

ORIGINAL ARTICLE

Psychological distress among doctoral scholars: its association with perseverance and passion

Aleena M. SUNNY ¹*, Fathima G. ASHRAF T ¹, Sujith V.S. ¹,
Shinto THOMAS ², Kaustav CHAKRABORTY ³, Sibnath DEB ⁴

¹Department of Applied Psychology, Pondicherry University, Puducherry, India; ²Department of Psychology, CHRIST (Deemed to be University), Bengaluru, India; ³Department of English, Pondicherry University, Puducherry, India; ⁴Rajiv Gandhi National Institute of Youth Development, Ministry of Youth Affairs and Sports, Government of India, Sriperumbudur, India

*Corresponding author: Aleena M. Sunny, Department of Applied Psychology, Pondicherry University, Kalapet, Puducherry, India. E-mail: aleenasunny1993@gmail.com

ABSTRACT

BACKGROUND: The study examined psychological distress and its association with perseverance and passion for long term goals among 400 Ph.D. scholars from Pondicherry University.

METHODS: The sample collected through multi-stage convenience sampling technique was assessed using a Structured Questionnaire, Depression, Anxiety and Stress Scale (DASS-21), Grit Scale and Flourishing Scale.

RESULTS: The results showed that 7.5% and 4.5% had severe and extremely severe depression, 12.5% and 20% had severe and extremely severe anxiety, and 5% and 1.5% had severe and extremely severe stress. The data was collected from one Indian University and analyzed based the information gathered through self-report inventory.

CONCLUSIONS: Congenial family environment, good relationship with parents and friends were observed to be positive factors for psychological well-being. There is an urgent need to extend mental health support services to the PhD scholars especially for those who were suffering from severe and extremely severe psychological distress.

(Cite this article as: Sunny AM, Ashraf T FG, V.S. S, Thomas S, Chakraborty K, Deb S. Psychological distress among doctoral scholars: its association with perseverance and passion. Minerva Psichiatr 2020;60:000-000. DOI: 10.23736/S0391-1772.20.02074-9)

KEY WORDS: Psychological distress; Students; Universities.

When a student joins a university for doctoral research they are moved by academic and infrastructural facilities, the academic ambience, support from positive peer group members and other support facilities available in the university and supervisors academic credibility. In turn these facilities bring motivation among them for pursuing their doctoral research successfully and publishing research-based articles in reputed national and international journals. Further university environment teaches them to face various challenges and build their confidence. However, if the academic ambience is not stimulating, sys-

tem is not barrier free and supervisor is not supportive, PhD scholars become de-motivated and vulnerable to mental health challenges like academic stress, anxiety, and depression and may become dependent on substances and finally this situation might lead to poor output in terms of publications. Limited research is carried out on issues and concerns of PhD scholars. However, available evidence indicates that some research is carried out among post graduate students.

“Depression affects a large number of university students and the incidence of depression is much higher among university students than that

of general population”^{1, 2} and “this mental health problem might lead to catastrophic consequences such as suicide.”³⁻⁵ It affects all dimensions of student functioning, predominantly that of psychosocial functioning and there by academic performance and is substantiated by many studies.⁶⁻¹¹

So far as financial background of the PhD scholars is concerned, in general a large number of PhD scholars of Indian Universities come from poor financial background and some of them find it very difficult to pay the tuition fees and bear on-going expenses. This situation cause stress for some students.¹² In addition, relationship issue, academic stress, peer group negative influence cause stress and anxiety for some students. Stress caused by financial hardship and other issues as stated earlier may lead to development of depression and make them vulnerable to suicidal ideation. By and large, female students were found to be affected by academic pressure and subsequent depression as compared to their male counterparts.^{13, 14} Due to these reasons PhD scholars and Master’s Degree students in the developed countries, in general, opt for counselling services at their educational institutions for psychological help particularly depression.^{15, 16} Unfortunately in India students’ mental health issue did not get minimum attention from the administrators in truest sense although sometime in public meeting they talk about the issue.

One latest study¹⁷ among 717 Indian post graduate university students revealed that “37.7%, 13.1%, and 2.4% of them were suffering from moderate, severe, and extremely severe depression.” Higher prevalence was found among the students who belong to the stream of humanities and social sciences. Students who had positive resilience skills, positive adjustment patterns to the university environment and “indulgence in regular exercise were found to be linked too positive mental health.”¹⁷ The study also posted the need for immediate mental health services to those students who were found to have severe depression.

From the above discussion it is clear that information about mental health status of PhD scholars is scanty. Therefore, the necessity is felt to carry out a systematic empirical study on PhD

scholars to examine the psychological distress of Pondicherry University PhD scholars and its association with girt and flourishing. This apart, the study examined relationship between socio-demographic variables with special reference to gender, age, income, family environment, academic discipline, and relationship with parents and friends, psychological distress and psychological well-being.

