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Survey of Knowledge, Attitude and Practice of Yazd University of Medical Sciences Students about Solid Wastes Disposal and Recycling

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ABSTRACT

The risk of unhealthy disposal of solid waste is one of the important problems in many societies, and recycling is considered as a solution for managing solid wastes. Environmental knowledge and attitude of young people (like students) appears to be crucial as their point of view ultimately plays an important role in providing solution to future environmental problems. In this study the knowledge, attitude and practice of Yazd University of Medical Sciences students in respect of disposal of solid wastes and the important factors were studied. Two hundred thirty seven students were included in this cross-sectional study, selected from 5 schools of this university. Data collected by a self administered questionnaire containing four sections, were analyzed using SPSS for Windows. The mean grade of knowledge of men and women was 13.53 and 12.38, of 20, respectively. The difference between the knowledge of males and females was significant ($P< 0.016$). On the whole the knowledge of the students was not appropriate. About 66% of students did not have any action in segregation and recycling of solid wastes. It is concluded that all students must take part in formal and informal education classes to promote their knowledge in this regard.

Keywords: *Recycling, KAP, Students, Solid waste, Iran*

INTRODUCTION

Unhealthy disposal of solid waste is considered as one of the most important problems in many societies. The problem of waste management has arisen recently in developing countries where there is little history of the implementation of formal and informal community environmental education awareness program. The instigation of such program is essential to rapidly educate the public and facilitate the development of environmentally friendly community waste behavior. To be successful, useful programs should be designed to engage their target audiences in not only increasing their environmental knowledge but their environmental skills, attitudes and behavior as well. Accordingly, a first step in the program design process is to establish the prior knowledge of specific age groups, covering such categories as the level of knowledge, its sources and everyday application (Palmer, 1995; Caneer, 1997; Tucker et al., 1998), as well as target audiences'

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attitudes and behavior intention (Ballantyne and Packer, 1996; Ballantyne, 1998).

Environmental attitude of young people appears to be crucial as they ultimately play a direct role in providing knowledge-based solutions to in- coming environmental problems (Bradly et al., 1999; Eagles and Demare, 1999). Furthermore, school environmental program, although addressed to students can also influence upon the environmental knowledge, attitude and behavior of adults (parents, teachers and local community members) through the process of intergenerational influence (Evans et al., 1996; Ballantyne, 1998; Gallagher et al., 2000).

The few studies conducted on the environmental education program, regarding children and young people show that the level of environmental awareness is relatively low (Grodzinska and Jurczak, 2001). The information acquired is mostly factual in nature and is not systematized.

Recycling is regarded as one of the important factors in environmental management of solid wastes (Rabinson, 1986). It reduces the amount of solid wastes, so less space is needed for their disposal in Iran,(Kazemi bazardehi, 1996).

The Organization of Solid Wastes Disposal predicts that if half of the papers in solid wastes are recycled, it will be equal to maintaining 8 million hectares of forests (Payam- E- Sabz, 1995).

The results of some studies show that virtually 50% of solid wastes are recyclable (Rahmany, 2001) and recycling of solid wastes before disposal is economic (Omrany, 1995).The important point is encouraging the people to decrease the solid wastes and recycle them (Keynejhad and Ebrahimy, 1999). In this paper we inspected the knowledge, attitude, behavior and decision making in the area of municipal solid waste management. The findings of this study might facilitate improvements of the program that enhances the role of students to play as catalysts of environmental change in their families and communities.

MATERIALS AND METHODS

Two hundred thirty seven students were included in this cross-sectional study, selected from 5 schools of Medicine, Nursing, Dentistry, Paramedical and Public Health in Yazd University of Medical Sciences, Iran. The instrument of research was a self administered questionnaire containing four sections, relating to the demographic information with three questions, knowledge information with six questions, information regarding attitude with twelve questions and practice in solid wastes management information with twenty four questions. The best score for knowledge was 20, followed as: more than 17= good, 10-16= moderate, and lower than 10= bad. The attitude question was classified to Likert scales. The data were coded and analyzed by SPSS for Windows software with x^2 test and frequency distribution.

RESULTS

Of 237 students participated in this survey, 95 were males, 52 from Yazd, 156 from other cities of Iran and 29 from rural areas.

The data in Table 1 shows that the knowledge level of 66% of male students was good and moderate, while knowledge of 34% was low. The knowledge of females was lower than males, so the knowledge of 51.4% of females was low. The difference between the knowledge of males and females was significant (P<0.016).

