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An investigation on public knowledge towards biomedical waste management

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Abstract: Biomedical waste management The effect of hospital waste on health and the environment is important. It can be seen from this research that there is an immediate need to raise alertness, education on medicinal waste issues.To assure health and environmental protection, a proper waste management strategy is required. More information on effects, disposal to specific conclusions is needed to be collected. For developing countries, find options and suitable technology. Need thorough analysis of waste and aspects. Partly because agriculture has become less and less productive. By 2030, 65 percent of the world's population is projected to be living in cities. Due to low and lack of awareness, the infrastructure needed for this lop-sided growth of the cities is due to waste collection in the unplanned extensions in larger cities. The air quality in the city's surroundings is so bad that is estimated that about two million children under the age of five die each year from respiratory infections..It is a mystery how the wealthy are callous to the climate, such as doctors and higher officials working in such public places and part of their day time in these places. In fact, hospitals produce a large amount of hazardous waste. In establishing countries such as India,the amount of non liquid waste produced by hospitals has increased rapidly and innovations are implemented.

Keywords: Environment, technologist, awareness, infections, education, dangerous waste**,** innovation.

INTRODUCTION

Biomedical waste management deals with the medical waste of any type of waste from hospitals, including its container, and any of its products produced when human or animal diagnosis or immunization, or in the manufacturing or testing of science. It is estimated that the whole hospital is around a million tonnes..In India, waste is produced and the production of waste varies from 0.5 to 2.0 kg per day.

Specially labeled bags and containers are taken from biomedical waste for disposal under biomedical laws and regulations to increase public awareness of the management of biomedical waste. It must be carefully controlled to protect public in public places in general and to recognize health care and sanitation staff who are frequently exposed.

Every person should have a duty to handle them. Campaigns for proper public understanding of waste are an important tool for environmental conservation.There really is, however, a Made to encourage people to be part of this planet through proper waste management..The healthcare industry is one of world's leading industries for biomedical waste management, rising by leaps and bounds in India. Growing understanding of life and lifestyle and increasing precedence of lifestyle disease were key contributors to this development.The use of a broad range of medicines by hospitals clinics research centers and health care centers, including antibiotics, radioactive chemicals, which ultimately lead to biomedical waste in developed countries due to increased use of disposable waste, is important for the corporate and hospital waste product initiative to create a healthier environment.Nevertheless, there are different measures that require intervention from the general public which can lead to a clean world. The key problems related to the current management of biomedical waste in many hospitals are that the implementation of biomedical control is mediocre. There is more to research the management of biomedical waste through increasing awareness among people through successful recycling materials. Our research idea is based on the rich knowledge acquired by our peer teams across the university.(A.C.Gomathi, S.R.Xavier Rajarathinam, A.Mohammed Sadiqc, Rajeshkumar, 2020; Danda et al., 2009; Danda and Ravi, 2011; Dua et al., 2019; Ezhilarasan et al., 2019; Krishnan and Chary, 2015; Manivannan, I., Ranganathan, S., Gopalakannan, S. et al., 2018; Narayanan et al., 2012, 2009; Neelakantan et al., 2013, 2011; Neelakantan and Sharma, 2015; Panchal et al., 2019; Prasanna et al., 2011; Priya S et al., 2009; Rajeshkumar et al., 2019; Ramadurai et al., 2019; Ramakrishnan et al., 2019; Ramesh et al., 2016; Venugopalan et al., 2014)

REVIEW OF LITERATURE

(Anand et al., 2016) The purpose of this paper was to understand our institution's perception of BMW handling and disposal among health care individuals. Day by day, the rate of biomedical waste that is processed in our nation is rising. Biomedical waste can pollute the atmosphere if not treated properly and can spread many infectious diseases.

(Chudasama et al., 2013)The aim is to understand the knowledge, attitude and exercise of tertiary care center health care staff. Resident physicians, nursing assistants, laboratory technicians, ward incharge and sweepers participating in the community concerned with BMW were among the survey respondents.

(Mathur et al., 2011)The objective was to evaluate the skills, attitudes and operations of physicians, nurses, laboratory technicians, health workers with regard to Biomedical waste management and the risk of pollution and damage is higher than any other kind of waste. produced during healthcare operations.

(Indhulekha et al., 2018) The goal of the research is to examine BMW management's current expertise and understanding of undergraduate dental students. Materials and Methods. Many oral health facilities and regulations for decent training of dental waste have been found not to be enforced and are not up to the prescribed level.

