

# A Descriptive Study to Assess the Knowledge of PU College Science Teachers Regarding Selected Psychosocial Problems of Late Adolescents in Selected PU Colleges of Bidar

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**Abstract:** **Background:** Globally, approximately one in seven adolescents experiences a mental health disorder. Depression, anxiety, and behavioral disorders are among the leading causes of illness and disability in this age group. 1 Schools play a vital role in promoting adolescent mental health because teachers spend considerable time with students. The heavy burden of adolescent mental health problems, many teachers have less knowledge and recognizing psychosocial disorders. Studies have shown that structured educational interventions significantly improve teachers' knowledge, attitudes, and help-facilitation skills related to adolescent mental health. 2,3 psychosocial problems among late adolescents and the important role of teachers in early identification and referral, assessing the knowledge of PU college science teachers regarding selected psychosocial problems is essential. **Aims/Objectives:** To assess the level of knowledge regarding selected psychosocial problems among PU college science teachers. **Association between knowledge scores and demographic variables of PU college science teachers.** **Method And Methodology:** The study was conducted among 50 PU college science teachers using a structured knowledge questionnaire. Data was analyzed using descriptive statistics such as frequency, percentage, mean, standard deviation, and chi-square test was used to determine the association between knowledge scores and selected demographic variables. **Result:** The study revealed that among 50 PU college science teachers, 27 (54%) had inadequate knowledge and 23 (46%) had moderate knowledge. Mean knowledge score was  $21.08 \pm 7.63$  with a mean percentage of 56.15%. The highest knowledge score was found in Signs and Symptoms and Diagnosis (70.33%), while the lowest was in Health Education on Prevention and Treatment (44.2%). No significant association was found between knowledge and demographic variables. **Conclusion:** The study concluded that PU college science teachers has moderate knowledge regarding selected psychosocial problems of late adolescents. Most teachers lacked adequate knowledge, especially in management and prevention aspects. They need for structured educational programmes to improve teachers' knowledge and skills in early identification and support of adolescents with psychosocial problems.

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## I. INTRODUCTION

Adolescence is a significant stage of human development characterized by rapid physical, emotional, cognitive, and social changes. During this period, adolescents are vulnerable to various psychosocial problems such as depression, anxiety, stress, substance use, behavioural problems, and suicidal

tendencies, which may negatively affect their academic performance, relationships, and overall well-being. According to the World Health Organization, mental health problems affect a considerable proportion of adolescents worldwide, and early identification and appropriate support are essential to prevent long-term consequences.<sup>4</sup> Schools provide an important setting for promoting adolescent mental health, as

teachers interact closely with students and can identify early signs of emotional and behavioural difficulties.<sup>5</sup> Teachers knowledge and awareness regarding psycho- social problems play important role in early recognition, guidance, referral, and prevention among adolescents. However, inadequate knowledge among teachers may delay identification and management of these problems.<sup>6</sup> Therefore, assessing the knowledge of PU college science teachers regarding selected psychosocial problems of late adolescents is essential to identify existing gaps and develop effective educational programmes for improving adolescent mental health support.<sup>7</sup>

## II. METHOD AND METHODOLOGY

- **Research Approach:** The descriptive study with non experimental to assess the knowledge of PU college Science teachers regarding selected psychosocial problems of late adolescents in selected PU colleges of Bidar.
- **Research Design:** The research design for the present study was non experimental cross sectional study design . A research design helps the researcher in selection of subjects for study and determines the type of analysis to be used to interpret the data.
- **Study setting:** The study subjects was selected from the selected PU colleges at Bidar.
- **Target Population:** The target population for the present study was PU college science teachers working at Selected PU colleges.
- **Sample:** A sample consists of the units that comprises the population. PU college science teachers working at selected PU colleges at Bidar.
- **Sample Size:** The sample size was 50 PU college science teachers.
- **Sampling Technique:** In this study the purposive sampling technique was used to collect data from the available samples falling under inclusion criteria. Sampling process of selecting a population to represent the entire population.

### ❖ *Criteria for Selection of Sample*

#### ➤ *Inclusion Criteria:*

- PU college science teachers working in selected PU colleges in selected PHC area, Bidar.
- PU college science teachers willing to participate in the study.

#### ➤ *Exclusion Criteria:*

- PU college science teachers who have been exposed to teaching programme regarding selected psychosocial problems of late adolescents.
- PU college science teachers are not willing to participate.
- PU college science teachers who are not available during data collection.

#### ➤ *Sample Size Estimation*

Description of the tool Quantitative research need to pay attention to the number of participants needed to achieve statistical conclusion validity. The sample size was calculated based on comparison of mean with standard deviation (1.93) of pilot study.

