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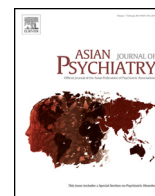
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Depression among Indian university students and its association with perceived university academic environment, living arrangements and personal issues



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ABSTRACT

The aim of the study is to ascertain the level of depression among university students across gender, academic stream, semesters, perception of family environment and relationship with parents, academic performance, and family income. In addition, the study examines the association between students' perceived university academic environment, living arrangements, personal issues, and depression. Seven hypotheses were formulated for verification. A total of 717 students were recruited following the multistage cluster sampling method, and data were collected by a specially designed structured questionnaire, academic achievement record and a standardized University Students Depression Inventory. Findings disclosed that 37.7%, 13.1%, and 2.4% of the students were suffering from moderate, severe, and extremely severe depression. A significant difference was found across semester, that is, semester II students reported a higher level of depression than semester III students. So far as academic stream is concerned, students from humanities and social science were found to be suffering from more depression compared to students from science and management streams. The study further disclosed that the students who reported positive views about the university academic environment and living arrangements had lower level of depression compared to their counterparts. Personal resilience's such as being able to sharing personal problems with others and doing regular exercise were found to be associated with positive mental health. The findings of the study emphasize the need for immediate mental health support services for about 15.6% of the students who were either suffering from severe or extremely severe depression at the University.

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1. Introduction

India is in the third position in terms of number of higher learning institutions after United States and China. As per the Ministry of Human Resource Development report the number of Universities has tremendously raised from 20 in 1950–677 in 2014 (Ministry of Human Resource Development, MHRD, Government of India, 2015).

This increase in students' enrolment in higher education has also witnessed dramatic increase in mental health problems. Presently, large funds are invested in education. It is the students

that represent the world's investment for future. Their mental or psychological health and well-being are very imperative not only for their own growth but also for contributing to the society's welfare. There is evidence that implies vulnerability of mental health problems in university context. Many studies reveal high rates of stress and depression among university students worldwide (Busari, 2012; Chen et al., 2013; Shamsuddin et al., 2013; Pidgeon et al., 2014; Pozos-Radillo et al., 2014).

A dysphoric mood is a normal phenomenon in life. If it persists for a long period of time and is debilitating then it can be considered of as a clinical level of depression. During the developmental phase, each individual experiences various stressors. Some people may cope with these challenges while other may not be able to do so. Resilience, personal resources and capacity of an individual play an important role in the management of these

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stressors. In tertiary education, a high number of students move away from families and stay in boarding houses. Apart from loneliness, new environment, academic demands, peer group pressure, financial strains, and relationship with new friends are some of the common issues that turn out to be stressors for some students. The students who are unable to cope and lack social support may experience depression or anxiety (Bouteyre et al., 2007; Dyson and Renk, 2006; Eisenberg et al., 2007; Verger et al., 2010). The depression is not only debilitating, it can be dangerous and life threatening as indicated by the following excerpt from local newspaper (The Hindu, Chennai, India) published on March 5, 2015.

Unable to afford her PhD fees, a 28-year-old grand-daughter of a flower seller in Devanampattinam, Cuddalore district, Tamil Nadu (India), ended her life on Wednesday (March 4, 2015). According to police, Uma Maheshwari was pursuing Ph.D. at Pondicherry Central University. She hung herself after failing to mobilize the Rs.20,000/education fees. Her grand- mother Sakunthala said, 'I was bringing up granddaughter with my meager earnings. A few days ago, I fell down and was injured. Since then, I have not been able to earn an income to meet her fee requirement' – (The Hindu, Chennai – Girl commits suicide, p.3, March 5, 2015).

The evidence indicates that depression affects a large number of university students (Connell et al., 2007), is higher among university students than the general population (Adlaf et al., 2001) and can lead to catastrophic consequences such as suicide (Kisch et al., 2005; Beck and Young, 1978; Simpson et al., 1996).

When students move away from the comfort and safety of their family homes for tertiary education, they have to socialize with new people and establish a social network, which may be a cause of distress. Higher education is very expensive and can cause financial strains for the students. There is a higher workload and academic demands are more extensive than the school education, causing stress for some students (Lyubomirsky et al., 2003; Vredenburg et al., 1988). The students' beliefs and cognitions can play an important role in their adjustment or maladjustment. Those who have very high expectations from their own selves and are critical of academic performance can be at risk of mental health issues. An ongoing dissatisfaction with their own academic performance can lower their motivation to study, thus hindering the academic performance (Lyubomirsky et al., 2003; Vredenburg et al., 1988). All of these stressors can take a toll and increase the risks of depression and suicide. Due to these reasons students, in general, consult university counseling centers for depression related problems (Pledge et al., 1998; Voelker, 2003). It is important to note that in India, to date, universities still lack the facility of counselling centers, where trained counselors and psychologists can assist students at an early stage of stress in order to prevent further complications like clinical depression and suicide.

