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A Psychological Study on Gender and Emotional Wellbeing of Indian Research Scholars: A Phenomenological Comparison

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Abstract*--The role of gender differences with respect to emotional wellbeing, general health, adjustment level and psychopathological status of Indian Ph.D. research scholars was investigated, in the year 2008-2009. The sample consisted of 60 Ph.D. research scholars (30 males and 30 females), aged between 24-29 years, who volunteered for the study. The research was divided into two phases. First, the quantitative phase involved the administration of four self report psychometric measures namely, General Health Questionnaire, PGI General Wellbeing Measure, Adjustment Inventory for College Students and Symptom - Checklist – 90 –R. Secondly, the qualitative phase involved a follow-up semi-structured interview with 10 male and 10 female subjects, who volunteered for the interview. Interview was used to explore the phenomenological experiences of subjects and was discussed in terms of understanding various themes. One-way analysis of variance was employed to see if any significant gender differences existed. Based on psychometric testing (Mean, Standard Deviation and One- way ANOVA), no significant gender differences in the emotional wellbeing, general health and adjustment level of research scholars were found. However, significant gender differences existed on the symptom dimensions of somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Females displayed more psychological distress pertaining to their subjective experiences. The study completed in April,2009.*

Keywords*--Gender,Ph.D, Emotional wellbeing, Gender Differences, Research Scholars.*

I. INTRODUCTION

Ph.D. is seen as a major life change & even though it is a positive one, it is still stressful. Ph.D. is a large and complex undertaking which includes meeting important deadlines, working with limited resources and responding to high expectations that can make for a challenging and turbulent journey throughout the research project. Stress on Ph.D. students is phenomenal. Research students are a group particularly prone to stress (D'Zurilla& Sheedy, 1991) due to the transitional nature of research student life (Towbes& Cohen, 1996).They must adjust being away from home, maintain a high level of academic achievement, and adjust to a new social environment. They often deal with pressures related to finding a job or a potential life partner. Ann Heyno, media spokesperson for the Heads of University Counseling Services (HUCS, Westminister), says: 'There is an awful lot of pressure on students these days to succeed and do extremely well, especially because they have invested a lot of money in their education and so they feel they have to do incredibly well.'These stressors do not cause anxiety or tension by themselves. Instead, stress results from the interaction between stressors and the individual's perception

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and reaction to those stressors (Romano, 1992). The amount of stress experienced may be influenced by the individual's ability to effectively cope with stressful life events and situations (D'Zurilla& Sheedy, 1991). If stress is not dealt with effectively, feelings of loneliness and nervousness, as well as sleeplessness and excessive worrying may result (Wright, 1967). It is important that stress intervention programs be designed to address stress of research students. However, in order to design an effective intervention, the stressors specific to research students must be determined (Wright, 1967).The dynamic relationship between the person and environment in stress perception and reaction is especially magnified in research students. The problems and situations encountered by research students may differ from those faced by their nonstudent peers (Hirsch & Ellis, 1996). The environment in which research students live is quite different. While jobs outside of the university setting involve their own sources of stress, such as evaluation by superiors and constant striving for goals. This continuous evaluation by supervisors, is one which is not often seen by non-students (Wright, 1964).The pressure to complete thesis and to earn a degree is very high (Hirsch & Ellis, 1996). In addition to academic requirements, the relation with the supervisor and time pressures may also be potent sources of stress (Cohen &Lowental, 1988). Relationships with family and friends, eating and sleeping habits, and loneliness may affect some students adversely (Wright, 1967). Emotional problems amongst scholars are increasing and researchers are now becoming aware of them.However, it is unclear whether most stressors result from interpersonal relationships or academics. In addition, research is needed to clarify whether these stressors are mostly daily hassles or major life events. The nature of research work can disrupt the general wellbeing of research students. General wellbeing can be defined as the subjective feeling of contentment, happiness, satisfaction with life's experiences and of one's role in the world of work, sense of achievement, utility, belongingness, and no distress, dissatisfaction or worry, etc. It is related to but not dependent upon the physical/physiological conditions. It may well be maintained in adverse circumstances and conversely, may be lost in favorable situation. Thus conceptualized, the general well-being may show some degree of positive correlation with quality of life, job satisfaction/general satisfaction level, sense of achievement etc. General wellbeing is negatively related to neuroticism, psychoticism, and other such variables. Theories of *emotional well-being*, such as the emotional model posited by Diner and others (Suh, Lucas & Smith, 1999), suggests that individual's appraisals of their own lives capture the essence of well-being. Objective approaches to understanding psychological well-being and social well-being have been proposed by Ryff (1989) and Keyes (1998), respectively. Psychological and social well-being provides useful frameworks for conceptualizing human functioning. Subjective descriptions of emotional well-being, (i.e., happiness) and objective descriptions of psychological and social well-being constitute a more complete portrayal of mental health (Keyes & Lopez, 2002).Emotional well-being consists of perceptions of avowed happiness and satisfaction with life, along with the balance of positive and negative effects. This three-fold structure has been confirmed in numerous studies (eg., Bryant &Veroff, 1982; Lucas, Diner, Suh, 1996; Shmotkin, 1998).Ryff (1989) posits that some of the favorable outcomes described by positive psychologists can be integrated into a model of psychological well-being. Self acceptance, personal growth, purpose in life, environmental mastery, autonomy and positive relations with others are the six components of Ryff's conceptualization of positive functioning. The six dimensions are independent, though correlated, constructs of well-being. Analysis of the six

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part well-being model revealed that the multidimensional model was a superior fit over a single factor model of well-being (Ryff and Keyes, 1985).

