



## Community Medicine

# A STUDY ON GAP BETWEEN AWARENESS & PRACTICES OF SINGLE USE PLASTIC AMONG MEDICAL STUDENTS & FACULTY OF GOVERNMENT MEDICAL COLLEGE, MAHABUBNAGAR.

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**ABSTRACT** **Background:** Despite bans on single-use plastics (SUP) in India, their use continues due to gaps between awareness and actual practices. This study aimed to assess and compare awareness, practices, and the awareness–practice gap regarding SUP among medical students and faculty. **Methods:** A cross-sectional study was conducted among 310 participants (students = 234, faculty = 76) in a Government Medical College using a structured questionnaire. Data were analyzed using Microsoft Excel and OpenEpi (3.01). Chi-square test and mean score comparisons were done. **Results:** Awareness regarding SUP was higher among faculty (mean score =  $2.84 \pm 0.85$ ) compared to students ( $2.21 \pm 1.05$ ). However, practice scores were slightly better among students ( $1.65 \pm 0.55$ ). The awareness–practice gap was significantly higher in faculty (1.32). **Conclusion:** Although awareness about single use plastic was high among both groups, sustainable practices were lacking—particularly among faculty—indicating a need for behavior change interventions beyond awareness.

**KEYWORDS :** Single Use Plastic, Awareness, Practices

## INTRODUCTION

We are addicted to plastic, as it is cheap to produce, durable, flexible and easy to transport.<sup>1</sup> Around 430 million metric tonnes of plastic is produced every year, half of which is designed to be used only once, these are single use plastics (SUP). Of that, less than 10 per cent is recycled.<sup>2</sup> Single-use plastics, often also referred to as disposable plastics, which are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled. These include, among other items, grocery bags, food packaging, bottles, straws, containers, cups and cutlery.<sup>3,4</sup> SUP being light and flexible are less amenable to being recycled, cause environmental damage in both land & sea.<sup>5,6</sup>

Despite knowing the harmful effects of SUP, there remains a gap between awareness and practices – especially with in the medical institutions. As medical professionals are influential role models in promoting public health and environmental responsibility. Hence this study was conducted to assess the awareness & practices of SUP among medical students & faculty, and to compare the gap between them. Understanding this gap between awareness and practices can enhance sustainability initiatives in medical institutions and support India's broader efforts in reducing plastic pollution.

## METHODOLOGY

**Study Design, Setting:** A cross-sectional study was conducted at Government Medical College, Mahbubnagar, Telangana, to assess the gap between awareness and practices regarding SUP among medical students and faculty. Those who are present during the data collection period were included.

**Sample Size(n):** 310 calculated using,  $Z^2PQ/I^2$ , considering, Prevalence (P) = 76%<sup>8</sup>. Proportionate stratified random sampling was used to ensure appropriate representation of sample 310 divided proportionately, from both students (234) and faculty (76).

**Study Tool and Data Collection:** A pre-tested, semi-structured, self-administered questionnaire was used to collect data on socio-demographic profile, awareness, and practices related to SUP use and disposal.

**Data Analysis:** Data were entered and analyzed using Microsoft excel and OpenEpi(3.01) for statistical testing. Descriptive statistics were presented as frequencies and percentages. The Chi-square test was used to assess the association between categorical variables. A p-value of <0.05 was considered statistically significant.

To assess and compare awareness score and practice scores, binary scoring (1=correct/positive, 0=incorrect /negative) was applied to selected key awareness (4 variables) and practice (2 variables). Individual awareness, practice, and gap scores were compared between groups.

## RESULTS

**Table 1. Distribution Respondents According to Sociodemographic Factors (n=310)**

| Variables             | Categories         | n (%)       |
|-----------------------|--------------------|-------------|
| Age (years)           | 18-25              | 160 (51.6%) |
|                       | 26-30              | 95 (30.6%)  |
|                       | 31-40              | 2(0.6%)     |
|                       | 41-50              | 39(12.6%)   |
|                       | 51-60              | 14 (4.6%)   |
|                       |                    |             |
| Gender                | Female             | 187(60.4%)  |
|                       | Male               | 123(39.6%)  |
| Occupation            | Students           | 234(75.5%)  |
|                       | Faculty            | 76(24.5%)   |
| Socio economic status | Upper class        | 108 (35%)   |
|                       | Upper middle class | 66 (21.4%)  |
|                       | Middle class       | 109 (35%)   |
|                       | Upper lower class  | 22 (7%)     |
|                       | Lower class        | 5 (1.6%)    |
| Residency             | Rural              | 77 (25%)    |
|                       | Urban              | 233 (75%)   |
| Religion              | Hindu              | 257 (83%)   |
|                       | Muslim             | 36 (11.6%)  |
|                       | Christian          | 17 (5.4%)   |

