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A comparative study on sanitation among government and private school students of rural Bikaner

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Abstract
The poor health and lack of sanitation facilities are important underlying factors for low school enrolment, absenteeism, poor classroom performance, and early school dropouts. In the nutshell, India is lacking sanitation and hygiene in its rural schools setup which affects the performance of children negatively and increases the chances of acquiring many diseases. Therefore, the present study is planned to assess the current situation of knowledge and practices regarding sanitation in school students of rural Bikaner. In the present study, 1280 students were selected from 32 schools, which comprised of 16 government and 16 private schools. These students were selected by the process of multistage sampling. A self-administered close ended questionnaire was prepared for the study. To find whether there exists a significant difference between knowledge and practice regarding sanitation, we conducted test of proportions where the same set of respondents were asked for two different aspects and the result was analyzed through z-test statistic. For the knowledge level of disposal of human excreta, Z-Calculated (1.32) was found to be higher than the Z-critical (1.96). For the practices level of government and private school students the Z- Calculated (7.46) was found to be lower than the Z-critical (1.96). This implies that there is a significant level of difference found in the practices level of human sanitation amongst the two school groups.

Keywords: Knowledge, Practices, human sanitation, School students

1. Introduction
Children have an increased risk and susceptibility to many pathogens and diseases, such as diarrheal diseases, as their immune systems are still maturing. Mortality rates, especially child, are measures of a country's health status, quality of life status, and socio-economic status, and are useful for informing health programs and policies. It has been estimated that more than 2.3 billion people still live without access to sanitation facilities and are unable to practice basic hygiene such as washing their hands with soap and water. Diseases related to poor sanitation, hygiene and water unavailability causes many people to fall ill or even die. Children are the most vulnerable segment of the population to sanitation concerned health hazards and consequently are affected the most. As per WHO fact sheet, 2013 nearly 1.7 billion diarrhoea cases occurred every year and it causes 7, 60,000 deaths every year. By another report 443 school days are lost annually by these preventable gastro intestinal upsets. In addition to this, poor sanitation has led to the infestation of nearly a billion people - largely children with a variety of worm infections, with its corresponding costs in health and energy. It is obvious that lack of sanitation and hygiene is a public disaster and deserves the highest priority from government as well as society.
It is widely recognised that schools could play an important role in bringing about behavioural changes and promoting better health with the weapon of knowledge. But, water and sanitation related diseases including diarrhoea, trachoma, scabies and Guinea worm, etc. All of these have compromise children's attendance and performance at school. Access to sanitation facilities is a fundamental right that safeguards health and human dignity. Such improvements may go hand in hand with hygiene behaviour change and the transmission of disease can to be prevented which will result in to better performance, better enrolment stick and educated and healthy parents of next generation.

2. Rationale of the Study
1. Children are the most vulnerable to environmental health hazards and are subsequently also the worst affected. But then focus of the present study is made upon school children because they are eager to learn at the early stages of life, they have important roles in household chores, they can become agent of change and they are ready for initiatives guided in the schools by the school teachers and their peer groups.
2. Schools will partly determine children's health and well-being by providing a healthy or unhealthy environment and by developing useful life skills on health and hygiene.
3. So whether the said enormously progress of the recent years made in India and consequently in Rajasthan percolates to end points which our villages are still uncertain, regarding the issues of hygiene and sanitation facilities erection, their maintenance and knowledge of children about them and actual adoption of knowledge in practice. Western Rajasthan has traditionally been considered as orthodox area poor in women education level and most importantly this area has been water deprived since time immortal due to its geo climatic condition.
4. Therefore, the present study is planned to find out the difference between Knowledge and Practices regarding Water and Food Hygiene among Government and Private school students of rural Bikaner.

3. Objective of the Study
To find out the difference between Knowledge and Practices

regarding human sanitation among Government and Private school students of rural Bikaner

4. Methodology

The Study was conducted in Bikaner district of Rajasthan.

1. **Locale of the study:** The study was conducted in Bikaner, Rajasthan.
2. **Selection of the sample:** In present study, multistage sampling was used for selection of Bikaner four directions, then village then schools, after that classes and finally students.
3. **Selection of the respondent**: In the present study upper primary students were selected because those students have knowledge from their primary class but important is that how many students are using their knowledge in actual practices in daily life. So a total of 40 students, from of 6th, 7th and 8th class of each school (government and private) were selected for study. A total of 1280 respondents were selected for the present study.
4. **Tools of data collection:** A self-administered, close ended questionnaire was prepared. Measurement of knowledge and practices regarding food hygiene and water hygiene among selected school students of rural Bikaner district was done by formulating 5 major research tools for data collection and these were:
   A. General information
   B. Knowledge about human sanitation
   C. Practices about human sanitation

5. Results and Discussion

The study for this objective includes the understanding of the knowledge and practices regarding human sanitation. The results of the present study as well as relevant discussions have been presented under following sub headings.