Dimensions of coherence, integration, actualization, contribution and acceptance are the critical components of social well-being (Keyes, 1998). Complete mental health can be conceptualized via combinations of high levels of emotional wellbeing, psychological wellbeing and social wellbeing (Keyes & Lopez, 2002). Individuals with these high levels are described as 'flourishing'. Individual have no mental illness but who have low levels of wellbeing are described as 'languishing'. This conceptualization of mental health describes a syndrome of symptoms that might be amenable to intervention techniques aimed at increasing levels of emotional, social and psychological wellbeing. Conceptualization and treatment are well connected in this model. This model explains our capacity for positive functioning during normative life conditions and one that provides direction for restoring wellbeing during different life circumstances (Lent, 2004).A large numbers of factors are responsible for causing mental stress, which is the root cause of many disorders. Gender has a significant effect on the mental stress scores. The first thing that parents learn about their child is the child's sex. This highlights the importance of sex and gender.Gender refers to the behavior and attitudes that relate to biological sex. Research on gender-related behaviors has come from sociology, biology, biochemistry, neurology, & anthropology. The term is used by some researchers to describe the traits and behaviors that are regarded by the culture as appropriate to men and women. Gender has emerged as an important variable in studies of emotional wellbeing. Females have significantly higher mental stress than males (Singvi& Singh, 2004).

Gender is related to experiences of anxiety and depression. Women experience higher levels of psychological distress than man (Huges& Galinsky, 1994). Studies that examined international students showed that female students had higher emotional, physiological and behavioral reactions to stressors. (Misra, Crist &Burant, 2003). They were also more likely to feel homesick and lonely than were male students. (Rajapaksa &Dundes ,2002). In contrast, Poyrazli, Arbona, Nora, McPherson and Pisecco (2002) reported that male students scored higher on the UCLA Loneliness Scale than did female students. In the same study, there were no differences among men and women regarding general adjustment.A study revealed that social support was a significant predictor of depression and anxiety among international students (Sumer, Poyrazli, & Grahame,2008).College students revealed similar gender stereotyping of emotions in two studies. First study (Plant, Hyde. Keltner & Divine, 2000) showed a bias in associating anger with men and not women. Second study (Kelly & Hudson-Comeaux, 1999) revealed that stereotypes for emotionality are among the strongest gender stereotypes especially in college students. Results show a stereotypical view of emotionality according to the context. In the domain associated with men eg. men in achievement situations, participants expected men to overreact. Evidence that women experience more intense emotions than men (Fujita, Diener &Sandrik , 1991), comes from self reports of emotional experience in which women reported having a greater emotional intensity than men.

Gender differences in emotion may occur in the way emotions are expressed. Women have been described as the expressive gender, whereas men are described as failing to express their emotions (Fisher, 1993). Both women and men feel similar emotions under similar circumstances but women are more likely to express the

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emotions of sadness, anxiety and fear than men are. Men are more likely than women to express their anger (Postman, 1977). Men and women are supposed to restrain the displays of certain emotions, yet are free to show others. Also women are consistently more accurate than men in reading or decoding other people's expressions. (see Hall, 1978, for a review). In epidemiological studies, differences in the prevalence of psychiatric disorders in men and women have been consistently found (e.g. major depression is approximately twice as common in women, whereas alcohol and drug use disorders are approximately 2 to 5 times more common in men). Research on gender differences in the symptom expression of psychiatric illness is still limited, and some findings are inconsistent. However, some interesting differences have emerged. For example, women are more likely than men to experience the depressed pole of bipolar illness, less likely to have only manic episodes and more likely to experience affective symptoms in addition to psychotic symptoms.Salmons (1983), who worked on psychiatric illness in research students, observed that over a 25 years period, 2.4% of Birmingham research students developed psychiatric disorders which were severe enough to cause loss of time from the course; 1% of the total required hospital admission. One third of psychiatrically ill students did not graduate, but those who did were as likely as graduates who had not been ill to remain on the medical register.

Context Of The Present Study

A large number of factors are responsible for causing metal stress, which is the root cause of many disorders. However, research studies on such problems have not received much attention in our country India. Kapoor (1969) held that the very nature of student work is such that even a minor disturbance will seriously affect the students mental functioning. While writing an editorial in emotional problem of medical students Arnstein (1986) also observed that this subject over the years has received less attention than it should have got.

By means of mental health, psychological vulnerability can be assessed (Dinh, 2000). Psychological vulnerability refers to individual's susceptibility to negative developmental outcomes that can occur under high -risk conditions (Zimmerman &Arunkumar, 1994). The term "vulnerability" is derived from the Latin word "vulnerare", which refers to the potentiality to be harmed emotionally and or physically.

Research students make a special group because they are exposed to academic strain, lack of research resources, inadequate supervision which can adversely affect their research activities. Depressed students report a significantly higher number of stressful life events compared to other groups (Singh et al., 1984).Srichandra (1970) commented that "research is strenuous activity and research students and research scientist, especially in India meet frustrating experiences. Research students make a special group due to the extensive academic strain they are exposed to." A study revealed that Ph.Dscholars were emotionally unstable to a greater extent than the population at large (Abdul Hafeez, 1958). The commonest symptoms were worry, perseverance of ideas, compulsions, obsessions, and selfconsciousness. A study which investigated the magnitude of emotional ill-health in 132 female doctoral research students revealed that 28% of them were emotionally healthy (Kumar &Nathawat, 2004). Emotionally unhealthy research students were found to have more dysfunctional attitudes. Emotional disturbance & cognitive dysfunction were pointed out as determinants of emotional ill-health.It is against this backdrop, that the present study was designed. Given pervasive gender differences in various realms, it was considered to be worthwhile to

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explore gender differences in the context of Ph.D. stress. The *present psychological study*endeavours to make a phenomenological comparison with respect to gender and emotional wellbeing of research scholars. Gender differences were explored with respect to the general wellbeing, general health, adjustment level and psychopathological status of Ph.D. research scholars. Phenomenology is the science in which we come to know mind as it is in itself through the study of the ways in which it appears to us. In view of the phenomenological approaches to self-consciousness, experience happens for the experiencing subject in an immediate way and as part of this immediacy, it is implicitly marked as my experience(Husserl, Hegel & Kant,1938). Personal experiences of scholars constituted the qualitative data.