The developed hypotheses are the following:

- male and female PhD scholars differ significantly in terms of psychological distress;
- PhD scholars of different age groups differ significantly in terms of psychological distress;
- PhD scholars from different income groups differ significantly in terms of psychological distress;
- PhD scholars from different academic disciplines differ significantly in terms of psychological distress;
- PhD scholars from different family background differ significantly in terms of psychological distress;
- the psychological distress of PhD scholars with good relationship with parents and friends differ significantly;
- the psychological distress of PhD scholars has association with emotional strength, perseverance and passion for long term goals.

Materials and methods

Design

Correlation research design was used to study the problem. The study was carried out among PhD scholars of Pondicherry University (A Central University) located in Puducherry, India. Currently there are about 900 PhD scholars pursuing research work in different departments of Pondicherry University.

Sample

A total of 400 PhD scholars, 200 male and 200 females, was covered in the study from different academic disciplines of Pondicherry University following multi-stage convenience sampling technique. Steps followed for selection of sample are as follows:

- step I: first all the academic disciplines of Pondicherry University was grouped under three categories: 1) Humanities and Social Science; 2) Science; and 3) Commerce and Management;
- step II: a list of academic departments under each category was prepared and then from each category half of the departments were selected randomly;
- step III: finally from the randomly selected departments, PhD scholars were approached for becoming a study subject as their availability.

Study tools

Structured questionnaire

This tool was developed by¹⁷ to collect demographic and socio-economic background related information about the study subjects in addition to interpersonal relationship like gender, age, education, place of living, father's and mother's education, faculty, joining, mothers and fathers occupation, relationship with parents and friends, family environment and monthly income. Face validity of the questionnaire was ascertained by three experts.

Depression, Anxiety and Stress Scale

Depression, Anxiety and Stress Scale (DASS-21)¹⁸ consists of 21 questions related to depression, anxiety and stress. The DASS is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three DASS scales contains seven items. The items were four rating scale (0= did not apply to me at all, 1= applied to me to some degree or some of the time, 2= applied to me to a considerable degree or a good part of time, 3= applied to me very much or most of the time). The three subscales which are the depression scale, the anxiety scale and stress scale assess some of the prominent symptoms under each of the conditions experienced over the past week. The sum of items under each subscales provides the corresponding score. In validity, concurrent validity coefficients is 0.87 and 0.84. 0.89 is found Cronbach internal consistency of this scale. Item total correlations from 0.51 to 0.75 ranged. 0.99 and 0.96 retest and split half reliability coefficient were found.

The psychometric properties of the DASS-21 has been ascertained by a number of previous studies and found it to be suitable and highly reliable scale.¹⁹⁻²² The Cronbach's alpha with the present sample for three sub-scales, that is, depression, anxiety and stress was 0.86, 0.91 and 0.85 respectively.

Flourishing Scale

This scale developed²³ consists of eight questions aim to assess flourishing and positive and negative feelings. It consists of 8 items describing important aspects of human functioning ranging from positive relationships to feelings of competence, to having meaning and purpose in life. The scoring system will be based on adding the 8 responses of the scale. The items were rated on 7 points scale (1= strongly disagree, 2= disagree, 3= slightly disagree, 4= neither agree nor disagree, 5= slightly agree, 6= agree, 7= strongly agree). The score ranges from 7 to 19. The high score indicates person's emotional strength towards feeling of competence, having more positive meaning and purpose in life and in developing positive relationship rapidly and successfully. The scale has Cronbach's alpha 0.88-0.95 and validity got acceptable convergent validity. The psychometric properties of the Flourishing Scale have been ascertained by a number of previous studies and found it to be suitable and highly reliable scale.²⁴⁻²⁶ Cronbach's alpha for the local sample was found to be 0.92.

Grit Scale

This scale²⁷ consists of 17 questions wishes to assess the perseverance and passion for long-term goals. The items were rated on 5-point scales (5= very much like me, 4= mostly like me, 3= somewhat like me, 2= not much like me, 1= not like me at all). A number of previous studies ascertained the psychometric properties of Grit Scale and found it to be suitable. The Cronbach's alpha of Grit Scale with the present sample was 0.91 and its three domains *i.e.*, consistency of interest (Domain 1), perseverance of efforts (Domain 2) and ambition (Domain 3) with the present sample were 0.91, 0.89, and 0.90 respectively. Reverse scoring is involved and scores of grit and its subscales namely con-

sistency of interest, perseverance of effort and ambition are obtained by taking the averages of the related items.

Procedure

Permission for data collection was obtained from the Head of the Departments of selected departments and accordingly researchers visited the departments and approached available 460 PhD scholars for data collection. Based on voluntary participation, 400 scholars (200 male and 200 female) were selected. All the scholars were briefed about objective of the study and based on informed consent they were recruited. Subjects were ensured about confidentiality of information and date and time of interview was decided as per convenience of the scholars. Data were collected following self-administration method.

