced by prevalent norms. The people in Pakistan tend to respond positively to questions about their well-being whether these responses reflect their state of mind or not. Therefore, it is important to rework these tools in light of socio-cultural considerations of the context in which these tools will be employed. As no such observation was made in previous small scale studies in Pakistan, the present study could not consider these cultural influences in terms of modification of tools.
- The measurement of mental health issues was done primarily through Modified Beck Depression Inventory, Perceived Stress Scale of Cohen and WHO-5 well-being index. All these tools measured perceived prevalence of mental health issues rather than the clinical prevalence. Although this limitation was obvious at the outset, it is important to note that these tools are still indicative of clinical prevalence and do serve as efficient screening resources. This study could have benefitted from a joint venture where students who were found to have the perceived prevalence would be referred to psychiatrists for ascertaining the clinical prevalence. However, such an arrangement was out of the scope of this study for a number of academic, ethical and financial considerations.
- Validity of instruments is substantially dependent on context and all measures of mental health issues are imperfect and prone to cultural influences. There is considerable controversy about whether mental health issues e.g. PS, DS and PWB manifest themselves differently across cultures. While these are important phenomenological issues and their comprehensive debate is beyond the scope of the current study but these influences create varied effect of the measurement of actual prevalence.

- The cut-off points for different measures of mental health vary across different studies. With the exception of M-BDI, the tools used in this study had no universal cut-off points which could have significant bearing on the prevalence. In view of this, the present study adopted the cut-off points used in studies which were also conducted in non-Western contexts. However, such an adjustment may not be sufficient to account for variations in cut-off points and there is need for further studies to ascertain optimum cut-off points in different contexts.
- As this study was concerned with mental health issues, it only looked at transformation of stress to distress. In theory, the stress could also lead to eustress as well which can have positive health or performance outcomes. However, the eustress was not discussed in this study being beyond its research objectives.
- As is the issue with all cross-sectional studies, this study provides only a snapshot of mental health issues among university students in a specific space and time. The variations in stressors and their subsequent impact on mental health issues over the course of students' stay in university could be examined with a longitudinal research design. However, a longitudinal research requires substantial time and funding which makes it mostly unfeasible for PhD research projects.
- This study only considered those academic or non-academic stressors which were related to the university context. It is possible that some students had prior distress and other mental health issues. It could also be the case that some stressors outside the university context had affected their mental health such as early stressful life events. Similarly, the responses of students towards stressors were sought in fixed categories. For instance, it was assumed that a strong dissatisfaction with a relationship was same as a strong dissatisfaction with an exam failure. Both these issues relate to personal life circumstances and subjective experiences of respondents. It was not possible to accommodate for such differences in a quantitative study design. It is, therefore, recommended that quantitative studies in mental health be complemented with qualitative data.
- Those students who were screened as having psychological issues were not asked about their utilization of mental health services. This discrepancy could have been met if students screened positive for psychological issues were interviewed later to get

information about their service seeking behavior. However, this was not an objective of the present study.

- Since the present study had a cross-sectional design, it was not possible to establish a causal relationship between coping strategies and mental health. Since only the already existing mental health condition of respondents was known, it was not possible to ascertain how effective certain coping strategies have been to improve, or in some cases worsen, the mental health issues.

6.3 Recommendations

- This study serves as a baseline for the prevalence of mental health issues among university students in Pakistan. Although this study did not have a longitudinal design, future studies may focus on new cohorts of students in order to examine the variation in the intensity of stressors and the prevalence of mental health issues over the course of time. Additionally, similar studies may also be conducted in universities elsewhere in Pakistan so as to develop a broader understanding of students' mental health phenomenon in Pakistan. Above all, it would be most beneficial if a national level survey on students' mental health could be conducted every three to five years. Such an endeavor would guide policy makers, health practitioners and university administration to help provide a congenial environment for the university students.
- There is a need for longitudinal studies to be conducted in universities. This would help identify the progression of students towards mental ill-health and could possibly delineate the critical factors which affect students' mental health over the course of their stay at university. In those longitudinal studies, it would be important to widen the horizon of mental health issues and include other common disorders such as anxiety, panic disorder etc.
- As explain in the limitations section, there is a need to create culturally sensitive tools of mental health measurements. This indigenization of tools should not be limited to the tools used in the present study. It is important to assess all the other tools in terms of their transferability in non-Western contexts.
- Future research may also seek to understand to whom students take advice for their mental health issues. This could help universities' administration to plan interventions in terms of counseling services. As the utilization of mental health services was quite low in this study, it is recommended that future research should ask students about why or why not they utilize services. Information about their attitudes regarding professional health seeking will also be important to revitalize existing services and to create new ones.
- In line with WHO's vision of 'Health Promoting University' (Tsouros, Gina, Thompson, & Dooris, 1998), it is important not only to offer individual level services