II. OBJECTIVES

The primary objective of this study was to determine the sex differences (male and female), in the general health, general wellbeing, adjustment level and psychopathological status ofselected 60 Ph.D. research scholars, belonging to the age group 24 – 29 years. The specific focus is on capturing the phenomenological reality and experiences of the scholars.

Hypotheses

Against the review of literature pertaining to gender differences and to fulfill the prime objective of the study, the following 5 hypotheses were formulated: (1)Male and female Ph.D. research scholars will differ significantly from each other on the dimension of general wellbeing. (2)Male and female Ph.D. research scholars will differ significantly from each other on the dimension of general health.(3) Male and female Ph.D. research scholars will differ significantly on their adjustmentlevel.This global hypothesis entails the following fivesub-hypotheses:

a. There will be significant gender differences in their home adjustment level.
b. There will be significant gender differences in their health adjustment level.
c. There will be significant gender differences in their in their social adjustment level.
d. There will be significant gender differences in their emotional adjustment level.
e. And there will be significant gender differences in their educational adjustment level.

Male and female Ph.D. research scholars will differ significantly from each other in the manifestation of various psychopathological symptom dimensions.

This global hypothesis entails the following nine sub-hypotheses:

a. There will be significant gender differences on the dimension of somatization.
b. There will be significant gender differences on the dimension of obsession-compulsion.
c. There will be significant gender differences on the dimension of interpersonal sensitivity.
d. There will be significant gender differences on the dimension of depression.
e. There will be significant gender differences on the dimension of anxiety.
f. There will be significant gender differences on the dimension of hostility.

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g. There will be significant gender differences on the dimension of phobic anxiety.
h. There will be significant gender differences on the dimension of paranoid ideation.
i. There will be significant gender differences on the dimension of psychoticism

The magnitude of emotional illhealth and psychopathological distress reported by female research students will be greater than that of male research students.

III. METHODOLOGY

Design

The present study is an ex post facto study. It is a quasi-experimental design, which is similar to an experiment in the designation of variables (subject variables and dependent variables). This design is different from true experiments because it uses the existing values of the subject variable, rather than create the values of the independent variable through manipulation. It refers to conditions in an experiment where some manipulation has occurred naturally prior to the start of the experiment (literally it means, from after the fact).Gender is a variable which cannot be manipulated. Thus, this design was employed.

Subject Variable: Gender having two levels

1. Males & 2. Females

Dependent Variables (DV): 1. General Wellbeing

2. General Health

3. Adjustment Level (Home, Health, Social, Emotional &Educational).

4. Psychopathological Status (nine symptom dimensions: SOM, O-C,I-S,DEP,ANX,HOS,PHOB,PAR & PSY and threeglobal indices: GSI,PSDI & PST).

Control Variables (CV): Age of scholars (24 to 29 years), Employment Status (Not Employed), Amount of time involved in research (Minimum 2 years), Have basic proficiency in reading, writing English, Residents of hostels within the institution campus.

Participants

The Participants for the study comprised of Ph.D. research scholars (Males = 30; Females = 30), in the age group of 24 – 29 years, from a mixed socio economic Indian urban background. The participants were selected from varied educational institutions within Delhi, i.e., Jawaharlal Nehru University (JNU), Jamia Milia Islamia ,North and South Campus (Delhi University), presently enrolled in Ph.D. in varied majors like microbiology, genetics, electronic science, political science, architecture, etc. Sampling of the study was done in two stages. In the first stage, by use of purposive sampling, 30 male and 30 female scholars were selected. It is a form of non probability sampling, characterized by use of deliberate effort and judgment to obtain representative samples by including presumably typical areas or groups in the sample. These 60 subjects constituted the sample for quantitative research (filling questionnaires). In the second stage of sampling, incidental purposive sampling was used, where 10 out of 30 male scholars and 10 out of 30 female scholars were chosen , who volunteered for the interview. They

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constituted the sample for qualitative research (semi-structured interview).All subjects participated in the study on the basis of informed consent

Tools used

Special care was taken so as to have standard, reliable and valid measures, with items suitable to their intellectual level. Keeping in mind the above, the following quantitative measures were used:

1. PGI General well being measure (Verma & Verma, 1989)
2. General health questionnaire (GHQ - 12) (Goldberg & Williams, 1988)
3. Adjustment Inventory for college students (AICS) (Sinha & Singh, 1980)
4. Symptom checklist – 90 – R (SCL – 90 – R) (Derogatis, 1994)
5. Semi – structured interview. (Qualitative measure)

The first four are self-report inventories with the singular advantage of deriving data from the 'experiencing self'. Also they are highly amenable to actuarial methods of administration, scoring and interpretation.

Semi-structured interview

An interview has been best defined as a conversion with a purpose (Khan &Cannell, 1957). A semi-structured interview is relatively more relaxed and flexible than a strictly structured interview It is composed of both open and closed ended questions, while at the same time adhering to a more or less predetermined schedule of questions (Malacrida, 2005; Fisher, 1993; Kohler Riseman, 1993). The questions were aimed to explore the detailed mental and emotional health of Ph.D. scholars and to see if any gender differences exist in their psychological status. The flexibility of this approach gave subjects the opportunity to express themselves in their own terms, employing their own language and relating their experiences. The questions were built on broad themes complementing the findings on the psychometric tests used in the study (Appendix V – Interview Schedule). The interviews were conducted with 10 males and 10 females, who were comfortable and willing to express their feelings, in the preferred language of the participant (Hindi or English). Each interview was preceded by sufficient rapport formation. The participants were free to respond in any way and to any length they wished. Probe questions were put forward wherever considered necessary.