The gradual expansions in the tertiary education sector in the form of an increased number of student population, diverse disciplines and technological developments have made universities very impersonal places leading to low social support and isolation among students (Connell et al., 2007). The first year students become more vulnerable to depression due to their feeling of loneliness, new environment, cultural shock, and homesickness (Adlaf et al., 2001; Cooke et al., 2006; Friedlander et al., 2007; Leahy et al., 2010). It is also clear from the evidence that the more the courses progress, students gradually realize the complex nature of the courses, and the increased academic demands depress students more (Adlaf et al., 2001). In general, female students are reported to encounter higher academic pressure and it's after effect i.e., higher depression compared to their counterparts i.e., male students (Mikolajczyk et al., 2008; Van de Velde et al., 2010). Students who are not being able to arrange

tuition fees because of poor financial condition and unable to get a job and meet the daily living expenses have been found to be at an increased risk of poor mental health, including depression as reported by Andrews and Wilding (2004). Another study indicated that rental accommodation and poor quality housing diminishes the psychological well-being of the students who reside there (Christie et al., 2002).

Very limited studies have reported the issue of depression among Indian university students. The secondary data available from the National Crime Records Bureau (NCRB) Report, 2014, Ministry of Home Affairs, Government of India indicates that every day 6.77 students from different age groups commit suicide in India because of depression caused by the academic failure. At the same time, it has been reported by a number of studies of western countries that perceived family environment, positive relationship with parents, past academic performance, economic condition of the students, perceived academic environment, living arrangements and personal issues have some positive association with level of depression of the University students (Heiligenstein et al., 1996; Coombs, 1991; Khawaja and Duncanson, 2008).

Given this background, the urgency was felt to carry out a systematic study to get a clear idea of the level of depression among India university students and its association with university academic environment, living arrangements and other related factors.

Objectives: The objectives of the study were two-fold.

1. First, to study the depression of Pondicherry University students across gender, academic stream, semesters, academic performance, and family income.
2. Second, to examine the association between students perceived university academic environment, living arrangements, personal issues, and depression.

Hypotheses

- H-1: Depression of male and female students, irrespective of academic streams and semesters, would differ significantly.
- H-2: Depression of semester II and III students, irrespective of gender and academic stream, would differ significantly.
- H-3: Students, who have good relationship with families and feel supported, would have significantly lower level of depression than those who do not feel supported or have a good relationship with their families.
- H-4: Students level of depression would significantly differ on the basis of their disciplines, irrespective of gender and semesters.
- H-5: Students, who have high academic performance, would have significantly lower level of depression than those who are performing poorly.
- H-6: Students, who are from financially sound background, would have significantly lower level of depression than those who have financial stressors.
- H-7: Students, who perceived university academic environment, living arrangements, and personal issues as positive would have significantly lower level of depression compared to those who have negative perceptions.

2. Methods

2.1. Site

The study was carried out in Pondicherry University (A Central University) located in Puducherry. Students after completion of three year undergraduate course come to the Pondicherry

University for Master's Degree in various subjects. In addition, some students come after completion of 10 + 2 course for attending five year integrated courses in limited departments. The University has four campuses. The Main Campus is located at Puducherry and the other three off-university campuses are located at Mahe, Karaikal and Port Blair. The University has made a giant leap in promoting usage of Information & Communication Technology (ICT) products/services in the areas of teaching/learning, research and administration. It offers rent-free accommodation to all female students and provides totally-free education to all the disabled students. The University has over 450 faculty members and 5000 students from across the country. These students are enrolled in postgraduate courses. In addition, about 45,000 students are enrolled in 87 colleges affiliated with Pondicherry University. The academic year comprises of two semesters. Each semester is six months long.

2.2. Participants

A group of 717 students, 402 males and 315 females, from four schools of Pondicherry University took part in the study. Students belonged to three age groups: 60.8% in the 21–22 year old age group, 30.8% in 23–24 year old age group, and the remaining 8.4% belonged to the 25–26 year old age group. About 45% of the students had one sibling while 44.6% had two or more siblings. About 10% of the students were the only child to their parents. Approximately an equal number of students were enrolled in Semester II (48.1%) and Semester III (51.9%) subjects. They were enrolled in Science (29.3%), Humanities and Social Sciences (31.2%) and Management (39.5%) courses.