Sixty scholars declined to participate in the study because of own busy schedule. Out of sixty few felt that this study findings may be of any direct benefit for them and that is why they declined to participate.

Statistical analysis

The descriptive statistics as well as Pearson correlation, *t*-test and ANOVA were performed using IBM SPSS version 20 for verification of the hypotheses.

Results

The majority of the students (59.3%) belonged to 25-26 years age group, followed by 15.8% and 25% in 23-24 and 26+ years age groups respectively. So far as native place of the PhD scholars is concerned, 243 participates were from south India, 81 from north India, 75 from east India, and 1 from west India. More than half of the scholars (N.=58) were single child while 181 had two 2 siblings and 161 had more than two siblings. The majority of the scholars (N.=242) came from single families while 156 came from join families. Fathers of 28 scholars were illiterate, 149 studied below secondary level, 146 were graduates and 77 were postgraduates. Mothers of 53 scholars were illiterate, 178 studied below secondary level, 130 were graduates and 39 were postgraduates. Out of 400, father of 185 scholars

were working in government sector, 101 doing business, 13 were unemployed and 101 were engaged in private companies. Mother of 80 scholars were working in government service, 19 doing business, 265 were housewives and 36 doing other jobs. Monthly income of 197 scholars was less than Rs.30, 000, while 114 and 89 scholars had monthly income ranged between 30,001-60,000 and more than 60,001 respectively. The

TABLE I.—*Background information of the PhD scholars (N.=400).*

Variable	Subgroups	N. (%)
Age	23-24	63 (15.8)
	25-26	237 (59.3)
	26 & above	100 (25.0)
Gender	23-24	63 (15.8)
	25-26	237 (59.3)
Siblings	Only child	58 (14.5)
	Two	181 (45.3)
	More than two	161 (40.3)
Discipline	Humanities/social science	155 (38.8)
	Science	204 (51.0)
	Commerce/management	41 (10.3)
Family type	Joint	156 (39.0)
	Single	242 (60.5)
Joining	Less than 2 years	164 (41.0)
	2 to 4yrs	168 (42.0)
	4+yrs	68 (17.0)
Native place	South India	243 (60.8)
	North India	81 (20.3)
	East India	75 (18.8)
	West India	1 (0.3)
Father's Occupation	Service	185 (46.3)
	Business	101 (25.3)
	Housewife	13 (3.3)
	Others	101 (25.3)
Mother's Occupation	Service	80 (20.0)
	Business	19 (4.8)
	Housewife	265 (66.3)
Father's education	Others	36 (9.0)
	Illiterate	28 (7.0)
	Below secondary level	149 (37.3)
Mother's education	Graduate	146 (36.5)
	Postgraduate	77 (19.3)
	Service	80 (20.0)
Relationship with parents	Business	19 (4.8)
	Housewife	265 (66.3)
	Others	36 (9.0)
Family environment	Very good	374 (93.5)
	Not so good	26 (6.5)
Relationship with friends	Congenial	358 (89.5)
	Not congenial	42 (10.5)
Monthly income	Very good	374 (93.5)
	Not so good	26 (6.5)
Monthly income	Less than 30,000	197 (49.3)
	30,001 to 60,000	114 (28.5)

majority of the scholars (N.=358) perceived family environment to be congenial while 42 perceived family environments as not congenial. Regarding relationship with parents although the majority described it as good (374), 26 had just opposite views *i.e.*, not good relationship with parents. So far as relationship with friends is concerned, similar picture was emerged (Table I).

Data pertaining to psychological distress of PhD scholars have been provided in Table II. It has been observed that 15.3, 26.8, 7.8 and 4.5% of PhD scholars reported to be suffering from mild, moderate, severe and extremely severe depression. So far as anxiety is concerned, 14.8, 20.3, 12.5 and 20% were suffering from mild, moderate, severe and extremely severe anxiety.

TABLE II.—Severity of psychological distress of PhD scholars.

Variable	Severity	Frequency	Percentage
Depression	Normal	183	45.8
	Mild	61	15.3
	Moderate	107	26.8
	Severe	31	7.8
	Extremely severe	18	4.5
Anxiety	Normal	130	32.5
	Mild	59	14.8
	Moderate	81	20.3
	Severe	50	12.5
Stress	Normal	246	61.5
	Mild	78	19.5
	Moderate	50	12.5
	Severe	20	5.0
	Extremely severe	6	1.5

Regarding stress, data indicates that 19.5, 12.5, 5 and 1.5% were suffering from mild, moderate, severe and extremely severe stress. So far as severity of psychological distress is concerned, significant differences have been observed in case of depression and anxiety.