Fifty nine percent of students stated that the best way for disposal of solid wastes was recycling (Table 2) and more than 87.1% believed recycling as economical (Table 3).

Pertaining to the methods of segregation and separation of solid wastes, 72.1% of students believed that the best method was segregation at home, 18.3% considered that segregation must be in the place of collection and 9.6%-

deemed that the segregation must be done in the place of disposal.

The students who believed that the best method for disposal was segregation at home were students in the fields of medicine, dentistry and public health (Table 4).

The data in table 5 is in relation to the behavior and practice of students in segregation of solid wastes. The students who stated that they segregated the solid wastes were the students in public health field. More than 66% of them did not have any action in segregating and recycling of solid wastes.

Table 1: The distribution of frequency of the knowledge of students to methods of disposal based on the sex (P<0.016)

Sex \ Knowledge	Good	Moderate	Low	Total
Male	14.9	51.1	34	100
Female	15.7	32.9	51.4	100
Total	15.3	40.2	44.5	100

Table 2: The distribution of attitude of students to the best methods of disposal of solid waste based on the sex

Sex \ The best method	Sanitary Landfill	Recycling	Incineration	Solid wastes reduction	Total
Male	8.5	51.1	10.6	29.8	100
Female	6.6	64.2	6.6	22.6	100
Total	7.3	59	8.2	25.5	100

Table 3: The distribution of economically importance of recycling in students point of view

Courses \ Importance	Very high	Moderate	Low and very low	Total
Health	89.5	7	3.5	100
Nursing	77.1	18.8	4.2	100
Paramedical and midwifery	88.6	9.8	1.6	100
Medicine and dentistry	91.0	7.5	1.5	100
Total	87.1	10.3	2.6	100

Table 4: The distribution of frequency of the best method for segregation recycling materials based on the groups of students

Courses \ The best method	Segregation in producing site	Segregation in collection site	Segregation in disposal site	Total
Health	43.2	14.3	12.5	100
Nursing	66.7	20.8	12.5	100
Paramedical and midwifery	71.7	16.7	11.6	100
Medicine and dentistry	75.3	21.5	3.2	100
Total	72.1	18.3	9.6	100

Table 5: The distribution of frequency of students' cooperation in segregation of recycling materials

Courses \ Segregation recycling materials	Yes	No	Total
Health	67.2	32.8	100
Nursing	40.4	59.6	100
Paramedical and midwifery	34.4	65.6	100
Medicine and dentistry	28.4	71.6	100
Total	33.5	66.5	100

DISCUSSION

Unsanitary disposal of wastes is a major environmental concern in the world and Iran. The current legislation system and waste management practices require numerous improvements and modification in order to meet EU standards. It is contended that such changes need to be accompanied by a community environmental education program designed to improve citizens' knowledge, attitudes and behavior (McGarity and Wojcik, 2000; Grodzinska and Jurczak, 2001).

A study shows that the environmental knowledge of the students can improve the knowledge of their parents (Malgorzata Grodzinska et al., 2003); according to the parents reports, the majority of students (70%) had discussed the program with their parents, and just over one-third of them (34%) had made suggestion to their parents regarding the ways in which they could improve their waste management practices at home.

Our results showed that the knowledge of more than 65% of students was better than moderate which agrees with Mesgarof et al. study (2001). The data of another study conducted in Industrial University of Isfahan showed that environmental knowledge of students was not high that confirmed our results (Amini and Ramazani, 2001). In our study, more than half of the students (59%) believed that the best method for disposal of solid wastes was recycling, which agrees with other studies (Amini and Ramazani, 2001; Mesgarof et al., 2001). Some researchers suggested that, environmental knowledge does not necessarily lead to improve practice (Tikka et al., 2000) while another study showed that better integration was required between recycling programs and existing informal waste collection systems (Hernandez et al., 1999).

The knowledge of participants did not lead to practice, so 66% of them did not segregate the solid wastes, that agrees with studies carried out in Kermanshah and Industrial University of Isfahan (Amini and Ramazani, 2001; Mesgarof et al., 2001). Our findings confirm those reported in Brazil and Hokkaido (Ferrarini et al., 1989; Yamamto et al., 1995; Rego Rde et al., 2002).

This study along with others indicate that programs to improve students environmental awareness can increase their knowledge of them, which in turn results in improvement of students and parents' attitudes and behavior. Data of this study showed that the knowledge, attitude and practice of people and students were not appropriate in this district; hence it is nec- essary to contribute in the development of long-term environmental awareness programs.

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