The sample size was estimated using the formula:  $n = z\sigma^2/d^2$

Where, n = required sample size , z= standard table value for 95% confidence interval (1.96)

$\sigma$  = standard deviation (1.93) ,d = precision (0.52)

#### ➤ *Scoring Items:*

There was 52 items, the score for correct response to each item was 1 Mark incorrect response 0 Marks . Thus for 52 items maximum obtainable score was 52 and minimum was zero.

$$\text{Percentage} = \frac{\text{Obtained Score}}{\text{Total Score}} \times 100$$

To find out the association with the selected demographic variables and knowledge scores, respondents are categorized into three groups.

Below 50%- Inadequate knowledge

51-75%- Moderate knowledge

Above 75% - Adequate knowledge

#### ➤ *Procedure for data collection*

- **Permission from the concerned authority**

Formal permission was obtained from the deputy directorate of public education, and the head masters of the respective PU colleges.

- **Data collection Period:** The data was collected from 01/10/2021 to 14/11/2021.

- **Data analysis:** The data obtained was analysed based on the objectives of the study using Descriptive, Non experimental study.

#### ➤ *Statistical Analysis of Data Includes;*

- Organization of data in master sheet.
- Frequency, percentages and mean, standard deviation scores to be used for analysis of demographic characteristics.
- Application of paired t' test to determine significant difference with mean knowledge score values.

- Application of Chi-square and Fisher's exact test to find association between demographic variables with knowledge scores.

### Section -I: Demographic Characteristics of Respondents

Table 1 Demographic Characteristics of Respondents

| Socio Demographic                                            | Particulars            | Number | Percent |
|--------------------------------------------------------------|------------------------|--------|---------|
| <b>Age</b>                                                   | 21-30                  | 8      | 16.0    |
|                                                              | 31-40                  | 14     | 28.0    |
|                                                              | 41-50                  | 21     | 42.0    |
|                                                              | 51-60                  | 7      | 14.0    |
|                                                              |                        |        |         |
| <b>Religion</b>                                              | Christian              | 3      | 6.0%    |
|                                                              | Hindu                  | 40     | 80.0%   |
|                                                              | Muslim                 | 7      | 14.0%   |
| <b>Gender</b>                                                | Male                   | 15     | 30.0%   |
|                                                              | Female                 | 35     | 70.0%   |
| <b>Marital status</b>                                        | Married                | 42     | 84.0%   |
|                                                              | Unmarried              | 01     | 2.00%   |
|                                                              | Divorced               | 00     | 0.00%   |
|                                                              | Widow/widower          | 07     | 14.0%   |
| <b>Educational qualification</b>                             | T.Ch(D.Ed)             | 43     | 86.0%   |
|                                                              | Others (SSLC)          | 7      | 14.0%   |
| <b>Teaching experience</b>                                   | 0-5 years              | 8      | 16.0%   |
|                                                              | 6-10 years             | 14     | 28.0%   |
|                                                              | 11-15 years            | 21     | 42.0%   |
|                                                              | Above 15               | 7      | 14.0%   |
| <b>Source of information</b>                                 | Television/radio       | 6      | 12.00%  |
|                                                              | Magazine/newspaper     | 21     | 42.0%   |
|                                                              | Health personnel       | 19     | 38.0    |
|                                                              | Family members/friends | 4      | 8.00    |
| <b>Observed/noticed psychosocial problems in adolescents</b> | No                     | 15     | 30.0%   |
|                                                              | Yes                    | 35     | 70.0%   |

The socio-demographic data showed that most participants were aged 41–50 years (42%), female (70%), Hindu (80%), married (84%), and held a T.Ch. (D.Ed.) qualification (86%). Most had 11–15 years of teaching experience (42%). The primary source of information was magazines/newspapers (42%), followed by health personnel (38%). A majority (70%) reported having observed psychosocial problems among adolescents.

### Section-II: A. Knowledge Level of PU College Science Teachers Scores on Psychosocial Problems in Late Adolescents

Table 2 Distribution of Respondent's Knowledge Level on Psychosocial Problems in Late Adolescents.

| Knowledge Level    | Classification of Respondents |         |
|--------------------|-------------------------------|---------|
|                    | Knowledge scores              |         |
|                    | Number                        | Percent |
| Inadequate (< 50%) | 27                            | 54.0    |
| Moderate (51-75 %) | 23                            | 46.0    |
| Adequate (> 75 %)  | 0                             | 0.0     |
| Total              | 50                            | 100.0   |

The study findings showed that out of 50 PU college science teachers, 27 (54%) had inadequate knowledge regarding selected psychosocial problems of late adolescents, while 23 (46%) had moderate knowledge. None of the participants demonstrated adequate knowledge (above 75%). These findings that the majority of teachers lacked knowledge enhance their understanding and ability to identify psychosocial problems among late adolescents.