Gender-wise stratification of the variables of depression, anxiety and stress are provided in Table III. Significant difference in the level of depression and anxiety could be found on the basis of gender. As can be seen, males were found to be more depressed as compared to females across all four severity ranges of depression scales. The trend shown in anxiety is interesting wherein; higher levels of mild and moderate anxiety is found among females while higher levels of severe and extremely severe anxiety was found among males. Gender did not perform significant role in determining the stress levels of the students.

Further analysis of data concerning association between psychological distress and socio-demographic and other related variables like family environment and relationship with parents and friends, it has been observed that male scholars were more victim of depression (male M=6.29, SD=3.96; female M=4.86, SD=3.76), anxiety (male M=6.68, SD=4.35, female M=5.53 SD=3.68) and stress (male M= 6.88, SD=3.69; female M=6.14, SD=3.79). When it comes of family environment, scholars coming from friendly family environment (depression M=5.26, SD=3.69, anxiety M=5.82, SD=4.00

TABLE III.—Gender-wise severity of psychological distress of PhD scholars (N.=400).

Variable	Severity	Male (N.=200) N (%)	Female (N.=200) N (%)	χ^2
Depression	Normal	73 (36.5)	110 (55.0)	17.29
	Mild	31 (15.5)	30 (15.0)	
	Moderate	64 (32.0)	43 (21.5)	
	Severe	22 (11.0)	9 (4.5)	
	Extremely severe	10 (5.0)	8 (4.0)	
Anxiety	Normal	63 (31.5)	67 (33.5)	16.17
	Mild	19 (9.5)	40 (20.0)	
	Moderate	37 (18.5)	44 (22.0)	
	Severe	32 (16.0)	18 (9.0)	
	Extremely severe	49 (24.5)	31 (15.5)	
Stress	Normal	116 (58.0)	130 (65.0)	2.35
	Mild	44 (22.0)	34 (17.0)	
	Moderate	26 (13.0)	24 (12.0)	
	Severe	11 (5.5)	9 (4.5)	
	Extremely severe	3 (1.5)	3 (1.5)	

and stress $M=6.26$, $SD=3.71$) were less victim of psychological distress. Similarly, positive and/or good relationship with parents were found to be pro mental health, that is, less vulnerable to psychological distress (depression $M=5.35$, $SD=3.76$, anxiety $M=5.96$, $SD=3.98$ and stress $M=6.38$, $SD=3.68$). Although relationship with friends was observed to be beneficial for psychological well-being, in case of depression ($M=5.41$, $SD=3.86$) only statistically significant difference was observed (Table IV).

Analysis of psychological distress of PhD scholars in terms of age, academic discipline and income indicates that elder scholars, that is, 27 and above years ($M=4.81$, $SD=3.35$) significantly experience more depression. So far as aca-

demical discipline of PhD scholars is concerned, scholars from science disciplines were less vulnerable to psychological distress like depression, anxiety and stress although statistically not significant (Table V). Likewise, statistically income was not found to be predictors of psychological distress. By and large, scholars from low income group of families had been experiencing more depression, anxiety and stress.

Table VI contains the correlation values between the study variables. The results show that there is a high positive correlation between psychological distress variables that is depression and anxiety ($r=0.715$), depression and stress ($r=0.726$) anxiety and stress ($r=0.735$). Although correlation between anxiety and grit was signifi-

TABLE IV.—Means and Standard deviations of depression, anxiety, and stress scores of PhD scholars and its association gender, family environment and relationships with parents and friends ($N=400$).

Variables	Depression	Anxiety	Stress
Gender			
Male (157)	6.29 (3.96) 3.69*	6.68 (4.35) 2.85*	6.88 (3.69) 1.98**
Female (243)	4.86 (3.76)	5.53 (3.68)	6.14 (3.79)
Family environment			
Friendly (356)	5.26 (3.69) 3.81*	5.82 (4.00) 4.06*	6.26 (3.71)
Disturbed (44)	8.09 (4.75)	8.41 (3.86)	8.50 (3.54)
Relationship with parents			
Very good (374)	5.35 (3.76) 4.28*	5.96 (3.98) 2.78*	6.38 (3.68) 2.59**
Not so good (26)	8.69 (4.86)	8.23 (4.63)	8.34 (4.28)
Relationship with friends			
Very good (374)	5.41 (3.86) 3.09*	6.02 (4.10)	6.42 (3.72)
Not so good (26)	7.85 (4.18)	7.38 (3.26)	7.69 (4.02)

Figures out of the brackets are means and those within the brackets are standard deviations, figures after the bracket are t values. Differences in the prevalence across gender, family environment and relationship variables were tested using t -test.
* $P<0.05$; ** $P<0.01$.