but to initiate macro level health promotion efforts which spread across the university. A comprehensive health strategy could improve health conditions at campus by overcoming challenges associated with integration, awareness and coordination. In order to do this, needs assessment studies for mental health may be conducted in the first stage. On the basis of these studies, interventions could be planned and implemented. At the same time, robust monitoring mechanisms for implementation of these interventions at various stages may be devised. Thereafter, short and long term evaluative studies could be conducted which would examine net efficiency and effectiveness of the interventions. Those interventions which came out as sustainable and effective should be incorporated into the infrastructure of universities.

- The health system of Pakistan is predominantly curative where health promotion and disease prevention aspects are largely ignored. In the context of mental health, it is very important to focus more on promotion and prevention rather than treatment. Most of the decisions taken by university administration are without explicit participation of student body. In terms of health, an intervention is much likely to succeed if it is complemented by the population toward which it is targeted. The university students should be taken on board to discuss their health needs and to propose effective interventions. As a result of these interactions, it could be possible to establish a multi-level, predictive, and cost effective solution to address the health needs of students.
- Mental health is a highly stigmatized issue in Pakistani society. Even at the highest echelons of administrative infrastructure, this issue suffers from a lack of awareness and empirical evidence. It is important that research findings be used for proactive multi-level advocacy which could highlight potential costs of undermining the importance of mental health. In this way, public attention and funds could be directed towards mental health needs of the population.
- In the present study, students have reported their dissatisfaction with the facilities available at their universities. Their disapproval of easily rectifiable issues such as the quality of drinking water indicates that there is a lack of coordination between universities' administration and students. In this context, it is important that universities adopt an inclusive and democratic approach towards running their affairs.

Besides addressing issues of health and particularly mental health, this empowering approach would also reduce the intensity of stressors in university environment.

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Appendices

Appendix I: Letter of approval from Institution Review Board (IRB), University of the Punjab to carry out the study in selected universities



UNIVERSITY OF THE PUNJAB
FACULTY OF BEHAVIORAL & SOCIAL SCIENCES
Quaid-i-Azam Campus, Lahore Pakistan-54990
Tel: +92-42-99232015,

D/1668/IRBS

Subject: - Review of the Research Proposal and Questionnaire Submitted by Mr. Nauman Ali Ch.

The Institutional Review Board (IRB) has reviewed the research proposal titled "Prevalence and Determinants of Mental Health Problems among University Students and its effect on their Performance and Well-being in Pakistan" and the questionnaire "Student Mental Health and Wellbeing" submitted by Mr. Nauman Ali Ch., for his Ph.D (Public Health) dissertation.

The Board thoroughly reviewed the research objectives and methodology of the proposal. The Board is satisfied with the ethical dimensions of the proposed research and approves the proposal accordingly.