Procedure

The data was collected over a period of two months, during which the researcher visited the Ph.D. research institutions 2-3 times a week. Permission to carry out the research was obtained from the hostel authorities of the institutions, viz., JawaharlalNehruUniversity, Jamia Milia Islamia and South and North Campus, DelhiUniversity. Since, it was important to reduce the impact of the researcher's presence and to even out the 'power differences' that existed between the researcher and the researched, an involved role was taken as also recommended by Mandell (1988). Initial visits to the respective hostels were aimed to yield demographic information and strength of the Ph.D. population residing in the campus. After selecting 30 males and 30 females purposively, individual contact was made with every participant of the present study. Extensive interaction with the research scholars , provided deeper insight into their lifestyle arenas. Also this served as the 'adaptation period', so that the participants can get used to

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the presence of the researcher, as per Berk (2002). Also, since individual interviews were to be taken, the researcher spent enough time with each one of the participants so as to put them at complete ease and to build a relationship of trust with them. As far as possible, care was taken to cause the least possible disruption in the scholar's busy schedules and the study was conducted when they were free, like in the weekends.Each subject was approached personally and after establishing adequate rapport, the four questionnaires were administered to the subject one by one. The scholars were made aware of the fact that their participation in the research was completely voluntary (informed consent) and the importance of each person's contribution to it was emphasized. It was also made clear to them that nothing among all that would be asked, has a right or wrong answer and that their results would be kept completely confidential and identities anonymous. They were reassured around their anxiety and told that the test was merely a means of obtaining information about them. Scholars were then briefed about the time required in the study and what it would entail. Participants were asked to read the standard instructions printed on top of each questionnaire and requested to ask anything that was not clear. After answering their queries, subjects were asked to answer the questionnaires, as honestly as possible. This procedure was individually repeated with 60 Ph.D. research scholars (30 males & 30 females).

The semi-structured interview was conducted with 10 male and 10 female participants who volunteered for the same. The interview was face to face, comprising of 25 open, as well as close ended questions. Responses were recorded using a audio recorder. While conducting the interview, the recorder was kept at a distance, so as not to make participants overly conscious about being interviewed. In all, each individual session with the participant lasted around 50 to 60 minutes.

PGI General Wellbeing Measure:5 to 6 minutes
General Health Questionnaire:5 to 7 minutes
Adjustment Inventory for College Students:18 minutes
Symptom Checklist – 90 – R:12 to 15 minutes
Semi-structured Interview:20 to 25 minutes approximately

In the end, each participant was cordially thanked for his/her sincere participation in the study .Then debriefing about the primary objective of the study, i.e., to determine any gender differences regarding mental / emotional health of Ph.D. scholars, was done.

IV. RESULTS & CONCLUSION

The results have been presented under the following five sections:
Section I:Scores on PGI General Wellbeing Measure
Section II:Scores on the General Health Questionnaire
Section III:Scores on Adjustment Inventory for College Students
Section IV:Scores on Symptom Checklist – 90 – R
Section V:Data from the Semi – Structured Interviews

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Taking into consideration the main objective of the study, the following data analysis and statistical techniques were applied:

1. Mean and Standard Deviation:

Means were calculated for males and females on every variable of the study, separately.Standard deviations were calculated for males and females on every variable of the study, separately.

2. One-way Analysis of Variance:

Analysis of variance can be used to test the hypothesis Ho:μ1=μ2=….μk with two or more groups. Thus, ANOVA was used instead of t in the present two-sample, independent-groups design. In fact with two samples, $F= t^2$

ANOVA is a two-tailed test. One way Analysis of Variance was calculated for all variables to see the effect of gender on the general wellbeing, general health, adjustment level and psychopathological status of Ph.D. scholars. The levels of significance used were 0.05 level and 0.01 level. Although the fifth hypothesis is one-tailed and ideally t- test should have been employed for it. But since there are only two means of the two sample groups, precise comparisons have been made on the basis of means.

Section I: Scores on PGI General Wellbeing Measure

The total number of tick marks for every score on the General Wellbeing Measure revealed that the mean general wellbeing score, as a function of gender, was slightly higher for females than for males (Figure 1). The present trends are indicative of higher measure of subjective sense of psychological well-being in females and poorer positive mental healthstatus in males.

Table 1: Showing Mean General Wellbeing Score and Standard Deviation of the two sample groups.

Gender	**Male Ph.D. scholars (n = 30)**	**Female Ph.D. scholars (n = 30)**
Mean	9	10.2
Standard Deviation	4.02	5.22

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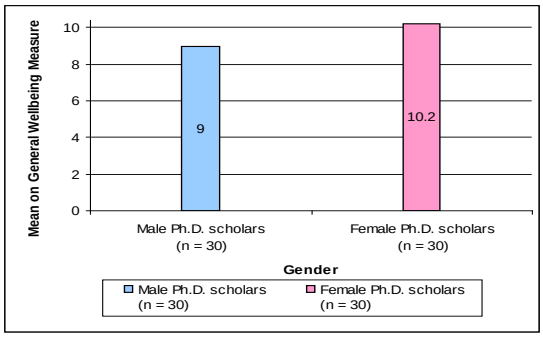

Figure 1: Mean scores on General Wellbeing as a function of Gender.