TABLE V.—Means, standard deviations and F -scores of depression, anxiety, stress of PhD scholars and its association across demographic variables ($N=400$).

Variables	Depression	Anxiety	Stress
Age			
23-24yrs	4.81 (3.35) 3.69*	6.00 (3.19)	6.30 (3.66)
25-26 yrs	5.43 (3.97)	6.05 (4.35)	6.49 (3.78)
27 and above	6.41 (4.03)	6.31 (3.86)	6.69 (3.76)
Department			
Humanities/social sciences	5.97 (3.60)	6.12 (3.60)	6.67 (3.42)
Science	5.22 (4.06)	5.97 (4.18)	6.29 (3.92)
Commerce/management	5.80 (4.23)	6.68 (5.05)	7.00 (4.16)
Income			
<30,000	6.03 (3.91)	6.51 (4.03)	6.76 (3.79)
30,001 to 60,000	5.29 (3.95)	5.81 (3.75)	6.42 (3.88)
>60,001	4.93 (3.81)	5.58 (4.45)	6.08 (3.48)

Figures out of the parentheses are means and those within the brackets are standard deviations, figures after the bracket are F -values. Differences in the prevalence across age, department and income variables were tested using one-way ANOVA.
* $P<0.05$.

TABLE VI.—Correlation between depression, anxiety, stress, grit and flourishing (N.=400).

Sl. number	Variable	1	2	3	4
1	Depression				
2	Anxiety	0.715*			
3	Stress	0.726*	0.735*		
4	Grit	0.075	0.165*	0.085	
5	Flourishing	-0.257*	-0.240*	-0.244**	0.027

*Correlation is significant at the 0.01 level (2-tailed).

cant, but it was very low. Flourishing has low and negatively correlated with psychological variables *i.e.*, depression, stress and anxiety ($r=-0.299$, $r=-0.276$, $r=-0.244$, $r=-0.243$). In other words, it might be stated that emotional strength towards feeling of competence, having more positive meaning and purpose in life and in developing positive relationship rapidly and successfully.

Discussion

Psychological distress of tertiary level students especially post graduate students is increasing in the western countries as reported by a number of studies.¹⁻³ Limited available evidence on the same issue in the developing countries like India demonstrates psychological distress of tertiary students in terms of academic stress and depression.^{17, 28} However, till date no study in India reported psychological distress of PhD scholars. In this regard, the present study was successful in examining the psychological distress of PhD scholars of Pondicherry University (A Central University). The findings of the present study are similar to another previous study carried out among Post Graduate students at Pondicherry University students in terms of depression.¹⁷ Although the percentage of severe (7.8%) and extremely severe (4.5%) cases of depression among PhD scholars is not very high, the issue requires immediate attention of the top administration of the university for taking corrective measures for ensuring mental health support services which is non-existent in Pondicherry University and most of the Indian universities. If the issue remains unattended, it might lead to serious problem especially for the PhD scholars who are already suffering from extremely severe depression. In the recent past one female PhD scholar of Pondicherry University committed suicide

because of severe financial crises which led to severe depression.²⁹ The life of the same student could be saved had there been mental health support services in the university. Male PhD scholars are found to be more vulnerable to depression as compared to their counterparts. Findings of present study contradict with the findings of previous studies concerning gender difference in depression. By and large, most of the previous studies reported that female students encounter higher academic pressure which lead to higher depression among them as compared to their male counterparts.^{1, 9, 13, 14, 30, 31}

Friendly family environment is found to be facilitating for psychological well-being of the PhD scholars. Family environment helps students to remain psychologically happy and distress free and in turn it strengthens their resilience capacity to face the challenges in life and also motive PhD scholars in pursuing their doctoral research satisfactorily. Similarly, good relationship with parents and friends further enhance the psychological well-being of the scholars. The findings of the present study are in agreement with some of the previous studies carried out among tertiary level students although findings on the same issue related to PhD school are scanty or not available.³¹⁻³⁴

Age of PhD scholars has some positive relationship with psychological well-being although statistically not significant except depression. In other word, it might be stated that younger scholars aged between 23-24 are less vulnerable to depression, anxiety and stress compared to PhD scholars of upper age group. Interestingly findings indicate that science students are less vulnerable to psychological distress compared to PhD scholars from other disciplines. It might be because of two factors like better job prospects and for science students and second perceived supportive guidance from the PhD supervisors.^{35, 36}

At the same time when psychological well-being of PhD scholars is analyzed in terms of income, findings demonstrate that PhD scholars from low income group of families are more vulnerable to psychological distress like depression, anxiety and stress. Poor financial condition causes a lot of constraints in terms of meeting basic academic and other related needs. Some of the previous study also corroborate with the same findings of the present study.³⁷⁻³⁹