2.3. Measures

The following measures were used in the study:

- (i) **Structured Questionnaire:** A specially designed structured questionnaire, developed by Deb and Banu (2013), was used. There were two sections of the structured questionnaire. Section I had 12 items measuring the participants age, gender, number of siblings, semester they were enrolled in, academic stream, academic performance in the last examination, parents education and occupation, perceived family environment, family monthly income, and nature of relationship with parents. Section II, also comprised of 12 dichotomous items with yes or no responses, and was mostly related to the perception of students about the university academic environment, living arrangements, and personal issues. For example, (i) Are you able to follow the classes? (ii) Are you able to clarify your academic queries with the teachers? (iii) Do you feel academically stressed? (iv) Are you happy with your living arrangements in the university campus? (v) Is there any problem which is bothering you mentally? (vi) Are you able to share problems with others? (vii) Are you involved in romantic relationship? (viii) Are you taking alcohol regularly? Items were examined by three experts for relevance and clarity. Based on their feedback the items were refined and the questionnaire was finalized.
- (ii) **University Student Depression Inventory (USDI)** (Khawaja and Bryden, 2006): This 30-item scale, with three factors, measures depressive symptoms among university students. Depression is manifested by cognitive, emotional, lethargy, and academic motivational symptoms. Using a five-point Likert scale ranging from one (not at all) to five (all the time), the respondents refer to each item and indicate how often each of them has experienced depressive manifestation in the past 2 weeks. The Cronbach's alpha of that total scale and the

subscales ranged from 0.84 to 0.95. Test-retest for total and sub scales range from 0.76 to 0.91. Convergent and discriminant validity is described as satisfactory (Khawaja and Bryden, 2006). Cut-off levels are developed to assess the level of severity (Romaniuk and Khawaja, 2013). Higher scores indicate an elevated level of student depression.

- (iii) **Academic Achievement Record:** The students academic performance was measured by Choice-Based Credit System (CBCS). Pondicherry University follows CBCS system for the evaluation of students performance in every semester. CBCS system is student friendly. As per CBCS system students can choose some soft core subjects as per their choice in addition to compulsory courses of their subject.

2.4. Procedure

The participant's were selected following multistage cluster sampling method.

Step I: From the list of eleven schools of Pondicherry University, four schools (School of Humanities, School of Social Sciences, School of Physical, Chemical and Applied Science and School of Management) were selected randomly.

Step II: Further from each school, three departments were selected randomly except School of Humanities. From School of Humanities two departments were selected. Thus altogether eleven departments were selected.

Step III: At the time of data collection, researchers invited all students from Semester II and III of the selected departments to participate in the study.

2.4.1. Data collection and analysis

Clearance was obtained from the Institutional Ethical Committee of the Pondicherry University for the present study. Since the number of students from the School of Humanities and Social Sciences was low, they were clubbed together for data analysis. Permission from the Head of all the Departments was obtained for data collection. In consultations with the Departmental Heads, a tentative time schedule for data collection was prepared. Researchers used this schedule to collect data. Written consent was obtained from all the students who agreed to participate in the study. The participants completed the hard copy version of the questionnaires. Confidentiality was explained and it was pointed out they were free to withdraw from the study at any point. In addition to calculation of frequency and percentages, 't'-test and one way ANOVA were applied for meaningful interpretation of data.

3. Results

3.1. Data cleaning screening and preliminary analyses

Assumptions of normality of data were checked. After scrutiny 11 data sheets were found to be incomplete and they were rejected. All complete data sheets ($n = 717$) were used in the analyses. SPSS software package was used for data analysis. Independent *t*-test was used to compare academic stress scores across various socio-demographic variables in the sample. One-way ANOVA test was applied to compare across multiple group. The internal consistency of the scales was investigated. The Cronbach's alpha of the USDI based on Indian sample was 0.92, indicating that the scale is internally consistent.

Descriptive statistics were used to examine the academic performance of the participants and their perceptions of their family and environmental support.

Table 1
Perceived family environment and relationship with parents and friends (N = 717).

Perception	Mode of Response	n (%)
Perceived Family Environment	Congenial (Friendly)	634 (88.4)
	Not congenial (Disturbed)	83 (11.6)
Relationship with Parents	Very good	624 (87)
	Not so good	93 (13)
Relationship with Friends	Very good	603 (84.1)
	Not so good	114 (15.9)

The academic performance was rated as very good (CGPA: 9–10), good (CPGA: 8–7) and moderate (CPGA: 5–6). Participants were categorized as very good (10.3%); good (58.2%) and moderate (21.9%). Only 6% of the students were found to be struggling with a CGPA below 5. An overwhelming number of students (88.4%) perceived their family environment to be congenial and friendly whereas the remaining 11.6% perceived their family environment to be disturbing. Likewise, relationship with parents of 87% of the students was reported to be very good (Table 1).