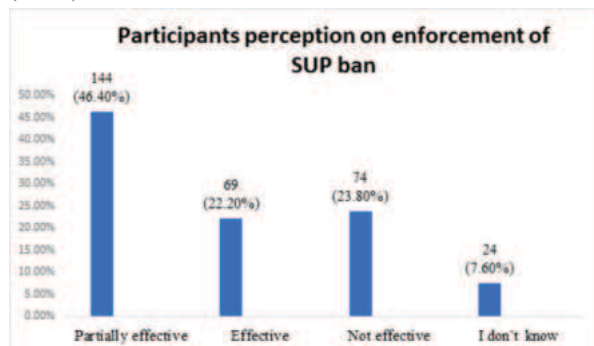
Most of the study participants belong to age group of 18-25 (51.6%) followed by 26-30 year (30.6%), majority are females 60.4%, about 35% belong to middleclass and upper class, majority are Hindus 83%, followed by Muslims 11.6%, most of them are from urban 75%, majority are students 75.5%.

**Table 2. Comparison of Awareness of Single Use Plastic Among Participants (n=310)**

| Variables                        | Students' awareness (n=234) | Faculty awareness (n=76) | Awareness of all participants (n=310) | Chi square | P value |
|----------------------------------|-----------------------------|--------------------------|---------------------------------------|------------|---------|
| Knowledgeable about SUP          | 229 (97.9%)                 | 74 (97.4%)               | 303 (97.8%)                           | 0.063      | 0.800   |
| SUP affecting environment        | 207 (88.5%)                 | 74 (97.4%)               | 281 (91%)                             | 1.145      | 0.284   |
| Health problems by plastic       | 221 (94.4%)                 | 75 (98.7%)               | 296 (96%)                             | 2.391      | 0.122   |
| Plastic affecting land fertility | 205 (87.6%)                 | 70 (92.1%)               | 275 (88.5%)                           | 1.159      | 0.283   |
| SUP nondegradable                | 42 (17.9%)                  | 23 (30.3%)               | 65 (21%)                              | 5.25       | 0.021   |
| banned SUP items                 | 169 (72.2%)                 | 65 (85.5%)               | 234 (75.5%)                           | 5.48       | 0.019   |

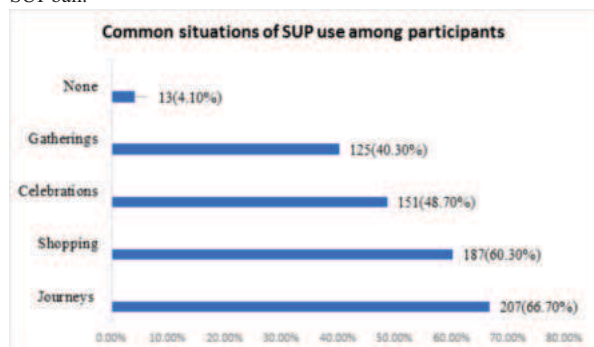
|                                      |             |            |             |       |        |
|--------------------------------------|-------------|------------|-------------|-------|--------|
| SUP ban Awareness Telangana          | 121(51.7%)  | 57 (75%)   | 178 (57.4%) | 12.73 | 0.0003 |
| Knowledge of penalties for violation | 185 (79.1%) | 71 (93.4%) | 256 (83%)   | 8.225 | 0.004  |

Both students 73.8% and faculty 74.2% reported higher general awareness about SUP, with no significant difference. However, faculty had significantly higher Awareness regarding SUP is non-degradable (30.3%), the banned SUP items (85.5%), penalties for violation (93.4%).



**Figure 1. Participants Perception on Enforcement of Ban**

Among the study participants, 22.2% believed the ban was fully effective. 7.6% were unaware or unsure about the enforcement status. This indicates a need for better visibility and stricter execution of the SUP ban.



**Figure 2. Distribution of Participants Use of SUP in Common Situations**

The most common situations where participants used SUP was during journeys (66.7%), shopping (60.3%) followed by celebrations (48.7%), gatherings (40.3%). Only (4.1%) reported not using SUP in any of the listed situations.