Anxiety is another problem which affects a considerable number of tertiary students.^{36, 40} A large number of PhD scholars of Pondicherry University reported experiencing severe (12.5%) and extremely severe (20%) anxiety. It might be because of unsatisfactory progress of research work, pressure from family for economic reasons and/or strain relationship with the supervisor. Like depression, similar trend has been observed in case of anxiety so far as gender is concerned. Some level of anxiety is beneficial for remaining determined in academic pursuit and finally it enhances PhD scholars' performance. Male PhD scholar were suffering from more anxiety than that of female PhD scholars. A number of earlier studies observed the similar findings.⁴¹⁻⁴⁴

So far as stress is concerned, 12.5 and 1.5% reported undergoing severe and extremely severe stress. Causes for stress might be similar to anxiety or different. Undoubtedly severe stress affects the performance of an individual. Higher workload and academic demands might be causing stress for some PhD scholars' in the university. Previous evidence substantiate the present findings in regard to stress of the students at the tertiary level.⁴⁵⁻⁴⁷

High positive correlation between three domains of psychological distress clearly indicates that the scholars who experience stress and anxiety are more likely to become victim of depression. Interestingly, anxiety and grit is found to be related although correlation was weak which justifies that anxiety facilitates grit. As expected, psychological distress is negatively correlated *i.e.*, emotional strength of PhD scholars is affected especially for the PhD scholars who are undergoing psychological distress. In this regard, previous study findings are in agreement with the present study findings.⁴⁸⁻⁵⁰

Limitations of the study

Like any other research, the present study has some limitations. For example, data collection was done based on self-report. So there is a possibility of providing wrong information. The data was collected from the Ph.D. scholars of one Indian University only. It would be helpful if data collected from the Ph.D. scholars from $\frac{3}{4}$ of the other universities in India are covered in the future researches. Also, some of the scholars were not comfortable to participate in the study as subject out of fear.

Conclusions

In a nutshell, the study highlights that 7.5% and 4.5% of PhD scholars were suffering from severe and extremely severe depression, 12.5% and 20% were suffering from severe and extremely severe anxiety and 5% and 1.5% were suffering from severe and extremely severe stress. Surprisingly male scholars were more victims of depression, anxiety and stress as compared to their counterparts and it was statistically significant. Congenial family environment, good relationship with parents and friends were found to be positive factors for psychological well-being. In general, senior scholars reported to be experiencing more psychological distress especially depression. Although income was found to be vulnerable factor for psychological distress, it was not statistically significant. Psychological distress had adverse effect on emotional strength, perseverance and passion for long term goals.

Recommendations

Psychological disturbances of the PhD scholars especially depression, anxiety and stress need immediate attention of the university authority for creating mental health support service facilities in the Pondicherry University, which is totally absent today. Secondly, in order to motivate and sustain the interest of the PhD scholars in their research work, supervisors should give them quality time, monitor progress of their work from time to time and encourage them to write articles for publication in reputed international impact factor journals in addition to encourag-

ing the scholars for submission of abstracts in the national and international conferences. Publications in good journals and exchange of knowledge and experiences with other scholars in the national and international conferences will enhance their emotional strength and make scholars more confident, committed and passionate for long term goals. At the same time, university authority should invite good academics, scholars, noble laureates and scientists for delivering special lecture which will further boost the interest of the scholars. Bringing some parity, if not fully, in terms of scholarship amount across funding bodies for pursuing PhD work would be motivating for the scholars who are getting less amount of scholarship.

Implications

The findings of the study have many implications. Firstly, this is perhaps the first investigation in India on Ph.D. scholars' issue. Therefore, the findings of the present study will generate interest among other researchers to investigate other related issues of the Ph.D. scholars in other universities. Secondly, there is a need to arrange mental health support services for the Ph.D. scholars who are experiencing depression, anxiety and stress especially who are coming from a disturbed family environment so that their emotional issues could be addressed and they can overcome emotional disturbances for pursuing their research work effectively. The peer support services should be strengthened as it is found to be beneficial. If feasible, parental counseling should be arranged especially for the scholars coming from disturbed family environment especially when they come to the university to meet their ward. If necessary, mental health support service providers of the university should reach out to the family members of PhD scholars who are emotionally more disturbed.