3.2. Incidence of depression among university students

The severity of depression was evaluated. Data indicated that participants were suffering from extremely severe (2.4%), severe (13.0%), and moderate (37.7%) levels of depression. With respect to different categories of depression, z-test for proportions indicated non-significant difference between genders, that is, an equal proportion of male and female students were vulnerable to depression (Table 2).

3.3. Factors impacting depression

A series of independent *t*-tests were used to examine how the participants experienced of depression were impacted by their gender, semester and perception of family environment. The mean score of depression for men and women students was examined. Although there was trend that women were more depressed than men, it was not statistically significant. However, a statistically significant difference was found between semester II and semester III students of the university ($p < 0.05$). Semester II students were reported to suffer from a higher degree of depression. Semester II students who are in the second half of the first year of university education reported a higher level of depression than those who were in semester III students, that is, first half of the second year.

Likewise, perceived family environment was found to have a positive impact of the levels of depression, that is, the students who perceived the family environment to be congenial were found to be suffering from low depression compared to their counterparts ($p < 0.01$). Similarly, the students who shared a positive relationship with their parents suffered from low depression

compared to students whose relationship with their parents was reported to be “not so good” ($p < 0.01$) (Table 3).

One-way ANOVAs were conducted to investigate how the students' depression was influenced by their discipline. Students from humanities and social sciences are reported to have significantly higher levels of depression compared to students from science and management streams ($p < 0.05$) (Table 4). Further, one-way AVOVA results (F value = 3670) indicated that compared to students with moderate and above average academic performances, students performing poorly were suffering higher level of depression ($p < 0.01$). No significant difference was found in depression among students coming from different economic backgrounds (F value = 2.169).

3.4. Students perceptions and depression

Students' perception about university academic environment, living arrangement, and personal issues and problems was explored and depicted in Figs. 1 and 2. Five items were related to the university academic environment and living arrangement and the remaining seven items were related to personal issues and problems.

Furthermore, an effort was made to examine the impact of students' perceived university academic environment, living arrangement, personal issues on their experiences of depression. Independent sample *t*-test results clearly indicated a positive association between the perception of university academic environment in first four items and living arrangement (fifth item) and depression. For example, students who could not follow the contents of the classes significantly manifested more depression than the students who were able to follow the classes ($p < 0.01$). Similarly, the depression score of the students who were not happy with the living arrangements in the university campus was found to be significantly higher compared to their counterparts, that is, those who expressed happiness about the living arrangements ($p < 0.01$).

So far as personal issues and problems were concerned as indicated by items 5–12, *t*-test results also disclosed statistically significant differences in all items except two, that is, involvement in romantic relationship and alcoholism and depression. In other words, it might be stated that the students who were able to share personal problems with others ($p < 0.01$), who were not bothered by any issue mentally ($p < 0.01$), who were not currently suffering from any major health problems ($p < 0.01$) and used regular exercise ($p < 0.05$) had lower levels of depression compared to those who were not engaged in these activities (Table 5).

4. Discussion

Depression is a common problem among the university students. It is debilitating and has a detrimental impact on students psychosocial, emotional and interpersonal functioning and academic performance. Subsequently, there has been a strong emphasis on studying depression in this population (Deb et al., 2015, 2014; Goebert et al., 2009; Khawaja and Duncanson, 2008; Wong et al., 2006; Honkalampi et al., 2005). To the authors' knowledge, the present investigation is first attempt in India to examine the depression of the university students as no secondary evidence is available on depression of Indian university students. The present study is an initial step in attempting to understand the depressive experiences of the university students using appropriately developed scales. All except two hypotheses are supported. There was no difference in the level of depression based on gender. Depression was impacted by the semester (earlier semester was more challenging than the later semesters), discipline, financial status and academic performance. Personal resources, such as

Table 2
Proportion of university students within each category of depression inventory (N = 717).

USDI Category	Male Students		Female Students		Total	
	n	%	n	%	n	%
Low (SR: 30–73)	176	43.8	160	50.8	336	46.9
Moderate (SR: 74–95)	159	39.6	111	35.2	270	37.7
Severe (SR: 96–118)	57	14.2	37	11.7	94	13.1
Extremely Severe (SR: 119–147)	10	2.5	7	2.2	17	2.4

Note: Column proportions do not differ significantly from each other at the 0.05 level.

High score indicates high depression.

Table 3

Impact of gender, semesters, perceived family environment and relationships with parents on students depression.

