

## Knowledge And Practices Of Household Waste Management Among Medical And Allied Graduate Students.

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### ABSTRACT

**Objective:** To evaluate and compare the knowledge and practices of students from the medical and allied section of Isra University, Hyderabad.

**Material and Methods:** Cross sectional study conducted at Isra University, Hyderabad from July 2019 to December 2019. All students (male or female) registered in the medical and allied section (MBBS, Nursing and Physiotherapy) were included in the study. Stratified random sampling technique was used for participant's selection. Information was gathered using a written pre-tested questionnaire prepared for this study. Data was entered in epi data and analyzed using SPSS ver. 23 with p value < 0.05 was considered significant.

**Result:** Total 120 students were included in the study, the mean age of the participants was 20.7±1.23 years. Majority of participants were female while half were from MBBS section. Most of them throw their household waste in the container placed nearby to their houses while 17.2% throw their household waste openly on the street. Moreover, majority of them use bins or drums for storage of household waste followed by use cardboard boxes. There was a statistically significant difference (p-value < 0.05) in knowledge observed between students of MBBS compared with others faculty.

**Conclusion:** Knowledge and practices regarding the household waste management are not satisfactory and significant difference between the students of medical and allied section. MBBS students seem more aware regarding household waste management compared to others.

**Keywords:** Household Waste Management, Environmental, Knowledge, Perception

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### INTRODUCTION

Solid waste management is an important environmental issue globally but in developing countries it remains a neglected area in the context of absence of appropriate planning, availability of financial and human resources as well as lack of community participation.<sup>1</sup> Ineffective and inefficient waste management is associated with multiple factors which are interlinked, these factors include unplanned urbanization, unawareness about household waste management, high dependency ratio, low literacy rate and increased waste generation.<sup>2</sup> United Nations Environment Program (UNEP) has estimated that about 8.4 million deaths are caused by

environmental issues and about 10-12 percent of these deaths are caused by inadequate handling of waste.<sup>3</sup>

Household waste, is one of the components of solid waste, regarded as higher priority. Household waste consists of organic matters such as fruit, vegetable and food left over and inorganic matter as plastic, paper and glass etc.<sup>4</sup> Generally, lack of interest of communities towards environmental pollution and waste management is a leading cause of improper waste management.<sup>5</sup> Open dumping and untreated household waste poses a higher risk for both environmental and health of the population living in middle and lower

income settlements.<sup>6</sup> Unawareness and attitude towards proper household waste management cause health problems and leads to higher burden of communicable diseases in these areas.<sup>7</sup> In most of the developing countries negative attitude of littering is common and community is habitual of throwing their house hold waste in the streets or in open space available nearby their homes.<sup>5</sup>

Waste management being a multidimensional issue need to be solved by raising awareness in the communities, enhancement of financial resources for building better infrastructure and bringing new technology for proper solid waste management.<sup>7</sup> It is evident that problem of waste management is influenced by human behavior.<sup>4</sup> In prospective of comprehensive waste management various strategies are applied which include reduction, segregation, treatment, recycling and proper disposal.<sup>8</sup>

In Pakistan, there remains a big gap of ineffective or both nonexistent treatment and recycling of household waste.<sup>6</sup> The generation of house hold waste in the country has increased due to factors like; accelerated growth of country population, unplanned urbanization, and mismanagement of municipal authorities as well as lack of community sensitization.<sup>9</sup> Environmental protection Agency (EPA) of Pakistan has estimated that about 20 million of household waste is generated each year in the country. While in Karachi alone, about 47,000 tons of household waste is generated every day.<sup>9</sup>

Attitude and perception regarding household waste disposal indicated that indecorous and unsatisfactory measure are taken by community and municipal authorities because of the impact of transmission of the infectious agents as well as cause environmental pollution.<sup>10</sup> Moreover lack awareness of and improper attitude towards proper disposal household waste by the educated people and youth additionally rising this problem of waste management. Therefore, this study was planned and conducted in a private medical university with a mixed population of students from rural and urban areas are studying. The study was prepared with an objective to evaluate and compare the knowledge and practices of students from the medical and allied section of Isra University, Hyderabad.

## MATERIAL AND METHODS

This cross sectional study was carried out at Isra University, Hyderabad campus from July 2019 to December 2019. All students (male or female) registered in the first 3 years of medical and allied section were selected through the stratified random sampling technique. A sample size of 120 was drawn using open-epi sample size online calculator.<sup>11</sup> Participants were selected from various departments of medical and allied section including year one, two and three students from MBBS, Isra School of Nursing and department of physiotherapy. Study was approved by the ethical review committee of Isra University, Hyderabad.

A pre-tested written questionnaire was prepared and distributed to all the students after taking their consent. The questionnaire comprise the questions related to socio-demographic information, residence, knowledge, perception and routine practices regarding household waste. Information was gathered using a written pre-tested questionnaire prepared for this study. Data was entered in epi data and analyzed using SPSS ver. 23. The descriptive statistics was presented as frequencies and percentages while Chi Square ( $\chi^2$ ) was used for comparative analysis with p value < 0.05 was considered significant.

## RESULT

A total of 120 students were included in the study, the mean age of the participants was  $20.7 \pm 1.23$  years. Majority 74 (61.6%) of participants were female and 46 (38.4%) were male. More than half 65 (54.1%) were MBBS students followed by 28 (23.3%) from Department of Physiotherapy (DPT) and 27 (22.5%) were nursing students. Seventy-eight (65%) students belong to urban areas and 42 (35%) belonged to rural areas.