References

- Connell J, Barkham M, Mellor-Clark J. CORE-OM mental health norms of students attending university counselling services benchmarked against an age-matched primary care sample. *Br J Guid Coun* 2017;35:41–57.
- Adlaf EM, Gliksman L, Demers A, Newton-Taylor B. The prevalence of elevated psychological distress among Canadian undergraduates: findings from the 1998 Canadian Campus Survey. *J Am Coll Health* 2001;50:67–72.
- Jeglic EL, Pepper CM, Vanderhoff HA, Ryabchenko KA. An analysis of suicidal ideation in a college sample. *Arch Suicide Res* 2007;11:41–56.
- Beck T, Young E. College blues. *Psychol Today* 1978;12:83–92.
- Simpson PL, Schumaker JF, Dorahy MJ, Shrestha SN. Depression and life satisfaction in Nepal and Australia. *J Soc Psychol* 1996;136:783–90.
- Deb S, Strodl E, Sun J. Academic stress, parental pressure, anxiety and mental health among Indian high school students. *Int J Psychol Behav Sci* 2015;5:26–34.
- Deb S, Strodl E, Sun J. Academic-related stress among private secondary school students in India. *Asian Education and Development Studies* 2014;3:118–34.
- Goebert D, Thompson D, Takeshita J, Beach C, Bryson P, Ephgrave K, *et al.* Depressive symptoms in medical students and residents: a multischool study. *Acad Med* 2009;84:236–41.
- Khawaja G, Duncanson K. Using the university student depression inventory to investigate the effect of demographic variables on students' depression. *Aust J Guid Couns* 2008;18:195–209.
- Wong JG, Cheung EP, Chan KK, Ma KK, Tang SW. Web-based survey of depression, anxiety and stress in first-year tertiary education students in Hong Kong. *Aust N Z J Psychiatry* 2006;40:777–82.
- Honkalampi K, Hintikka J, Haatainen K, Koivumaa-Honkanen H, Tanskanen A, Viinamäki H. Adverse childhood experiences, stressful life events or demographic factors: which are important in women's depression? A 2-year follow-up population study. *Aust N Z J Psychiatry* 2005;39:627–32.
- Andrews B, Wilding JM. The relation of depression and anxiety to life-stress and achievement in students. *Br J Psychol* 2004;95:509–21.
- Mikolajczyk RT, Maxwell AE, Naydenova V, Meier S, El Ansari W. Depressive symptoms and perceived burdens related to being a student: survey in three European countries. *Clin Pract Epidemiol Ment Health* 2008;4:19.
- Van de Velde S, Bracke P, Levecque K. Gender differences in depression in 23 European countries. Cross-national variation in the gender gap in depression. *Soc Sci Med* 2010;71:305–13.
- Pledge S, Lapan T, Heppner P, Kivlighan D, Roehlke J. Stability and severity of presenting problems at a university counselling center: A 6-year analysis. *Prof Psychol Res Pr* 1998;29:386–9.
- Voelker R. Mounting student depression taxing campus mental health services. *JAMA* 2003;289:2055–6.
- Deb S, Banu PR, Thomas S, Vardhan RV, Rao PT, Khawaja N. Depression among Indian university students and its association with perceived university academic environment, living arrangements and personal issues. *Asian J Psychiatr* 2016;23:108–17.
- Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther* 1995;33:335–43.
- Bhasin SK, Sharma R, Saini NK. Depression, anxiety and stress among adolescent students belonging to affluent families: a school-based study. *Indian J Pediatr* 2010;77:161–5.
- Ghaderi R, Kumar V, Kumar S. Depression, anxiety and

stress among the Indian and Iranian students. *J Indian Acad Appl Psychol* 2009;35:33–7.