A handwritten signature in black ink, appearing to be 'M. Nauman', written over the printed name and title.
Chairman
Institutional Review Board (IRB)

Appendix II: Tool for data collection (Questionnaire)

1. Personal Details (Please write a number or tick (✓) in the answer category)		
1	How old are you? (Age in complete years)	
2	What is your sex?	1= Male <input type="checkbox"/> 2=Female <input type="checkbox"/>
3	What is your marital status?	1= Un-married <input type="checkbox"/> 2= Married <input type="checkbox"/> 3= Widowed <input type="checkbox"/> 4= Divorced <input type="checkbox"/> 5= Separated <input type="checkbox"/>
4	What is your place of birth?	1=Rural <input type="checkbox"/> 2=Urban <input type="checkbox"/>
5	What is your height? (In ft. and inches)	_____ ft. & _____ inches
6	What is your body weight? In Kilograms (Kg)	_____ Kilograms (Kgs)
7	What is your mother's education? (Completed year of schooling)	
8	What is your father's education? (Completed year of schooling)	
9	How many siblings do you have?	Brother(s)_____ Sister(s) _____
10	What is the average monthly income of your family?	_____ in PKR
11	Are you satisfied with your current weight?	1= Satisfied <input type="checkbox"/> 2=Unsatisfied <input type="checkbox"/>
12	What is your current employment status?	1= Unemployed <input type="checkbox"/> 2=Employed <input type="checkbox"/> (<i>If employed</i>) Part time <input type="checkbox"/> Fulltime <input type="checkbox"/>
13	What is your religion?	1= Islam <input type="checkbox"/> 99= Other <input type="checkbox"/>
14	To what extent you consider yourself as a religious person?	1=Little Extent <input type="checkbox"/> 2=Some Extent <input type="checkbox"/> 3=Great Extent <input type="checkbox"/> 4=Very Great Extent <input type="checkbox"/>
15	How strongly can you agree with the following statement: "My belief has the biggest influence on my life"	1= Fully agree <input type="checkbox"/> 2= Agree <input type="checkbox"/> 3= Undecided <input type="checkbox"/> 4= Disagree <input type="checkbox"/> 5= Fully disagree <input type="checkbox"/>
Academic Details (Please write a number or tick (✓) in the answer category)		
16	In which department/ institute are you currently studying?	
17	In which degree/ programme are you currently enrolled?	1= B.A/ B.S (Hons) <input type="checkbox"/> 2= Master <input type="checkbox"/> 99 = Other <input type="checkbox"/> (Please specify) _____
18	What is the type of your degree/ programme?	1= Regular (morning) <input type="checkbox"/> 2=Self-support (evening) <input type="checkbox"/>
19	What is the term or session of your degree?	20_____ to 20_____
20	In which semester are you currently studying?	
21	What is your current place of living?	1=University hostel <input type="checkbox"/> 2= Private Hostel <input type="checkbox"/> 3= Home <input type="checkbox"/> 99= Other <input type="checkbox"/> (Please specify) _____
Financial Support (Please write a number or tick (✓) in the answer category)		
How do you finance your studies?		
1= Family support <input type="checkbox"/> 2= Occupation during semester <input type="checkbox"/> 3= Occupation during breaks <input type="checkbox"/> 4= Scholarship <input type="checkbox"/> 5= Student loan <input type="checkbox"/> 99= Other <input type="checkbox"/> (Please specify) _____		
How do you judge the amount of money you have? (in course of last 6 month)		
1= Fully sufficient <input type="checkbox"/> 2=Sufficient <input type="checkbox"/> 3=Less sufficient <input type="checkbox"/> 4=Fully insufficient <input type="checkbox"/>		

2. General Health

General Health (Please write a number or tick (✓) in the answer category)

How would you describe your general health?
 1= Excellent 2= Very good 3= Good 4= Poor 5=The worst

Compared with the past year, how would you describe your health condition?
 1= Much better 2= A bit better 3= Almost the same 4= A bit worse 5= Much worse

To what extent do you keep an eye on your health?
 1= Not at all 2= Quite little 3= Quite a lot 4= Very much

How often do you spend time on physical activity?
 1= Very rarely 2= Rarely 3= Occasionally 4= Frequently 5= Very frequently

Did you visit any doctor in the course of the last six months?
 1= No 2= Yes If yes, how often?..... What were the reasons?.....

Were you, in the course of the last twelve months, so ill that you had to stay in bed?
 1= No 2= Yes If yes, What was the illness?.....

Do you take any medicine regularly?
 1= No 2= Yes If yes, which medicine? Why?

Psychosomatic Health Complaints (PHCs)

The following part deals with discomforts/disorders/disturbances and various pressures in your life.