It is clear from the results of ANOVA (Table 2) that there were no significant differences among the two population means, since the obtained value of F is less than the critical value of F.

Table 2: Summary of ANOVA, showing the effect of Gender on General Wellbeing Score.

Source	**SS**	**df**	**s^2**	**F**
Between groups	21.6	1	21.6	0.96
Within groups	1302.8	58	22.46	
Total	1324.4	59		

** $\alpha = 0.01$ significance level (F critical = 7.08)

* $\alpha = 0.05$ significance level. (F critical = 4.00)

Section II: Scores on the General Health Questionnaire (GHQ)

In the General Health Questionnaire, since each participant was supposed to underline the response most nearly applied, total scores of every respondent were calculated through Likert scoring. The results indicate that the responses of male and female Ph.D. scholars were almost similar . By use of descriptive statistics (i.e., Mean & Standard Deviation), the data were organized and summarized for comprehending ease. The mean GHQ score, as a function of gender was slightly higher for males than for females (Figure 3). Higher mean indicates greater inability to carry out normal functions and greater experience of distressing phenomena. Males with high scores can be thought of as 'probable cases' of psychiatric illness.

Table 3: Showing Mean GHQ score and Standard Deviation of the two sample groups

Gender	**Male Ph.D. scholars (n = 30)**	**Female Ph.D. scholars (n = 30)**
Mean	13.1	11.8
Standard Deviation	5.95	7.14

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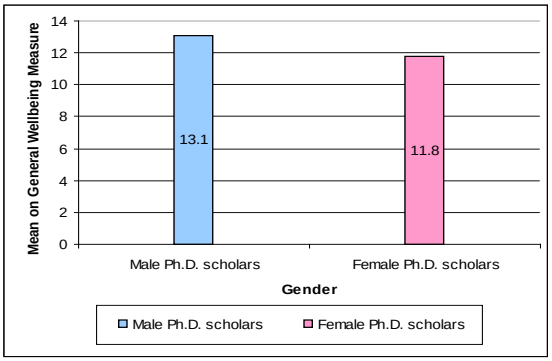

Figure 3: Mean scores on GHQ as a function of Gender

By use of inferential statistics, i.e., One-way Analysis of Variance (ANOVA), no significant gender differences pertaining to the variable General Health was found. Because the obtained , value of F did not exceed the critical values, it was inferred that no real gender differences between the two sample means exists.

Table 4: Summary of ANOVA, showing the effect of Gender on GHQ score.

Source	**SS**	**df**	**s^2**	**F**
Between Groups	25.35	1	25.35	0.56
Within Groups	2591.5	58	44.68	
Total	2616.85	59		

** $\alpha = 0.01$ significance level (F critical= 7.08)

* $\alpha = 0.05$ significance level. (F critical= 4.00)

It is clear from the results of ANOVA (Table 4),that gender did not seem to influence the general health dimensions of Ph.D. scholars .

Section III: Scores on the Adjustment Inventory for College Students (AICS)

The analysis of scores of AICS was done in terms of varied adjustment areas. The total scores are the sum of responses indicative of lack of adjustment. The higher the total score, less is the adjustment. The mean scores of males and females did not differ much with respect to home, health, emotional, educational and total adjustment areas (Table 5). However the trends indicate that females show greater lack of adjustment, in comparison to males scholars, on the dimension of social adjustment. Higher mean (9.3) of females indicate that they are submissive and retiring. Lower mean (7.4) of males is indicative of aggressive behaviour.

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Table 5: Showing Means and Standard Deviations for the five Adjustment areas.

	Male Ph.D. scholars n = 30		**Female Ph.D. scholars n=30**	
Adjustment Area	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Home Adjustment: Low scores indicate satisfactory adjustment and high scores, unsatisfactory adjustment towards home surroundings.	5.4	2.88	5.03	3.26
Health Adjustment: Low scores indicate satisfactory health adjustment and high scores, unsatisfactory adjustment.	5.57	3.05	4.97	2.77
Social Adjustment: Individuals scoring high are submissive and retiring. Low scores indicate aggressive behavior.	7.4	3.17	9.3	3.16
Emotional Adjustment: High scores indicate unstable emotion. Individuals with low scores tend to be emotionally stable.	14.8	4.04	16.53	4.96
Educational Adjustment: High scorers are poorly adjusted toward their curricular and cocurricular programmes. Low scorers show interest in the educational activities.	8.23	3.18	7.9	3.44
Total	41.4	11.17	43.7	11.15

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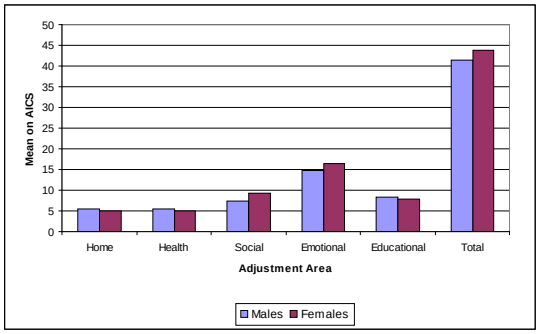

Figure 4: Mean scores on AICS as a function of Gender on the five Adjustment areas.

It is clear from the results of ANOVA, that there were no significant differences between males and females Ph.D. scholars, on the adjustment areas of home, health, emotional, educational and total adjustment(Table 6). However, significant difference was found between males and females, on social adjustment dimension (F_{CAL}= 5.22) [F_{CRIT} (1,58) = 4.00; $p < 0.05$]. Males were found to be better socially adjusted than their female counterparts.

Table 6: Summary of ANOVA, showing the effect of Gender on varied Adjustment Areas.