As these findings suggest SUP usage is high in day-to-day scenarios, focus on behavioural change during travel and shopping activities.

**Table 3. Comparison of Practices of Single Use Plastic Among Participants (n=310)**

| Variables                                | Students practices (n=234) | Faculty practices (n=76) | Practices of all participants | Chi square | P value |
|------------------------------------------|----------------------------|--------------------------|-------------------------------|------------|---------|
| Usage of SUP Day to day lives            | 221 (94.4%)                | 75 (98.7%)               | 296 (96%)                     | 2.391      | 0.122   |
| Asking shopkeepers for plastic carry bag | 163 (69.7%)                | 56 (73.7%)               | 219 (70.5%)                   | 0.448      | 0.503   |
| Habituated to use/buy SUP                | 76 (32.5%)                 | 33 (43.4%)               | 109 (35%)                     | 3.013      | 0.082   |
| Discarding used SUP                      | 195 (83.3%)                | 44 (57.9%)               | 239 (77%)                     | 21.02      | 0.000   |
| Tried to avoid using SUP                 | 190 (81.2%)                | 70 (92.1%)               | 260 (83.7%)                   | 5.047      | 0.02    |

Both students (94.4%) and faculty (98.7%) reported usage of SUP in their day-to-day life with no significant difference. Proper disposal of SUP was significantly better among students (83.3%) compared to

faculty (58%). However, about 92% faculty had tried to avoid using SUP compared to 81.1% of students, indicating higher intent of sustainable practices.

**Table 4. Mean Scores Of Awareness, Practice And Gap Among Students And Faculty**

| Group    | Awareness score* (Mean $\pm$ SD) | Practice score* (Mean $\pm$ SD) | Gap score (Mean $\pm$ SD) |
|----------|----------------------------------|---------------------------------|---------------------------|
| Students | 2.21 $\pm$ 1.05                  | 1.65 $\pm$ 0.55                 | 0.56 $\pm$ 0.85           |
| Faculty  | 2.84 $\pm$ 0.85                  | 1.53 $\pm$ 0.55                 | 1.32 $\pm$ 1.29           |

(\*Note: Awareness score was calculated from 4 key variables; knowledge of SUP degradability, awareness of banned SUP items, awareness of state ban, and knowledge of penalty provisions. Practice score from 2 variables; proper disposal of SUP and efforts to avoid SUP. Each correct response = 1. (Gap score = Awareness score – Practice score.)

The Mean awareness score among students was 2.21 $\pm$ 1.05, whereas faculty had higher awareness score of 2.84 $\pm$ 0.85. The practice score was 1.65 $\pm$ 0.55 for students and 1.53 $\pm$ 0.55 for faculty. Interestingly, the gap score (difference between awareness and practice score) was higher among faculty (1.32 $\pm$ 1.29) compared to students (0.56 $\pm$ 0.85), indicating that although faculty were more aware, their practices lagged relatively more behind.

## DISCUSSION

In the current study, the mean awareness score among faculty was (2.84 $\pm$ 0.85), which was higher than that of students, whose mean awareness score was (2.21 $\pm$ 1.05). which is similar to the R. Manoj et.al<sup>7</sup> study, here awareness levels of subjects who have not completed graduation compared to graduates and those with higher education having higher awareness mean score 22.34 compared to the former 20.96. This indicates that faculty were more aware of the issues related single-use plastics, possibly due to their greater exposure to environmental and policy-related information. However, when it came to practice, students had a slightly higher mean score (1.65 $\pm$ 0.55) compared to faculty (1.53 $\pm$ 0.55), suggesting students showed slightly increased tendency to take part in environmentally conscious practices, even though their awareness level was comparatively lower. Interestingly, the gap between awareness and practice scores was larger among faculty (mean gap score, 1.32) compared to students (0.56), highlighting a disconnect between knowledge and action among faculty. This may be due to practical constraints, lifestyle habits, which could act as barriers to translating awareness into consistent environmentally friendly behaviour.

In this study, only 57.4% were aware of ban on SUP which is much lesser compared to studies done by Sujitha P et.al.<sup>8</sup> and Joseph et.al.<sup>9</sup> where awareness levels were 94% and 85.2% respectively. This difference might be due to the public awareness campaigns carried out in Puducherry, which may not have been as rigorously implemented in Telangana.