Question Please tick (✓) in the box of relevant answer category	Never	Seldom/ Rarely	Quite often	Very often
	---(1)--	---(2)--	---(3)--	---(4)--

Which of the following discomforts/disorders did you have in the course of the last year?

1.	Stomach trouble/Heartburn	(پینے کی ہلن)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Low-back pain/Backache	(کمردرد)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Tiredness/Weariness	(تھکاوٹ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Breathing difficulties	(سانس لینے میں دشواری)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Trembling hands	(ہاتھوں کی کھپکھپاہٹ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Tachycardia/Circulation disorder/Vertigo	(چکر آنا)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Diarrhea	(پانی اور نمکیات کی کمی)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Constipation	(قبض)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Headaches	(سرکاردرد)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Sleep disorder/disturbance/insomnia	(کم خوابی)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Nightmares/ bad dreams	(بڑے یا ڈراوٹے خواب آنا)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Concentration difficulties	(توجہ کا مرکوز نہ ہونا)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Neck and arm ache		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Abdomen disorder/disturbance	(ہیٹ میں درد وغیرہ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Mood swings		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Trembling	(کھپکھپاہٹ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Depressive mood		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Speech disorder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Weight gain/ Loss of weight		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Lack of appetite	(بھوک کا کم لگنا)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Nervousness/Anxiety	(پریشانی، ہاتھ پاؤں کا پھولنا)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Fear/Phobia	(خوف)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	Other (Please specify) _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Perceived Burden

Question Please tick (✓) in the box of relevant answer category		Not at all	Very Little	Little	Occasionally	Often	Very much
		---(1)--	---(2)--	-(3)-	---(4)--	--(5)--	---(6)---
To what extent do you feel the burden in the following areas in the course of last six months?							
1.	Studies in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Exams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Assignments or term papers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Problems with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Problems with fellow students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Isolation or loneliness at the university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Isolation or loneliness in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Anonymity at university/ lack of integration at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Bad job prospects/ career aspirations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Lack of practical relevance of studies/studies not oriented towards practical professions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Emotional disturbance in personal relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	English language as a medium of instruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Problems with specific subject(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Interaction with opposite gender	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Family problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Family expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Hostel / living conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Financial situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Home sickness/ living away from home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Other (Please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	Considering once again your current situation: To what extent do you feel burdened in general?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Well-being (WHO-5)

The following statements relate to your well-being in the last two weeks							
Question Please tick (✓) in the box of relevant answer category		The whole time	Usually	More than the half of the time	A little less than half of the time	Once in a while	Never
		---(1)--	---(2)--	---(3)--	---(4)--	---(5)--	---(6)--
1.	I was happy and in a good mood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I felt calm and relaxed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I was full of energy and felt active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	I felt fresh and relaxed when I woke up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	My day was full of things which interested me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Perceived Stress

Question: Please tick (✓) in the box of relevant answer category		Never	Rarely	Some time	often	Very often
The following statements relate to your perceived stress in the course of the last four weeks		-(1)-	--(2)--	-(3)-	--(4)--	--(5)--
1.	How often did you feel upset because something unexpected happened in your life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	How often did you have an impression that the most important things in your life are out of your control?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	How often did you feel nervous and tense?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	How often did you succeed in dealing with unpleasant events?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	How often did you have an impression that you were able to deal with important changes in your life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	How often did you feel sure that you were able to deal with your personal problems well enough?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	How often did you have an impression that things in your life developed as you planned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	How often did you have an impression that you did not meet everyday demands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	How often did you succeed in getting rid of vexations/nuisances (disturbances) from your way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	How often did you have an impression that you were at the top?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	How often were you angry that things happened which were out of your control?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	How often did you notice that you thought about things which you had to complete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	How often were you able to spend your time freely?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	How often did you have an impression that difficulties overwhelmed you so much that you were not able to accomplish them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Depressive Symptoms