Table 3 Aspect Wise Knowledge Scores of PU College Science Teachers on Psychosocial Problems in Late Adolescents

| No. | Knowledge Aspects                            | Max. score | Range score | Mean  | Mean (%) | SD    |
|-----|----------------------------------------------|------------|-------------|-------|----------|-------|
| I   | Meaning and types                            | 4          | 1-4         | 2.68  | 67.0     | 0.740 |
| II  | Incidence, prevalence and risk factors       | 4          | 2-4         | 2.30  | 57.5     | 0.614 |
| III | Signs and symptoms and diagnosis             | 6          | 1-6         | 4.22  | 70.33    | 1.055 |
| IV  | Management                                   | 13         | 3-10        | 5.88  | 45.23    | 2.246 |
| V   | Follow up and rehabilitation                 | 3          | 0-3         | 1.58  | 52.67    | 0.672 |
| VI  | Health education on prevention and treatment | 10         | 1-9         | 4.42  | 44.2     | 2.304 |
|     | Overall                                      | 40         | 16-29       | 21.08 | 56.15    | 7.631 |

The aspect-wise analysis of knowledge revealed that the highest mean percentage score was obtained in Signs and Symptoms and Diagnosis (70.33%), followed by Meaning and Types (67.0%) and Incidence, Prevalence and Risk Factors (57.5%). The mean scores were comparatively lower in Follow-up and Rehabilitation (52.67%), Management (45.23%), and Health Education on Prevention and Treatment (44.2%). The overall mean knowledge score was  $21.08 \pm 7.63$  out of a maximum score of 40, with an overall mean percentage of 56.15%, indicating a moderate level of knowledge among PU college science teachers regarding selected psychosocial problems of late adolescents.

Table 4 Association Between Knowledge Scores with Selected Demographic Variables.

| Demographic Variables                                      | df | Chi-square Value | Table Value (0.05) | Significant |
|------------------------------------------------------------|----|------------------|--------------------|-------------|
| Age (years)                                                | 1  | 0.617            | 3.841              | NS          |
| Sex                                                        | 1  | 1.384            | 3.841              | NS          |
| Education                                                  | 1  | 0.032            | 3.841              | NS          |
| Experience                                                 | 1  | 0.617            | 3.841              | NS          |
| Marital Status*                                            | 1  | 0.597            | 3.841              | NS          |
| Observed/Noticed Psychosocial Problems in Late Adolescents | 1  | 0.311            | 3.841              | NS          |
| Source of Information                                      | 1  | 0.109            | 3.841              | NS          |

The association between the overall pre-test knowledge scores and selected demographic variables was analyzed using the chi-square test at the 0.05 level of significance. The findings revealed that age ( $\chi^2 = 0.617$ ), sex ( $\chi^2 = 1.384$ ), educational qualification ( $\chi^2 = 0.032$ ), teaching experience ( $\chi^2 = 0.617$ ), marital status ( $\chi^2 = 0.597$ ), observed/noticed psychosocial problems in late adolescents ( $\chi^2 = 0.311$ ), and source of information ( $\chi^2 = 0.109$ ) were all not statistically significant, as the calculated chi-square values were less than the table value of 3.841 (df = 1). Thus, there was no significant association between the selected demographic variables and the knowledge levels of PU college science teachers regarding selected psychosocial problems of late adolescents.

### III. DISCUSSION

The present study showed that the overall mean knowledge score of PU college science teachers was  $21.08 \pm 7.63$  out of 40, with an overall mean percentage of 56.15%, indicating a moderate level of knowledge regarding selected psychosocial problems of late adolescents.

The present study found that teachers had the highest knowledge in Signs and Symptoms and Diagnosis (70.33%). This finding is supported by the study on depression, anxiety, and stress among adolescents, which reported significantly higher depression among females (mean rank 132.5 vs 113.2,  $p=0.03$ ) and higher depression ( $p=0.025$ ), anxiety ( $p=0.005$ ), and stress ( $p<0.001$ ) among students of classes 10 and 12. These findings emphasize the importance of teachers recognizing psychosocial problems early.<sup>8</sup> Another study revealed only a 56.15% overall knowledge level. This is comparable with the study in which 20,906 adolescents receiving antidepressants had 266 suicide attempts and 3 completed suicides, with an event rate of 27.04 per 1000 person-years, highlighting the need for better teacher knowledge regarding suicide risk.<sup>9</sup>

The study was showed lower knowledge regarding Health Education on Prevention and Treatment (44.2%). Similarly, the Turkey study found that poor academic achievers were 2.62 times more likely to smoke, males smoked 3.02 times more than females, and adolescents with smoking friends smoked 2.42 times more, indicating the importance of preventive education.