Variables	Mode of Response	N	Mean	SD	df	t-test	Level of Sig.
Gender	Male	402	77.15	18.46	715	1.579	0.115
	Female	315	74.95	18.68			
Semesters	Semester II	345	77.69	18.78	715	2.097	0.036 [*]
	Semester III	372	74.79	18.30			
Perceived family environment	Congenial	634	74.40	17.94	715	−7.368	0.000 ^{**}
	Not congenial	83	89.82	17.79			
Relationship with parents	Very good	624	74.41	17.98	715	−6.822	0.000 ^{**}
	Not so good	93	88.08	18.22			

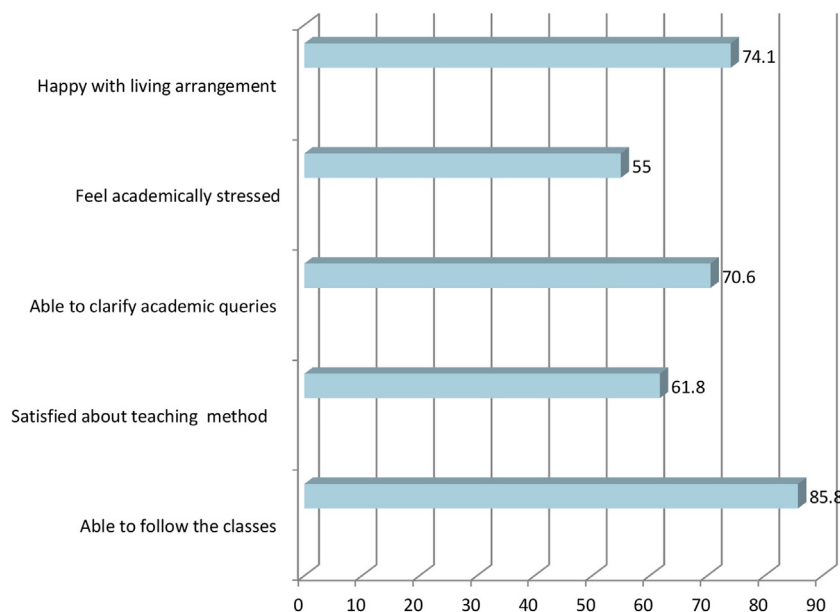
NS: Not significant.

^{**} Significant at 0.01 level.^{*} Significant at 0.05 level.**Table 4**

Showing one-way ANOVA results concerning depression of the students and its association with academic streams, performance, and family income.

Variables	Mode of Response	Mean	SD	F	Level of Sig.
Across Academic Streams	Science	73.43	16.37	3.670	0.026 [*]
	Management	76.69	18.45		
	Humanities & Social Sciences	78.13	20.37		
Across Academic Performance	Very good (CGPA 9–10)	69.92	18.20	12.56	0.000 ^{**}
	Good (CGPA 7–8)	74.93	18.01		
	Moderate (CGPA 5–6)	80.67	17.72		
	Poor (CGPA below 5)	86.6	20.69		
Across family monthly income	Less than Rs.25,000	77.64	18.28	2.169	0.115
	Rs.25,001–50,000	74.38	17.81		
	Rs.50001 and above	75.39	19.89		

NS: Not significant.

^{**} Significant at 0.01 level.^{*} Significant at 0.05 level.**Fig. 1.** Perception of students about academic environment and living arrangements (provided 'yes' responses only).

good relations with family and positive perceptions of the university, sharing personal problems with others and engaged in regular exercise were found to facilitating for better mental health.

The prevalence of depression among the participants of the present study is aligned with the data emerging from other countries (Goebert et al., 2009; Vazquez and Blanco, 2006). It supports the universal nature of students' depression. It seems that

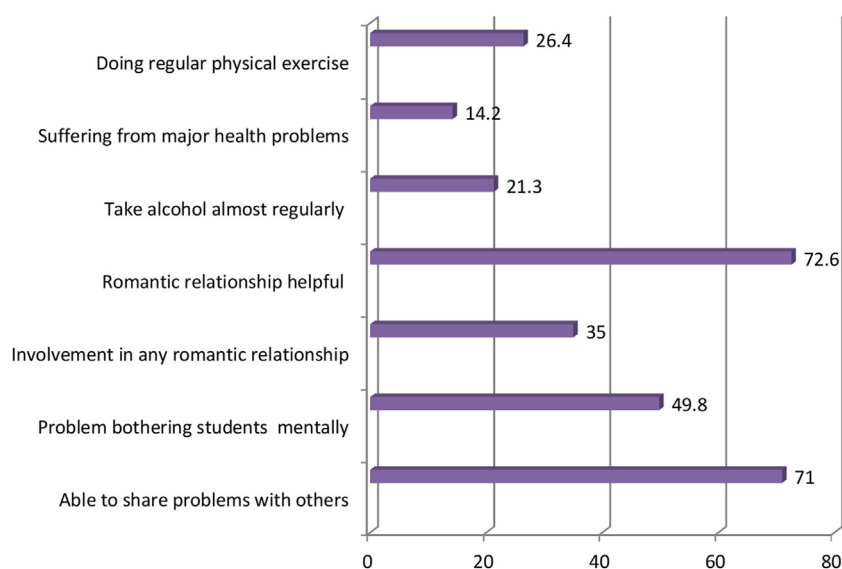


Fig. 2. Personal issues and problems (provided 'yes' response only).