Question		Never	Rarely	Sometimes	Often	Very often	Almost Always
Please tick (✓) in the box of relevant answer category Your answers based on the course of the last four weeks		---(1)--	---(2)--	---(3)--	---(4)--	---(5)--	-----(6)-----
1.	I am sad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I look into the future in a discouraged way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I feel like a goof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	It is difficult to enjoy anything	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	I feel guilty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	I feel as if I am being punished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	I am disappointed with/of myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	I point out mistakes to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	I consider hurting myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	I cry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	I feel nervous, angry and annoyed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	I do not care about other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	I put off making decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	I care about my outer appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	I have to force myself to every task	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	I cannot sleep well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	I am tired and dull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	I do not have appetite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	I am afraid of my health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	I do not care about sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Academic Performance

Performance at the university (Please tick (✓) in the place of answer category)
What was your Grade Point Average (GPA) in the last semester?
GPA _____
How would you rate your performance at the university in comparison to others?
1=Much better <input type="checkbox"/> 2= Better <input type="checkbox"/> 3= The same <input type="checkbox"/> 4= Worse <input type="checkbox"/> 5= Much worse <input type="checkbox"/>
How important is it for you to have good grades or to achieve well at university?
1= Very important <input type="checkbox"/> 2= Quite important <input type="checkbox"/> 3= Not very important <input type="checkbox"/> 4= Unimportant <input type="checkbox"/>

9. Satisfaction

The following part deals with degrees of your satisfaction with various areas of life in course of last six month.							
Question Please tick (✓) in the box of relevant answer category		Very unsatisfied	unsatisfied	Somewhat Unsatisfied	satisfied	Somewhat satisfied	Very satisfied
		---(1)--	--(2)--	--(3)--	--(4)--	--(5)--	---(6)---
To what extent are you satisfied with the following areas of your life?							
1.	Your studies in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Your grades at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Your teachers and their teaching methodologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Your integration at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Your relation with your friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Your relation with your family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Your financial situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Your living conditions (hostel, flat or house)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Your job opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Your place of study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Your private life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Your health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Quality of food at university cafeterias	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Safe drinking water facilities at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	General hygiene situation at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Opportunities of extra-curricular activities at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Transportation facilities at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Health facilities at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Overall environment/atmosphere at university	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Political situation in Pakistan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Economic situation in Pakistan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Security situation in Pakistan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	Considering once again your current situation: How are you satisfied with your life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Coping Strategies

The following part deals with the coping strategies which you are using in face of stress/depression in the course of last 6 month

Question Please tick (✓) in the box of relevant answer category		Never	Rarely	Some time	often	Very often
		---(1)--	---(2)--	---(3)--	---(4)--	---(5)--
Which of the following strategies are you likely to adopt when feeling stress or depression?						
1.	Spend time with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Isolation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Offering prayers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Meditation/ spirituality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Visiting relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Changing eating habits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Watching television or movies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Use of Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Utilization of health services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Substance use (medication, drugs, alcohol)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Act to resolve the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Self-injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Any other (Please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Any other (Please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Any other (Please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Any other (Please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Any other Comments:

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12. Feedback (If any):

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Appendix III: Time schedule and work plan

Activities	Year-1				Year-2				Year-3			
	3	6	9	12	3	6	9	12	3	6	9	12
1. Desk Review												
1.1 Identify the relevant data sources	■											
1.2 Systematic review of selected literature		■	■									
1.3 Refining the research questions			■	■								
1.4 Reflections of theoretical assumptions				■	■							
1.5 Reflections of methodological approaches				■	■							
2. Methodology												
2.1 Development of Sampling techniques				■	■							
2.2 Detailed Research design				■								
2.3 Development of instrument of data collection					■	■	■	■	■	■	■	■
2.4 Pretesting and Finalization of Questionnaire					■	■	■	■	■	■	■	■
3. Field-based Data Collection												
3.1 Participant Identification					■	■	■	■	■	■	■	■
3.2 Data Collection					■	■	■	■	■	■	■	■
3.3 Data entry							■	■	■	■	■	■
4. Reporting												
4.1 Analysis of data								■	■	■	■	■
4.2 Evaluation of findings									■	■	■	■
4.3 Write-up of dissertation											■	■
4.4 Submission of first draft of Dissertation											■	■