Practice of waste disposal among students was assessed and it revealed that 57 (47.5%) throw their house hold waste in nearby container, 39 (32.5%) told that house hold waste of their house is being thrown in the street and 24 (20%) use other methods of disposal of waste.

Majority of respondents indicated that household waste management is an issue because of unavailability of proper municipal services. Comparative lower number of participants felt that improper household waste management is due to lack of community interest. (Figure 1)

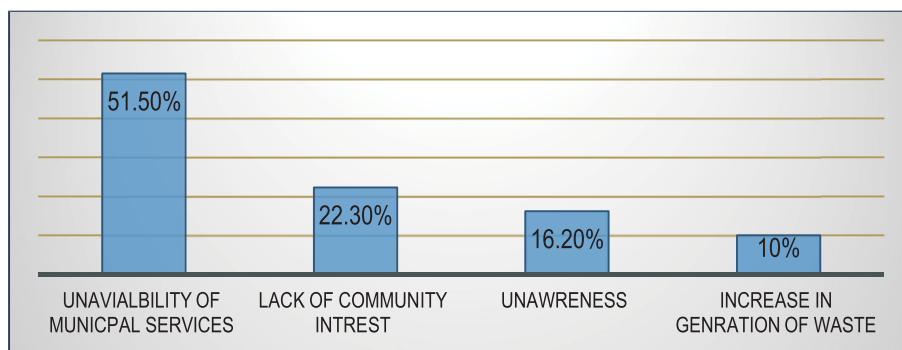


Figure 1. Perception of the participants about improper waste management (N=120)

Table.1 below is demonstrating the knowledge of participants regarding methods of disposal of waste. Majority of

participants believe that depicts landfill the most frequent method for disposal of waste followed by composting. (Table 1)

Table1. Knowledge about Methods of disposal of waste (N=120)

Method	Frequency	%
Landfill	58	48.6%
Compositing	32	26.4%
Incineration	13	10.8%
Don't know	17	14.2%

Regarding the practice of household waste management, participants replied that most frequent method of household waste management was to use the plastic bags,

whereas the fewer number of participants used bins and drums to deal with the waste management. (Table 2)

Table 2. Practice of waste management by participants (N=120)

Practice	Frequency	%
Plastic bag	51	42.5
Card board	21	17.5
Bin/Drum	27	22.5
other	21	17.5

Table 3 displays the hazards associated with waste management. According to the majority of participants, household waste

causes environmental pollution within the surroundings in great percentage. (Table 3)

Table 3. Hazards perceived with improper waste management (N=120)

Perceived problems	Frequency	%
Environmental pollution	39	32.5
Health hazard	37	31.0
Odor	24	20.0
Waste lying around	20	16.5

Table 4 describes the comparison of knowledge was assessed by applying chi-square test of significant which indicated that there was a statistically significant differences (p-value <0.05) in awareness

regarding household waste management among MBBS students in comparison with the nursing and department of physiotherapy students.

Table 4: Comparison of level of knowledge about waste management among students

AWARENESS LEVEL	MBBS	Nursing	DPT	$\chi^2$
High	32	8	8	0.01*
Medium	24	9	6	
Low	9	10	10	

## Discussion

This high volume of organic waste is common in developing as well as in developed countries. In developed countries, this larger portion of organic food waste is utilized by composting for generation of biogas or for making fertilizer.<sup>10</sup> The present study demonstrated the perception and practices of household waste management among university students. Practice of waste disposal among students was assessed and it revealed that 94(78%) throw their house hold waste openly in street, 14(12%) told that house hold waste of their house is thrown in the waste bins provided by municipal authorities and 12(10%) use. While assessing practice of disposal of house hold waste, result of this study showed that 78% of the respondents affirmed that they throw waste in open space in street and then collected by hand carts or by trolley either by municipal authorities or in some urban areas by privately managed committees.<sup>12, 13</sup> Only 10% throw their house hold waste in nearby containers provided by municipal authorities. This high volume of organic waste is common in developing as well as in developed countries.<sup>10</sup> This larger portion of organic food waste can be utilized by composting for generation of biogas or for making fertilizer.<sup>9</sup> Plastic and card board are utilized by recycling but in Pakistan lack of these technologies and resources are sparsely available. The result of this study indicated that major number of the respondents had good knowledge of issues associated with improper house hold waste management but on the contrary practice of waste was lower among respondents. These findings are in accordance to a study by Hakamiet al.<sup>8</sup> Result obtained in this study show that most of the respondents 78% have positive attitude towards safe disposal of house hold disposal while agreeing to acknowledge that safe disposal of waste is responsibility of every house hold member. This result is in accordance to a study by Trihadiningrum et al<sup>11</sup> and Dhokhikah et.al<sup>12</sup>. reported that developing countries, rapid and unplanned urbanization has created number of problems including generation of large amount of waste in cities. Municipal authorities, already having dearth of financial, logistic and human resources have to cope with this huge task of collection, transportation, treatment and disposal of waste which directly enhance health risk and environmental problems.<sup>13,14</sup> Impact of house hold waste management is directly and indirectly on environment and human health, direct effect of house hold waste can cause direct pathogenic contact leading to communicable disease and indirect impact is reflected in long term impact leads to damage to ecosystem.<sup>12</sup>

## Conclusion

Knowledge and practices regarding the household waste management are not satisfactory and significant difference between the students of medical and allied section. MBBS students seems more aware regarding household waste management compared to others.

## Recommendation

It is suggested that awareness about household management should be enhanced both at school and college level as well to the communities. Government and municipal authorities should allocate funding and implementation of proper house hold management should be adopted.

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