Adjustment Area	**Source**	**SS**	**df**	**S^2**	**F**	**Statistical Conclusion**
Home	Between Groups	2.01	1	2.01	0.21	No Significant Difference
	Within Groups	568.17	58	9.79		
	Total	570.18	59			
Health	Between Groups	5.39	1	5.39	0.61	No Significant Difference
	Within Groups	510.34	58	8.79		
	Total	515.73	59			
Social	Between Groups	54.15	1	54.15	5.22*	Significant Difference found α=0.05
	Within Groups	601.5	58	10.37		
	Total	655.65	59			
Emotional	Between Groups	45.06	1	45.06	2.13	No Significant Difference
	Within Groups	1226.27	58	21.14		
	Total	655.65	59			
Educational	Between Groups	1.66	1	1.66	0.15	No Significant Difference

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	Within Groups	658.07	58	11.35		
	Total	659.74	59			
Total	Between Groups	81.66	1	81.66	0.63	No Significant Difference
	Within Groups	7471.07	58	128.81		
	Total	7552.74	59			

** $\alpha = 0.01$ significance level (F critical = 7.08)

* $\alpha = 0.05$ significance level (F critical = 4.00)

Section IV: Scores on the Symptom Checklist – 90 – Revised (SCL-90-R)

The analysis of scores on the SCL -90-R worksheet revealed the trends that males and females differ from each other in their manifestation of various psychopathological symptoms. The mean of females was reported to be higher than that of males, on the 9 Symptom dimensions (Figure 5). The mean score of females was found to be much higher than that of males on the 3 Global indices (Figure 6).Also the female scores show more scatter than male scores, as depicted in their standard deviations. (Table7)

Table 7: Showing Means and Standard Deviations on the 9 Symptom dimensions and 3 Global indices

9 Symptom Dimensions	**Males (n=30)**		**Females (n= 30)**	
	Mean	**S.D**	**Mean**	**S.D**
1. SOM	0.72	0.63	1.22	0.65
2. O-C	1.21	0.60	2.12	2.01
3. 1-S	1.04	0.64	1.68	1.24
4. DEP	1.05	0.57	1.74	1.16
5. ANX	0 .91	0.60	1.53	0.78
6. HOS	0.19	0.89	1.79	1.02
7. PHOB	0 .61	0 .71	1.02	0.78
8. PAR	1.22	0.65	1.61	1.02
9. PSY	0.85	0.69	1.31	0.84

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3Global indices				
1.GSI	0.96	0.53	1.48	0.69
2. PST	47.83	17.85	60.73	16.10
3.PSDI	1.73	0.43	2.16	0.62

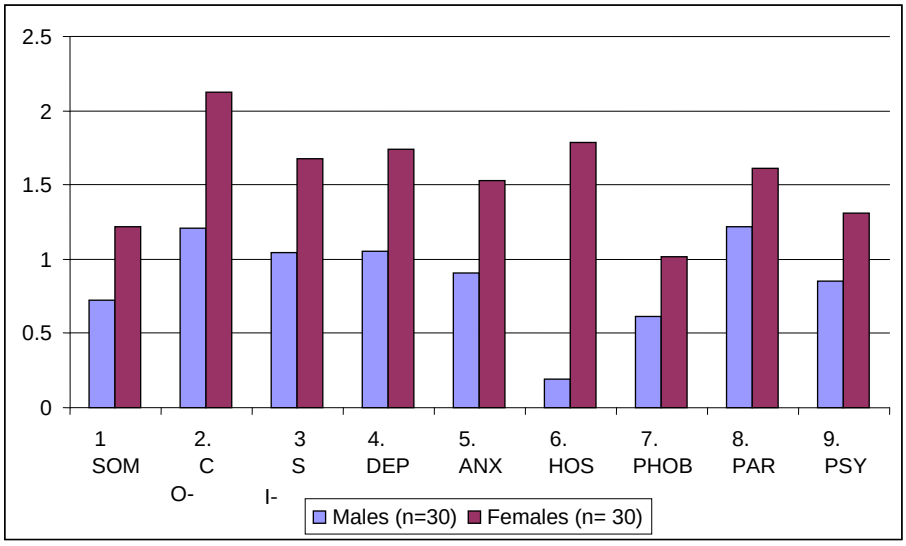

Figure 5: Mean scores on the 9 Symptom dimensions as a function of Gender

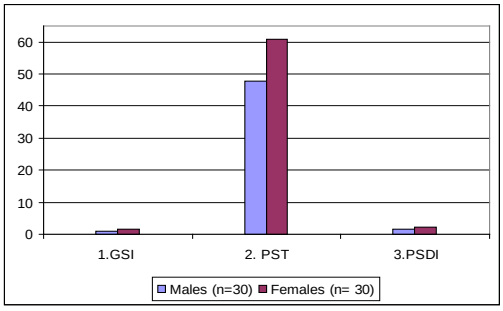

Figure 6: Mean scores on the 3 Global indices, as a function of Gender

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Table 8- Summary of ANOVA, showing the effect of Gender on the 3 Global Indices of SCL- 90-R

3 Global Indices	Source	SS	df	s^2	F	Statistical Conclusion
1. Global Severity Index: current level or depth of the disorder.	Between groups Within groups Total	3.96 22.73 26.70	1 58 59	3.96 .39	10.12**	Significant Difference found at α =0.01
2. Positive Symptom Total: number of symptoms endorsed by the respondent	Between groups Within groups Total	2496.14 17336.03 19832.18	1 58 59	2496.14 298.89	8.35**	Significant Difference found at α =0.01
3. Positive Symptom Distress Index: measure of response style indicating whether the respondent was augmenting or attenuating symptomat-ic distress.	Between groups Within groups Total	2.82 17.21 20.03	1 58 59	2.82 .29	9.52**	Significant Difference found at α =0.01

**α =.01 Significance Level (F critical = 7.08)

*α =.05 Significance Level (F critical = 4.00)

From the result of one way analysis of variance, it is clear that effect of gender was significant for all the 9 symptom dimensions (Table 8) and 3 global Indices (Table 9). This is indicative of clear gender differences in the psychopathological status of male & female PhD. Scholars.