Table 5

Association between students' perceived university academic environment, living arrangements, personal issues, and depression (N = 717).

Item No.	Item	Mode of Response	N	Mean	SD	't'-test	Level of sig.
1.	Able to follow the classes	Yes	613	74.43	17.76	-0.636	0.000*
		No	104	86.55	19.97		
2.	Satisfied about teaching method	Yes	443	73.69	18.037	-4.67	0.000*
		No	274	80.22	18.77		
3.	Able to clarify your academic queries with the teachers	Yes	506	73.16	18.25	-6.96	0.000*
		No	211	83.44	17.35		
4.	Feel academically stressed	Yes	394	79.28	18.73	5.01	0.000*
		No	323	72.41	17.70		
5.	Happy with the living arrangement in the university campus	Yes	531	74.95	17.87	-3.03	0.002*
		No	186	79.73	20.09		
6.	Able to share problems with others	Yes	509	73.03	17.85	-7.37	0.000*
		No	208	83.90	18.10		
7.	Problem bothering students mentally	Yes	357	82.02	18.67	8.804	0.000*
		No	360	70.40	16.59		
8.	Involvement in any romantic relationship	Yes	251	76.29	18.75	0.107	0.915
		No	466	76.13	18.50		
9.	Romantic relationship helpful in academic pursuit	Yes	180	72.97	17.46	-4.93	0.000*
		No	68	84.56	19.18		
10.	Take alcohol almost regularly (699 students responded to this question)	Yes	153	78.22	18.97	1.53	0.126
		No	546	75.63	18.45		
11.	Currently suffering from any major health problems	Yes	102	82.31	18.38	3.62	0.000*
		No	615	75.17	18.43		
12.	Doing regular physical exercise	Yes	189	73.71	18.19	-2.13	0.033**
		No	528	77.07	18.65		

NS: Not significant.

* Significant at 0.01 level.

** Significant at 0.05 level.

irrespective of the state and region university education is challenging and students are at risk of experiencing depression. Universities in the west take the students depression seriously and have established counselling services for students. In India, unfortunately, these facilities are absent.

The students who were suffering from severe and extremely severe depression require immediate attention of the mental health professionals so that they do not develop suicidal ideation. A range of factors may be influencing the Indian students' depression. They were systematically explored in the present study.

Gender-wise comparison of depression scores demonstrated statistically no significant differences. This finding contradicts with some of the previous study findings where female students were reported to be suffering from more depression in comparison with male students (Khawaja and Duncanson, 2008; Adewuya et al., 2006; Connell et al., 2007; Herrero and Meneses, 2006; Mikolajczyk et al., 2008; Van de Velde et al., 2010). It seems that in India both genders have similar type of experiences. A desire to go for higher education among female students and to be economically independent might be the cause of stress among female students like male students.

Similarly, semester-wise comparison of depression scores indicated that semester II students suffered from more depression than semester III students. It might be because of a number of reasons like academic demands for semester II students are more as students are still new to the university and less familiar with its environment. These findings are consistent with another study, which found junior students more vulnerable to depression compared to their senior students (Wong et al., 2006). Some studies have compared rates of depression between undergraduate and postgraduate students. One study did not find any difference in depression scores of students on year level basis (Vredenburg et al., 1988), whereas another study (Oliver and Burkham, 1979) reported depression to be negatively related to the years in school; students were more depressed in early years than later years.

Perceived congenial family environment and positive relationship with parents are found to be facilitating for positive mental health of the students, that is, the students whose family environment is perceived to be happy was suffering from less depression compared to the students whose family environment is not happy. Congenial/happy family environment and positive relationships with parents give a sense of mental peace, emotional support, and feeling of security, and thereby students coming from same family background remain emotionally more stable and are able to concentrate more on studies and face the challenges in life comfortably (Coombs, 1991; Kessler and Essex, 1982).

The statistical analysis of depression score of the students coming from three academic streams demonstrate a significant difference, that is, the students coming from Humanities and Social Sciences were suffering from more depression followed by students from Management and Science background. Although the reasons are not clear at the moment, it is possible that it may be related to better job prospect for the students from Science and Management background in the Indian society. The issue requires attention of the academic administration of Humanities and Social Science departments of the university. Special classes should be organized for the Humanities and Social Science students to make them psychologically more competent to develop skills and adopt effective strategies to manage stress and symptoms of depression. Earlier studies where comparison was made between students enrolled in law and medical faculties, significant difference was found in the depression scores of students in the said two faculties (Gutierrez, 1985; Dammeyer and Nunez, 1999). This is consistent with Khawaja and Duncanson (2008), who found higher level of depression among the university Faculties of Health, Law, and Education. Students from the Faculty of Health, for example, were found to have the lowest level of depression compared to the other Faculties (Khawaja and Duncanson, 2008).