<sup>10</sup> Study found lower knowledge in Management (45.23%). This finding is supported by the study among methadone maintenance clients, where 54% of men and 47% of women were heavy smokers, emphasizing the need for effective management of risk behaviours.<sup>11</sup>

The present study identified lower knowledge in management and rehabilitation. In comparison, the core competency support program significantly reduced depression and suicidal ideation among adolescents, demonstrating that proper interventions can improve mental health outcomes.<sup>12</sup> Likewise, the Taiwan study reported a smoking prevalence of 5.7%, with 12.8% starting smoking after school enrollment and 33.3% becoming regular smokers, indicating the need for preventive education among adolescents.<sup>13</sup>

The present study reported only 44.2% knowledge regarding prevention. Similarly, the Danish study found that the average age of alcohol initiation was 13.4 years for boys and 13.9 years for girls, with significant associations between alcohol use and smoking (HR=2.19, p=0.015).<sup>15</sup> The study knowledge in identifying signs and symptoms (70.33%). This is supported by the Chinese study, which reported emotional problems among 12.5% of boys and 8.3% of girls, indicating the importance of early identification by teachers.<sup>16</sup> Study showed moderate overall knowledge (56.15%). Similarly, the study conducted in Japan, China, and Korea reported antisocial behaviour prevalence ranging from 3.9–12% in Japan, 8.3% in China, and 14.1–19.1% in Korea, highlighting the need for teacher awareness.<sup>17</sup>

The present study found lower knowledge regarding prevention and management. Likewise, the South Korean study reported a suicide attempt prevalence of 5.2%, with depression (OR=7.98), stress (OR=2.60), smoking (OR=3.19), alcohol use (OR=2.39), and suicidal ideation (OR=31.83) as major risk factors.<sup>18</sup> Study has good knowledge regarding signs and symptoms. Similarly, the Colombia study reported anxiety among 54.71% of boys and 81.7% of girls exposed to civil war, emphasizing the importance of identifying emotional problems early.<sup>19</sup> The present study showed an overall moderate knowledge score (56.15%). Similarly, the Johor Bahru study reported emotional and behavioural problems among 40% of rural children and 30.2% of urban children, indicating the need for teachers to have adequate knowledge for early detection and referral.<sup>20</sup>

The overall findings of the reviewed studies indicate that psychosocial problems such as depression, anxiety, stress, suicidal behavior, smoking, alcohol use, and emotional and behavioral disorders are common among adolescents and are influenced by multiple personal, family, and environmental factors. The present study found that PU college science teachers had a moderate level of knowledge (56.15%) regarding these problems, with lower knowledge in management and prevention. These findings highlight the need for structured

educational programme to enhance teachers' knowledge for early identification, prevention, timely intervention, and appropriate referral of adolescents.

#### IV. RESULT

The present study concluded that PU college science teachers had an overall moderate level of knowledge regarding selected psychosocial problems of late adolescents, with a mean knowledge score of  $21.08 \pm 7.63$  out of 40 (mean percentage 56.15%). Among the 50 teachers, 27 (54%) had inadequate knowledge, 23 (46%) had moderate knowledge, and none had adequate knowledge. The highest mean percentage score was obtained in Signs and Symptoms and Diagnosis (70.33%), while the lowest was in Health Education on Prevention and Treatment (44.2%). No significant association was found between knowledge scores and any selected demographic variables ( $p > 0.05$ ). The findings emphasize the need for structured educational programmer to improve teachers' knowledge for early identification, prevention, management, and referral of adolescents with psychosocial problems.

#### V. CONCLUSION

The present study concluded that PU college science teachers had an overall moderate level of knowledge regarding selected psychosocial problems of late adolescents, with most teachers demonstrating inadequate knowledge and none achieving an adequate level. Knowledge was highest in signs and symptoms and lowest in management, prevention, and rehabilitation. The findings also revealed no significant association between knowledge scores and the selected demographic variables. These results highlight the need for structured educational programmer to improve teachers' knowledge, enabling early identification, timely intervention, and appropriate referral of adolescents with psychosocial problems.

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