(Kishore et al., 2000)To evaluate biological waste administration and infection control skills and practises among these dentists, the study used a well before, conscience questionnaire. Results suggest that not all dentists were conscious of dangers they were exposed to, and about half of them were aware of them following the protocol of infection prevention.

(Pandit et al., 2005) The goal of determining the extent of understanding by medical professionals of the different facets of biomedical waste and disposal procedures results in an imminent and the critical demand to train and educate both doctors-staff to pursue effectual waste management practices.

(Madhavi et al., 2013) The aim is to determine the information of junior doctors about different aspects of BMW management. The outcome of the research is to recognize the value of focusing on training on Management criteria of BMW; lack of adequate and total awareness of the impacts of biomedical waste management on productive waste disposal activities.

(Hegde et al., 2007)The research aims at the proper storage, management and recycling of biomedical waste, which are essential components of the infection prevention policy of the health care office. In order to protect health care staff, patients and the general population, the proper practice can help.Waste management may be a function of reasonably safe and reliable Activity consistent with compliance if adequately planned and implemented. This overview paper addresses the different waste, the treatment and Risks of unsystematic disposal of medical waste and, in short, dental waste management.

(Mathur et al., 2012)The goal is to research whether the BMW or hospital waste is indiscriminately disposed of and revelation to such waste poses a consequential risk to the environment and to human health that needs specific care, monitoring prior to its final destruction. This results in knowledge of employees working in the health care unit.

(Patil and Pokhrel, 2005) The purpose of this analysis was to analyze the wastes from hospital and the disposal system and the required consent with the Regulatory Notices for Bio-medical Waste Management. It results in the training of the workers working under the occupier to take sufficient precautionary steps in the treatment of these bio-hazardous waste products.

RESEARCH METHODOLOGY

The aim of the study is to inspect the knowledge of the public towards biomedical waste management. This is done by employing a questionnaire which contains various views with respect to biomedical waste management practices. The responses were collected from all age groups of people. The collected data were classified, tabulated and analyzed with statistical tools (SPSS) like Frequency analysis, Mean analysis, Kmo and Bartlett's Test and One-way ANOVA.

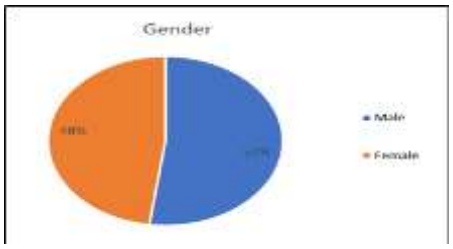

Fig.1: From the pie chart, it is analysed that the majority of the gender type are male (52.2%) when compared to female (47.8%).

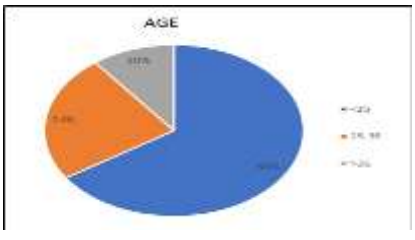

Fig.2: From the pie chart, it is analysed that majority of the respondents fall under less than 25 years (65.7 %) followed by 25-35 years (23.9%) and >35 years of age(10.4%).

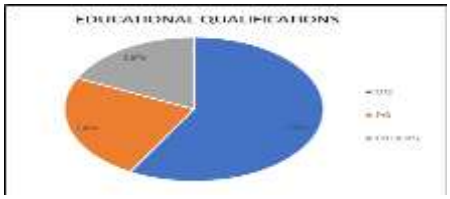

Fig.3: From the pie chart, it is analysed that the majority of the respondents are under Graduates (58.2) followed by post graduates (23.9) others (17.9).

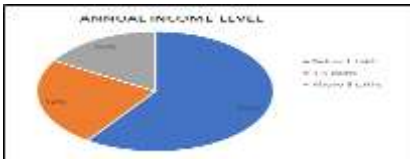

Fig.4: From the pie chart, it is analysed that majority of the respondents have below 1 lakh (59.7%) of annual income followed by income level of 1-5 lakhs (23.9%) and above 5 lakhs (16.4%).