Table 1: General characteristics of Respondents

S. No.	Characteristics		Government school	Private school	Overall
1	Types of Family				
	A.	Nuclear family	183	194	377
	B.	Joint family	457	446	903
2	Family Income				
	A	INR 1000-5000 P.M	51	16	67
	B	INR 5001-10000 P.M	262	288	550
	C	INR 10001-15000 P.M	202	253	455
	D	Above INR 15000 P.M	125	83	208
3	Father's Education				
	A	Uneducated	46	39	85
	B	Primary education	274	262	536
	C	Secondary education	102	104	206
	D	Higher secondary	110	119	229
	E	Others	108	116	224
4	Mother's Education				
	A	Uneducated	179	159	338
	B	Primary education	252	253	505
	C	Secondary education	71	74	145
	D	Higher secondary	128	122	250
	E	Others	10	32	42

The family background of the students was also assessed in order to gain insights over the type of family environment that student are getting at home. This will be related to the habits developed and practiced at home and depict that whether students are exposed to the desired environment at home or not. Table 1.1 displays family type, income group, fathers and mother's education background, respectively. The knowledge and practice level of the school students were collected and evaluated.

Objective: To find out the difference between Knowledge and Practices regarding sanitation among Government and Private school students

The parameter under consideration is the Disposal of Human Excreta. Knowledge about Human Sanitation reveals a lot about Human excreta management around the place we live. The factors comprising the human sanitation level are shown in Figure 1.1

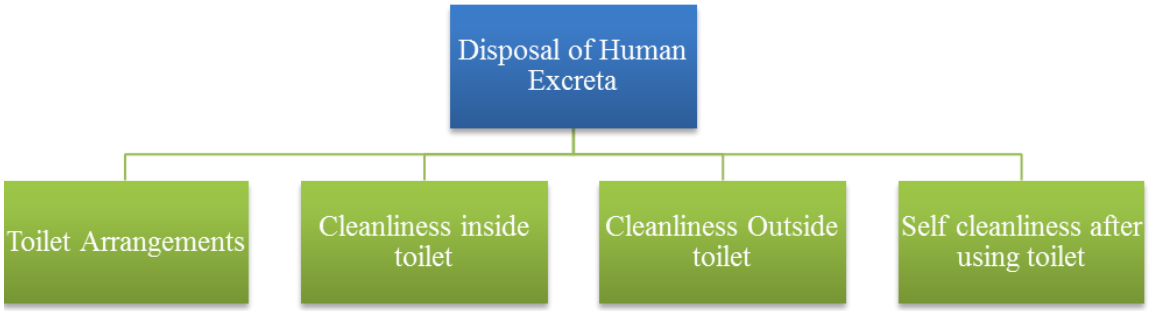

Fig 1: Various factors for Human Sanitation

The knowledge level of the Government School and Private School students was found to be very closely separated with regards to knowledge of Disposal of Human Excreta. Students of both the types of schools had knowledge about the toilet facilities (89.4 and 90.9% respectively). In terms of cleanliness inside and outside toilets, private school students (88.2% and 90.3%) were more aware as compared to government ones (85.8% and 87.7%). They also understood the importance of maintaining self-cleanliness (93.3%) like washing hands after using toilets, cleaning with neat cloth more than those studying in government school (83.5%) as shown by the data. The overall higher awareness is positive for the students as Sanitation starts from proper and cleaner toilet conditions.

The practice level for the disposal of human excreta is found to be on higher side amongst the private school students. So regularly maintaining the toilets and facilities related to them are very well done by these students. Government school students are not much behind too. Almost 40.6%government school students regularly had access to toilets (67.1% for private school students) and 42.5% maintained the cleanliness inside them (58.5% for private school students). Though only 40.3% maintained regular cleanliness outside toilets (62.4% for private school students) and just 50.3% maintained their cleanliness after using the toilet (68.8% for private school students).

Table 2: Percentage Distribution of Knowledge & Practice level regarding various aspects of Human Sanitation N=1280

Human Sanitation	Government School (%)				Private School (%)			
	Knowledge	Practice	Z-value	Significance	Knowledge	Practice	Z-value	Significance
Facilities of Toilets	89.4	40.6	18.28	S	90.9	67.1	10.44	S
Cleanliness inside Toilets	85.8	42.5	16.14	S	88.2	58.5	12.07	S
Cleanliness Outside Toilets	87.7	40.3	17.64	S	90.3	62.4	11.71	S
Self-Cleanliness	83.5	50.3	12.58	S	93.3	68.8	11.18	S

NS: Non-Significant **S:** Significant at 0.05 level

Overall if we consider the knowledge and practice level amongst the students of Bikaner district, it is found to be on the higher side. Like the study by Dongre *et al* (2006) in the Wardha District revealed that the awareness and practice level was low with regard to hygiene and sanitation. With respect to personal hygiene, not even 50% respondents were found maintaining personal hygiene. Study by Pardeshi *et al*. (2008) [6] regarding sanitation conditions in Yavatmal district also revealed lesser knowledge and practices regarding the hygiene conditions. The use of waste disposal was the prominent method (57.4%) followed in that particular district instead of proper human excreta disposal system. Study by Ifegbesan (2010) outside India study revealed that majority students (>50%) were worried about the waste disposal system in their school which was leading to unhygienic conditions within the school premises. Study by Deb *et al*. (2010) [2] in South Kolkata also revealed higher hygienic practices amongst the students which was almost more than 70% in most of the cases. Jasper *et al* (2012) [5] also emphasized that lack of sanitation facilities in schools leads to occurrence of diarrheal and gastrointestinal diseases.