Section V: Data from the Semi – Structured Interviews:

To assess the difference in responses to the 25 interview questions, with regard to gender, the responses of the respondents were coded and transcribed according to recurrent themes (Table 10). This data was content analysed. Content analysis is a standard methodology used in social sciences. Ole Holsti (1969) offers a broad definition of content analysis as "any technique for making inferences by objectively & systematically identifying specified characteristics of messages." The recurrent themes and features were identified with the help of the supervisor. These themes are in accord with previous literature and researches done in the area. Every question on the Interview schedule (Appendix V) corresponds to one significant theme, reflecting the phenomenological reality

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of subjects. Then the number and percentage of respondents manifesting those themes was calculated, as represented in Table 9 and Figure 7.

Table 9: Total frequency and percentage of respondents manifesting the Themes

Themes	**Number and Percentage of respondents manifesting the themes**			
	Male (n = 10), %		**Female** (n =10), %	
1.Negative Subjective perception of research	4	40	8	80
2.Internal motivation like interest	5	50	6	60
3. Positive Social Interaction	7	70	8	80
4. High stress level	6	60	6	60
5. Strong informational & emotional support system	6	60	4	40
6.Tension/heightened activation level	4	40	7	70
7. Presence of Anxiety	3	30	6	60
8.Existence of guilt feeling	2	20	5	50
9.Introverted by nature	7	70	4	40
10. Hypochondriacal in thought	1	10	6	60
11.Physical manifestation of physiological distress	3	30	8	80
12. Presence of aggression	7	70	1	10
13. Socially inhibited or phobic	4	40	6	60
14.Tendency to succumb/ experience failure	3	30	5	50
15. Depressive feelings	2	20	6	60
16. Suspiciousness	4	40	3	30
17. Academic Distress	6	60	5	50
18.Tendencytoward perfectionism	4	40	9	90
19. Sense of hopelessness	2	20	6	60
20. Unusual thought content	1	10	3	30
21. Research stress	2	20	8	80
22. Feeling of insecurity	3	30	7	70

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23. Presence of adaptive coping mechanism	5	50	4	40
24.Level of psychological distress	2	20	2	20
25. Inclination towards optimism	7	70	5	50

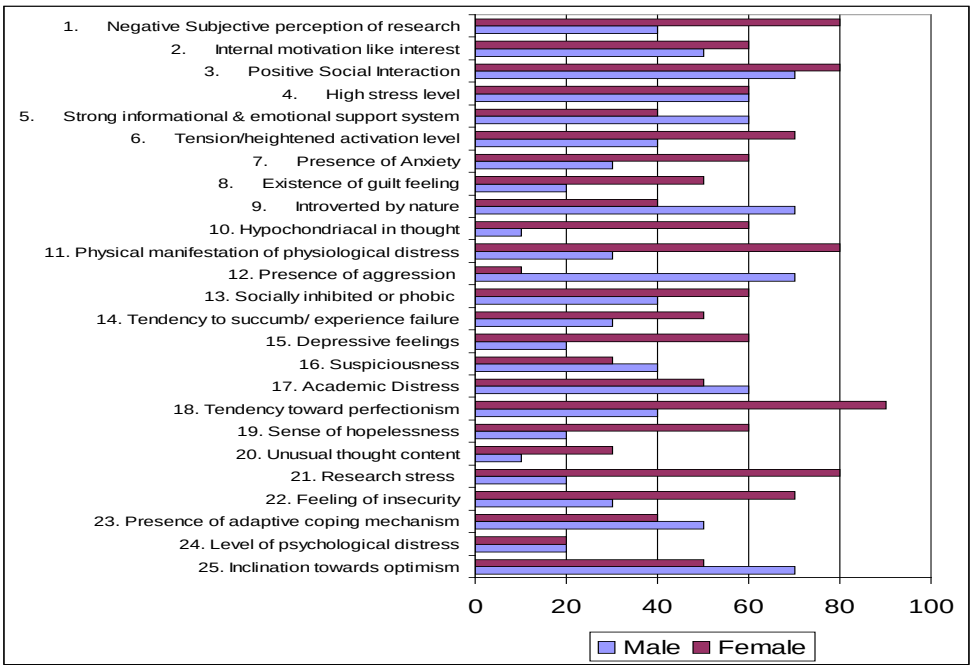

Figure 7: Gender difference in percent Scholars expressing the themes

Percent Scholars expressing the themes

Overall, no real gender differences were found to exist between the male and female Ph.D. scholars on the variables of general wellbeing, general health, home,health,emotional and educational adjustment areas. Significant gender differences prevailed on the social adjustment area, on the symptom dimensions of somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid anxiety, psychoticism and on the global indices of Global Severity Index, Positive Symptom Total and Positive Symptom Distress Index. Trends indicated that female scholars manifest more psychological distress.. Mean of females was found to be higher than that of their male counterparts on the symptom variables of : somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid anxiety, psychoticism and on the global indices of Global Severity Index, Positive Symptom Total and Positive Symptom Distress Index.