Only 48% knew that SUP is non-degradable whereas studies by bahattare et. al.<sup>10</sup> and Chaudhary et.al.<sup>11</sup> indicate that awareness about SUP is non-degradable is 81.9% and 88% respectively. In present study 70.5% participants asking shopkeepers for plastic carry bags which is contrast to the study of Devi kittu et.al.<sup>12</sup> where the store owners provided plastic bags to their customers without even making sure they needed them. Present study shows that 77% of study participants discarding used SUPs in a proper way that is throwing them in dust bins while Singh M.K et.al.<sup>13</sup> study only 30% participants following proper disposal method. Across both studies, the predominant usage of SUPs mainly by students—making up 72% in the current research and a similar 70% in the previous one. However, only 24% of faculty reported daily usage of SUPs, suggesting a more conscious effort. This study showed, 91% participants responded that SUP affecting the environment, 88.5% agreed that SUP affecting the fertility of land, only 4% participants were not aware of SUP causing health problems whereas in pandirajan et. al.<sup>14</sup> study, 88% of study participants responded plastics cause the pollution to environment, which is almost similar to present study. 65% participants agreed that plastic will cause soil pollution, 24.5% participants are not aware about health problem due to plastic which is slightly higher than present study. This difference could be because the present study included medical students and doctors, who are more aware of the health risks associated with plastic use compared to the general population in pandirajan's study.

Overall, this study contributes the growing evidence that awareness alone is not sufficient to change behaviour. Institutional policies, educational initiatives, and behavioural changes are required to bridge the gap between knowledge and practice.

## CONCLUSION

Faculty members had higher awareness, but students showed relatively better SUP related practices. There remains a considerable gap between awareness and actual practices, particularly among faculty. Focussed behavioural interventions and stricter implementations of SUP related regulations are required to promote sustainable single use plastic-free practices in medical institutions.

## REFERENCES

1. World Environment Day 2023, Beat Plastic Pollution practical guide, UNEP
2. World Environment Day 2023, Impacts of the plastic pollution crisis, UNEP
3. World Environment Day 2025: Beat Plastic Pollution) United Nations, India.
4. United Nations Development Program, Developing a sustainable model for plastic waste management in India
5. UNEP (2018). SINGLE-USE PLASTICS: A Roadmap for Sustainability (Rev. ed., pp. vi; 6)
6. Parliament Library and Reference, Research, Documentation and Information Service (Iaridis), single-use plastic ban in India, no. 23/rn/ref/December/2022
7. R. Manoj, The Impact of awareness about environmental hazards caused by plastic pollution, on the attitude towards governmental ban on single use plastic products among adults in the Indian City Chennai and its suburbs, online journal of multidisciplinary subjects, vol13, issue1, 2019.
8. Sujitha P, Awareness, acceptance and practice of plastic ban legislation among residents of an urban area in Kanchipuram district, Tamil Nadu: a cross-sectional study, International Journal of Community Medicine and Public Health, 2020 Jan;7(1):256-263.
9. NitiN JoSeph, Usage of Plastic Bags and Health Hazards: A Study to Assess Awareness Level and Perception about Legislation Among a Small Population of Mangalore City, Journal of Clinical and Diagnostic Research. 2016 Apr, Vol-10(4): LM01-LM04
10. Bahattare V N, A study of knowledge and practices about single use plastics among residents in UHTC area. MedPulse International Journal o MedPulse International Journal of Community Medicine, Print ISSN: 2579-0862, Online ISSN: 2636-4743, Volume 14, Issue 1, April 2020.
11. Varsha Chaudhary, Study to Assess the Knowledge, Attitude and Practice of Plastic Use among School students of Meerut, Uttar Pradesh. (2020). Indian Journal of Public Health Research & Development, 11(11), 62-68.
12. Devi Kittu, A Community-Based Observational Study on Knowledge, Attitude, and Practice of Single-Use Plastics Ban in Rural Puducherry, South India. J Community Health Research 2023; 12(1): 164-171.
13. Singh M.K., Hazards of Plastic Bags in Dholpur- A Small District town of Rajasthan, India, International Research Journal of Environment Sciences, ISSN 2319-1414 Vol. 2(3), 6-10, March (2013).
14. Shivashankari Pandirajan, Assessment of awareness about plastic pollution and attitude regarding plastic bags usage among rural population of Kanchipuram, Tamil Nadu, India, Int J Community Med Public Health. 2020 Jun;7(6):2146-2149 <http://www.ijcmph.com>