This objective has been studied and analysed with the help of testing of hypothesis related to Knowledge and Practice separately on various parameters.

The Null Hypothesis for the Knowledge level is as follows:

Ho: There will not be a significant difference between the Knowledge of Government School students and Private School students regarding Disposal of Human Excreta

To test the hypothesis, the z-test for proportion was calculated and results are shown in the following Tables. For the confidence interval of 95% confidence, significance level was 0.05. Based on this confidence level, the critical value for Z-statistic was 1.9600 to -1.9600 for the two tail test. As shown in table 1.3, for disposal of human excreta, Z-Calculated (1.32) was found to be higher than the Z-critical (1.96). This implies that there was not significant level of difference found in the knowledge level of Human Sanitation amongst the two school groups. The proportions how ever did indicate that Government School students (87.5%) were found to be less knowledgeable compared to Private School students (89.8%). The various components of Human Sanitation factor also reported no significant difference except Self-Cleanliness (5.42), where Private schools' students had an upper hand.

Table 3: "Z" test showing Knowledge Level of Government & Private School students regarding Human Sanitation and its components N=1280

Knowledge Parameters	Government School Count (%)	Private School Count (%)	Z-test (for proportions) Statistic	Significance Level
Human Sanitation	87.50	89.79	1.32	NS
Facilities of Toilets	89.41	90.94	0.94	NS
Cleanliness inside Toilets	85.82	88.20	1.33	NS
Cleanliness Outside Toilets	87.73	90.31	1.43	NS
Self-Cleanliness	83.52	93.32	5.42	S

NS: Non-Significant **S**: Significant at 0.05 level

Therefore, we accepted the Null hypothesis on the basis of Human Sanitation. Nansereko (2010) found that the available sanitation facilities are poorly utilized in Mpigi district which is a result of many factors including student's background and upbringing, discipline regarding personal hygiene and school and weakness in implementation of sanitation and hygiene policies. The Null Hypothesis for the Practice level is as follows:

Ho: There will not be a significant difference between the Practices of Government School students and Private School students regarding Disposal of Human Excreta

The z-test for proportions for the two samples was used to analyse the result as shown in the following Tables. For the confidence interval of 95% confidence, significance level is 0.05. Based on this confidence level, the critical value for Z-statistic was 1.9600 to -1.9600 for the two tail test. As shown in table 1.4, for the factor 'Human Sanitation', the Z-calculated (7.46) was found to be lower than the Z-critical (1.96) which implies a significant difference in the practice levels of the students of two school groups. More of the Private school students (64.20%) were found practicing Human Sanitation practices than the government school students (43.43%). Significant difference was also found between the students of two school groups in their practice levels of various components of human sanitation practices, namely, facilities of toilets (9.53), cleanliness inside toilets (5.70), cleanliness outside toilets (7.89) and self-cleanliness (6.72).

Table 4: "Z" test showing Practice Level of Government & Private School students regarding Human Sanitation and its components N=1280

Practice Parameters	Government School Count (%)	Private School Count (%)	Z-test (for proportions) Statistic	Significance Level
Human Sanitation	43.43	64.20	7.46	S
Facilities of Toilets	40.59	67.11	9.53	S
Cleanliness inside Toilets	42.50	58.48	5.70	S
Cleanliness Outside Toilets	40.31	62.38	7.89	S
Self-Cleanliness	50.31	68.79	6.72	S

NS: Non-Significant **S**: Significant at 0.05 level

The null hypothesis is therefore rejected based human sanitation and school cleanliness.

Comparing the Knowledge and Practice level in various school students with respect to Hygiene and Sanitation, there were many studies conducted in various parts of the world. Study by Reena Chudgar (2010) [1] regarding Knowledge and Practices in Ghana. Instead of two school groups, the hygiene was compared in two regions irrespective of age and education. Hygiene was the focus of the study which concentrated on Human Sanitation and its disposal in both the areas.

6. Conclusions

This study has shown a need to improve practices regarding disposal of human excreta the government and private school students have good knowledge about disposal of human excreta but they have not good practices due to lack of resources. Such as the water problem in rural area and water source or sanitation service, use of these services, water storage and treatment practices, availability of soap and toothpastes. A change in awareness or knowledge can lead, through the complex system, to the changes in behavior ultimately.

7. References

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