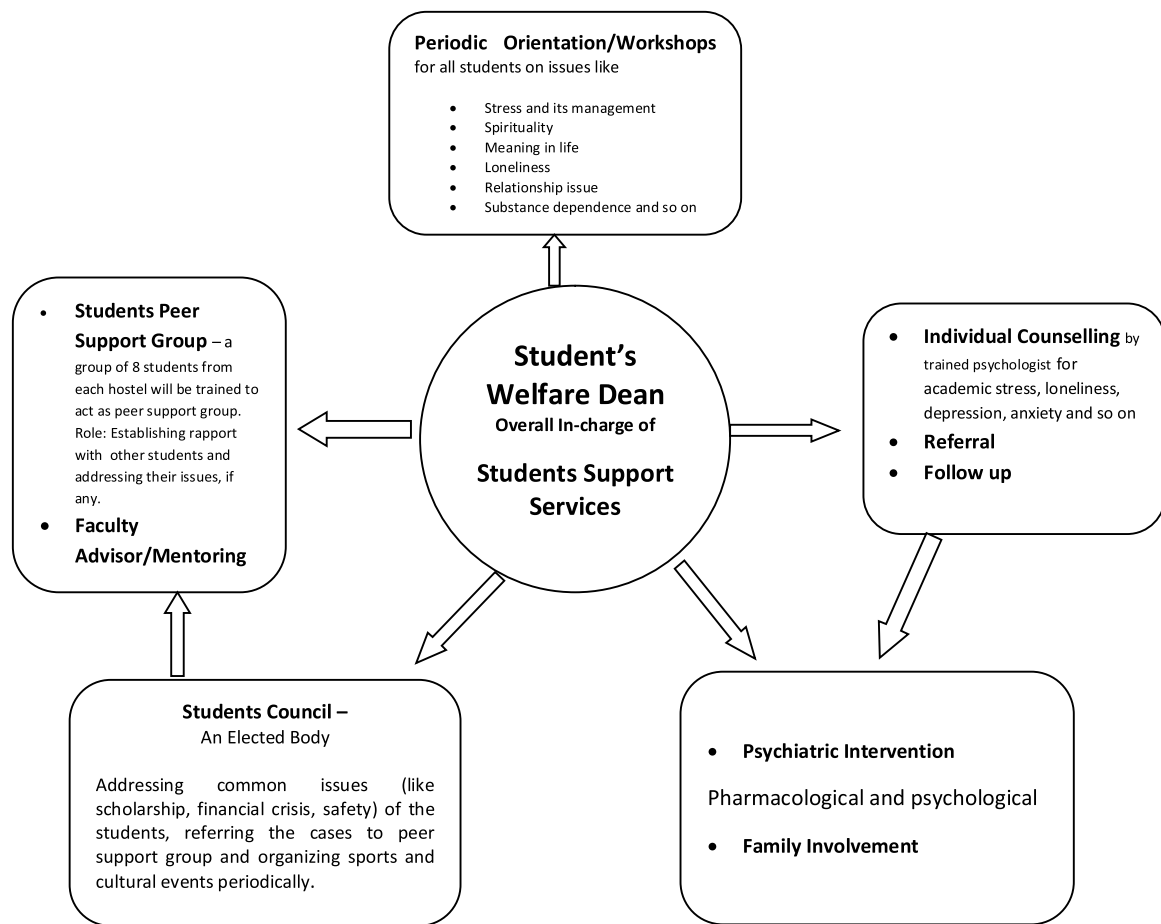
Depression scores of the students with different academic performance in the last semester examination clearly highlights significant difference indicating that students with poor (CGPA below 5) and moderate (CGPA between 5 and 6) academic performance were suffering from more depression. However, students with poor and moderate performance require special attention from the teachers of the respective departments for guidance. Although monthly family income was not found to be a

strong determinant factor for depression of the students, the trend indicated that depression level was elevated for those who were coming from lower socio-economic background. A number of previous studies highlighted significant association between low socio-economic background and depression (Honkalampi et al., 2005; Roberts et al., 1999). Since students from low socio-economic background are unable to meet all essential expenses related to higher studies, they become more vulnerable to depression.