Table 1: Mean analysis

S.No	Public awareness about biomedical waste management	Mean	Rank
1	Biomedical waste is produced from medical source (produced)	3.91	4
2	Biomedical waste should be disposed properly(disposed)	3.76	10
3	Biomedical waste should be segregated based on colour coding (segregation)	3.94	2
4	The different colour bins should be labelled properly for proper disposal of medical waste (colour bins)	3.92	3
5	Biomedical waste are infected and harmful(infectious)	3.89	6
6	Biomedical waste includes sharps body parts discarded blood used bandages etc (components)	4.03	1
7	Biomedical waste should be disposed only after proper treatment (treatment)	3.88	7
8	Biomedical waste management laws given by government must be followed (government laws)	3.80	8
9	If not disposed properly can result in spread of infectious diseases (spread)	3.78	9
10	Proper safety gears such as mask gloves must be distributed to those treating surgical waste (handling)	3.90	5

Table 1 displays the mean values of 10 variables. Components variable possess highest mean value followed by segregation, colour bins, produced, handling, infectious, treatment, government laws, spread and disposed. Therefore, it is evident that the public is aware of components of biomedical waste that includes sharps, body parts, discarded blood, used bandages, etc.

Table 2: KMO and Bartlett's Test

Kaiser Meyer Ok'ing test of adequacy of sampling		.856
Bartlett's Sphericity Test	Chi Square Approx	224.128
	Df	45
	Sig	000

Table 2 demonstrates KMO and Significance value. If the KMO value is >0.6 and significant level is at 1%, It means that the data provided is satisfactory for factor analysis to be conducted. The KMO value here is .856 and, therefore, the data given is satisfactory for factor analysis results.

Table 3: Total variance

Components	Initial Eigen Values			Rotated sums of Squared leadings		
	Total	% of Variance	Cumulative %	Total	%variance	Cumulative %
1	4.527	45.272	45.272	3.086	30.858	30.858
2	1.046	10.465	55.737	2.488	24.879	55.737
3	.772	7.720	63.457			
4	.738	7.376	70.833			
5	.686	6.864	77.697			
6	.654	6.536	84.233			
7	.517	5.174	89.407			
8	.480	4.789	94.240			
9	.309	3.091	97.295			

10	.270	2.705	100.000			

Table 3 is evident from the table that with the help of factor analysis ten variables have been grouped into two factors and all together they explain 55.7% of variance.

Table 4: Rotated component matrix

S. No	Public awareness about Biomedical waste management	Component 1	Component 2
1	Biomedical waste are infectious and harmful	0.787	-
2	Biomedical waste should be disposed	0.755	-
3	If not disposed properly can result in spread of infectious disease (spread)	0.728	-
4	Biomedical waste management laws given by government must be strictly followed (government laws)	0.642	-
5	Proper safety gears such as mask gloves must be distributed to those treating surgical waste (handling)	0.537	
6	Biomedical waste is produced from medical source (produced)	-	0.793
7	The different colour bins should be labelled properly for proper disposal of medical waste (colour bins)	-	0.684
8	Biomedical waste includes sharps body parts discarded blood use bandages etc (components)	-	0.630
9	Biomedical waste should be disposed only after proper treatment (treatment)	-	0.595
10	Biomedical waste should be segregated based on colour coating (segregation)	-	0.544

Table 4 is observed from the above table that the variables are categorised into two components and they are policies and recycling. The policies component comprises infectious, disposed, spread, government laws and handling. The recycling component comprises produced, colour bins, components, treatment and segregation.

Table 5: ANOVA

S.No	VARIABLE	F	SIGN
1	Age vs policies	1.215	0.294
2	Age vs recycling	1.390	0.192
3	Qualification vs policies	.570	0.876
4	Qualifications vs recycling	.729	0.737
5	Annual income vs policies	1.540	0.1
6	Annual income vs recycling	1.577	0.188

The F and significant values are shown in table 5. It is obvious from the table that the significant value is > 0.5 percent, so the null hypothesis is acknowledged.

CONCLUSION

Biomedical waste should be disposed of properly to avoid unnecessary dumping of hazardous materials into the environment. The research indicates that the public is conscious that sharp objects, body parts, discarded blood, body fluids, etc. are found in biomedical waste.The government and non government institutions' should focus on creating awareness among the public about biomedical waste management and its necessity to our environment. Everyone should be educated about the colour coding practices to be followed in hospitals with respect to biomedical waste. Moreover, proper disposal and treatment of medical waste should be employed to avoid adverse effects.

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