V. CONCLUSION

An effort was made to elicit a general picture of the mental health of research scholars. The study specifically focused on the phenomenological realities of the scholars, which brings to light the extensive academic and personal strain they go through and their deteriorating mental health status. The results were discussed in five parts, pertaining to the five hypotheses.The findings suggest that on some variables clear gender differences exists,

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where as in other variables no real differences were found. The statistical analysis depicts no real gender differences with respect to general wellbeing, in the sample of Ph.D research scholars. Thus, it implies that male and female scholars lie on almost similar grounds on the measure of positive mental health and subjective, general sense of psychological well-being. Apparently, in the semi-structured interviews, few female researchers reported satisfaction with one's life's experiences and of one's role in the world of work, sense of achievement, utility, belongingness and no distress, dissatisfaction or worry. However, in this study, on the measure of psychopathology (SCL-90-R), females were found to manifest extreme psychological distress and a very poor psychopathological status. Subjective wellbeing may well be maintained in adverse circumstances and conversely, may be lost in favorable situations. Female researchers who viewed their Ph.D. as a 'intellectually enriching pursuit' and were internally motivated by interest, have a positive subjective perception of their research process. Conversely, females who viewed their Ph.D. as a "burden", experienced negative affect and psychological strain.Furthermore,in the present trends (Means) signify that male researchers reported a slight inability to continue to carry out one's normal 'healthy' functioning. An overview of the individual responses, indicates that male subjects rated themselves slightly higher on items like – 'lost much sleep over worry'; 'felt constantly under strain'; 'felt you couldn't overcome your difficulties'. Males also exhibited minor depressive illnesses (refer to responses on GHQ, Raw Data, Appendix VI).

The function of the present findings is to draw psychologists and clinician's attention to thispsychological distress which is of primary importance in coming to an understanding of the researcher's mental health status. Few male researchers were found to be better socially adjusted in comparison to their female counterparts.Interviews revealed that male researchers employ problem focused coping, suppress competing activities and seek social support when stressed. In contrast, female students reported ruminating a lot about adverse consequences, focusing on the expression of feelings, using denial, distancing and ignoring the problem. Females described themselves as "sensitive and shy", who suffer ill effects even from mild levels of stress. A female subject said "I get tired easily and get headaches. My foot and knees start hurting even after I do little work!" Females in general viewed their Ph.D. research as a "burden". Since research is a more strenuous mental activity, problems of emotional health may be unexpectedly high for this group.

Gender differences were reported, between the scholars in the manifestation of various psychopathological symptom dimensions, as measured by the psychopathology rating scale of Symptom Checklist-90-R (SCL-90-R).The mean of females (1.22) exceeded that of the males (0.72), trends reflecting a higher manifestation of somatization symptomin females (Table 7).ANOVA resultsindicate presence of significant gender differences,in their symptom manifestation of somatization (F_{CAL} =8.98) [F_{CRIT} (1,58)=7.08;p<0.01]. ANOVA revealed significant gender differences on the dimensionsof obsessive –compulsive, interpersonal sentivity symptoms &paranoid ideation (F_{CAL}=5.37) [F_{CRIT} (1,58) =4.00; p< 0.05].Females recorded on the questionnaires, more symptoms of faintness, dizziness, nausea, upset stomach, soreness of muscles, trouble getting breath, numbness, lump in the throat, and weakness or heavy feelings in arms or legs. They reported more thoughts, impulses and actionsas distressing symptoms.The commonest symptoms endorsed were worry, perseverance of ideas, alienation, compulsions, obsessions and self-consciousness.

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The mean of females (1.68) was found to be higher than that of males (1.04), trends showing that females endorse more interpersonal sentivity symptoms. ANOVA confirmed this, accepting the third sub-hypothesis also (F_{CAL}=6.02) [F_{CRIT} (1,58)=4.00;p<0.05]. Mean of female gender (1.74) was greater than that of males (1.05) on the symptom dimension of depression; indicating that female scholars were more anxious, generally tensed and frightened than their male counterparts; exhibited more hostility, annoyance and temper outbursts.Higher mean of females (1.31) as compared to that of males (0.85), depicts greater manifestation of **psychoticism** symptoms in them. Accordingly, trends depict that they never feel close to another person, have thoughts about sex that bother them a lot or feel lonely even when they were with other people.Although they donot suffer from major mental health problems like psychosis but neurotic ailments of anxiety and depression were not uncommon in these researchers. Thus, gender was found to be related to their experiences of anxiety and depression. In this study gender is found to be significantly related to the mental health of professional students. Emotionally disturbed female research students depicted more proneness to depressive psychopathology, due to loss of expectation in their research work. Females said in the interviews that when depressed, they tend to alienate friends and family, leading to a greater sense of rejection. An important observation of this study relates to the role of emotional and cognitive disturbances in emotional illness. By and large, emotionally unhealthy female research students were observed to be disturbed both on emotional and cognitive measures.Mean of females (1.48) was higher than that of males (0.96) on the measure of GSI(Table 7), trends indicating that females endorsed more symptoms with the intensity of perceived distress. ANOVA (Table 9) revealed significant gender differences on this variable (F_{CAL} =10.12) [F_{CRIT} (1,58) =7.08, p<0.01]. On the summary measure of PSDI, females mean (2.16) was higher than that of males (1.73), trends depicting that the average level of distress is greater in intensity in them. ANOVA showed presence of significant gender differences on PSDI (F_{CAL}= 9.52) [F_{CRIT} (1.58)=7.08;p<0.01]. Also, mean of females (60.73) exceeded that of males (47.83) on the measure of symptom breadth.

According to the present analysis of the available evidence (questionnaires), a general distress factor indexed by measures of “negative affect”(feeling thwarted,obstructed,self-doubting) is clearly more prevalent in the female sample.This is chiefly responsible for the observed anxiety-depression diagnostic co-morbidity. Thus, it can be safely inferred that researchers esp. in research settings, were vulnerable to emotional ill-health. Gender-specific stressors not only play a role in psychiatric symptoms among researchers but may account for well-known gender differences in those symptoms, as well.

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