Students' perception about university academic environment, living arrangements, and personal issues unearthed some interesting features. The majority of the students were satisfied by their learning process and the teaching style and methods. They were comfortable to ask academics to clarify questions. Most were satisfied by their living arrangement. Nearly half of the students were academically stressed and some not happy with their living arrangements. This indicates that there is a proportion of students' population that is under duress. Findings of the present study with respect to perception of students about living arrangements corroborate with the findings of another study carried out by Khawaja and Duncanson (2008). Khawaja and Duncanson (2008) also observed positive association between higher levels of depression with poor accommodation arrangements. Dissatisfaction with living arrangement is a significant stressor for both students and nonstudents. Conflict with housemates, poor quality housing, noise levels, and an unpleasant neighborhood are the other causes of dissatisfaction, as indicated by Khawaja and Duncanson (2008). Satisfaction with one's living environment is believed to provide a sense of good quality life, which in turn plays a positive role for good mental health (Christie et al., 2002) whereas dissatisfaction with one's living arrangement may cause additional strain and pose a significant risk to wellbeing (Chow, 2005).

These issues related to students' perception needs to be given importance by the academic administrators and in this regard the authority should take feedback from the students for taking issue specific corrective measures. So far as personal issues and problems are concerned, about half of the students are reported to be bothered by some problems, which they are unable to share with anybody. Taking alcohol almost regularly by one-fifth of students and suffering from mental problem by two-fifth are some of the emerging issues that require individual attention from professional psychologists or trained counselors so that they can help the students to find solution for their challenges.

Encouraging students for regular physical exercise is also necessary to make them physically fit and emotionally stable. Analysis of data concerning association of students' perception about university academic environment, living arrangements, personal issues, and depression clearly demonstrate a negative relationship between perception and depression, that is, the students being not able to follow the classes were suffering from depression significantly like the students who were not satisfied about the teaching method and who could not clarify their academic queries with the teachers. The students who felt academically stressed were significantly suffering from more depression like the student who was bothered by some issues mentally. In case of personal issues, students who were taking alcohol regularly and suffering from major health problem manifested more depression. Interestingly, the students who were doing regular physical exercise were found to be less vulnerable to depression than that of the students who were not doing any physical exercise. These findings highlight the efficacy of physical exercise on mental health and corroborate with findings of a number of previous studies (Hegberg and Tone, 2015; Klaperski et al., 2013; Greenwood and Fleshner, 2011; Spalding et al., 2004). Physical exercise should be promoted for better mental health of



Objective: Creating student friendly environment

Chart 1. A Conceptual Model for Addressing Students Issues and Concerns Holistically in Pondicherry University.

university students. Research on nonhuman species also suggests that physical activity (PA) leads to a positive effect on mental health (Dishman, 1997; Greenwood and Fleshner, 2011). The evidence also highlights that PA makes an individual less vulnerable to severe mental health problem like depression (Fox, 1999).

4.1. Implications

Findings of the present study are eye opener for the university administration about students' mental health and its needs. Currently, mental health support services for students in the higher learning institutes in India are absent in most of the institutes. Surprisingly, administrators of higher learning institutes in India do not give minimum attention for mental health needs of the students.

4.2. Limitations

Results should be taken with caution. The sample is restricted to some departments of one university only. Future studies should collect data from multiple universities in India with an emphasis on all faculties. Further, the present study is based on self-report and could be impacted by social desirability and retrospective bias.

Future studies should use qualitative methods to conduct in-depth analysis.

4.3. Recommendations

The present Indian study revealed that university students can be in duress. Therefore, there is an urgent need to arrange mental health support services for the university students by professional psychologists in terms of individual and group counseling. In general, people in Indian society are hesitant to seek mental health support services due to ignorance and social stigma and taboos. Therefore, awareness programmes on depression and the utility of mental health support services among students through workshops and leaflets will be highly beneficial in motivating them to come forward for the support services. In addition to face to face support services, web-based prevention programmes can be adopted for disseminating information about the most common challenges faced by the students since today's students' are highly connected to digital and web-based technologies (Davies et al., 2014). The evidence also confirmed that cognitive, behavioral, and mindfulness interventions are effective in reducing stress in university students (Regehr et al., 2013). The authorities of the university should take appropriate measures in a sensitive manner concerning students' perception of academic environment and living arrangements. A conceptual mode has been proposed for

addressing the issues and challenges faced by the university students (Chart 1).

5. Conclusion

In spite of the limitations, to the authors' knowledge, this is the first comprehensive study on depression of university students in India. The results indicate that though majority of the students are doing well, a proportion of them are severely depressed. Those who were in their earlier phase of education and in Social Science and Humanities, performing poorly academically, from low socio-economic class reported more depression than the others. Further, those who felt unsupported by families also experienced a higher level of depression. On the flip side, students who have been in the university for a longer period, Science and Management students, scoring high academically, from higher socioeconomic class, supported by family and use positive coping strategies like regular exercise and sharing problems with others were psychologically healthy.

Conflict of interest

There is no conflict of interest involved in it.

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