21. Rao S, Ramesh N. Depression, anxiety and stress levels in industrial workers: A pilot study in Bangalore, India. *Ind Psychiatry J* 2015;24:23–8.
22. Singh K, Junnarkar M, Sharma S. Anxiety, stress, depression, and psychosocial functioning of Indian adolescents. *Indian J Psychiatry* 2015;57:367–74.
23. Diener E, Wirtz D, Tov W, Kim-Prieto C, Choi W, Oishi S, *et al.* New well-being measures: short scales to assess flourishing and positive and negative feelings. *Soc Indic Res* 2010;97:143–56.
24. Wolsko C, Lindberg K. Experiencing connection with nature: the matrix of psychological well-being, mindfulness, and outdoor recreation. *Ecopsychology* 2013;5:80–91.
25. Hone C, Jarden A, Schofield G, Duncan S. Measuring flourishing: the impact of operational definitions on the prevalence of high levels of wellbeing. *Int J Wellbeing* 2014;4:62–90.
26. Tang X, Duan W, Wang Z, Liu T. Psychometric evaluation of the simplified Chinese version of flourishing scale. *Res Soc Work Pract* 2016;26:591–9.
27. Duckworth AL, Peterson C, Matthews MD, Kelly DR. Grit: perseverance and passion for long-term goals. *J Pers Soc Psychol* 2007;92:1087–101.
28. Banu P, Deb S, Vardhan V, Rao T. Perceived academic stress of university students across gender, academic streams, semesters and academic performance. *Indian Journal of Health and Well-being* 2015;6:412–6.
29. No authors listed. Girl commits suicide. *The Hindu* 2015, March 5. p.3.
30. Adewuya AO, Ola BA, Aloba OO, Mapayi BM, Oginni OO. Depression amongst Nigerian university students. Prevalence and sociodemographic correlates. *Soc Psychiatry Psychiatr Epidemiol* 2006;41:674–8.
31. Aufseer D, Jekielek S, Brown B. The Family Environment and Adolescent Well-Being: Exposure to Positive and Negative Family Influences; 2006 [Internet]. Available from: <https://naahic.ucsf.edu/wp-content/uploads/2011/02/2006-FamEnvironBrief.pdf> [cited 2020, Sep 10].
32. Cripps K, Zyromski B. Adolescents' psychological well-being and perceived parental involvement: implications for parental involvement in middle schools. *RMLE Online* 2009;33:1–13.
33. Kaneez S. Family environment and psychological well-being among adolescents. *Indian J Posit Psychol* 2015;6:306–9.
34. Sathyabama B, Eljo G. Family Environment and Mental Health of Adolescent Girls. *System* 2014;66:34–40.
35. Elias H, Ping S, Abdullah C. Stress and academic achievement among undergraduate students in University Putra Malaysia. *Procedia Soc Behav Sci* 2011;29:646–55.
36. Jackson A. Depression is no longer the No. 1 mental health concern among college students; 2015 [Internet]. Available from: <http://www.businessinsider.in/Depression-is-no-longer-the-No-1-mental-health-concern-among-college-students/articleshow/47517524.cms> [cited 2020, Sep 10].
37. Ho KY, Li WH, Chung JO, Lam KK, Chan SS, Xia W. Factors contributing to the psychological well-being for Hong Kong Chinese children from low-income families: a qualitative study. *Int J Ment Health Syst* 2016;10:56–9.
38. Kaplan GA, Shema SJ, Leite CM. Socioeconomic determinants of psychological well-being: the role of income, income change, and income sources during the course of 29 years. *Ann Epidemiol* 2008;18:531–7.
39. Taylor M, Jenkins S, Sacker A. Financial capability, income and psychological wellbeing. ISER Working Paper Series; 2011 [Internet]. Available from: https://mascdn.azureedge.net/cms/research_jul11_wellbeing.pdf [cited 2020, Sep 10].
40. Eisenberg D, Gollust SE, Golberstein E, Hefner JL. Prevalence and correlates of depression, anxiety, and suicidality among university students. *Am J Orthopsychiatry* 2007;77:534–42.
41. Donner NC, Lowry CA. Sex differences in anxiety and emotional behavior. *Pflugers Arch* 2013;465:601–26.
42. Kajavinthan K. Gender difference in test anxiety among university students in Jaffna, Sri Lanka. *Int J Sci Res* 2015;4:1398–9.
43. McLean CP, Asnaani A, Litz BT, Hofmann SG. Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *J Psychiatr Res* 2011;45:1027–35.
44. Rezazadeh M, Tavakoli M. Investigating the relationship among test anxiety, gender, academic achievement and years of study: A case of Iranian EFL university students. *Engl Lang Teach* 2009;2:68–72.
45. Bataineh Z. Academic stress among undergraduate students: the case of education faculty at King Saud University. *International Interdisciplinary Journal of Education* 2013;2:82–8.
46. Thawabieh M, Qaisy M. Assessing stress among university students. *Am Int J Contemp Res* 2012;2:110–6.
47. Vredenburg K, O'Brien E, Krames L. Depression in college students: personality and experiential factors. *J Couns Psychol* 1998;35:419–21.
48. Liébana-Presa C, Fernández-Martínez ME, Gándara AR, Muñoz-Villanueva MC, Vázquez-Casares AM, Rodríguez-Borrego MA. [Psychological distress in health sciences college students and its relationship with academic engagement]. *Rev Esc Enferm USP* 2014;48:715–22. Portuguese.
49. Mutalik R, Moni S, Choudhari B, Bhogale S. Depression, Anxiety, Stress among College Students in Bagalkot: A College Based Study. *Int J Indian psychol* 2016;3:179–86.
50. Saïas T, du Roscoät E, Véron L, Guignard R, Richard JB, Legleye S, *et al.* Psychological distress in French college students: demographic, economic and social stressors. Results from the 2010 National Health Barometer. *BMC Public Health* 2014;14:256.

Conflicts of interest.—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions.—Aleena M. Sunny: article writing and modification using supportive evidence; Fathima G. Ashraf, T. Sujith V.S.: data collection (The study is part of her Master's dissertation under the guidance of Prof. Sibnath Deb); Shinto Thomas: data analysis; Kaustav Chakraborty: proof reading and editing; Sibnath Deb: conceptualization and article writing. All authors read and approved the final version of the manuscript.

History.—Manuscript accepted: September 3, 2020. - Manuscript revised: June30, 2020. - Manuscript received: May 3, 2020.