

A test to assess the Knowledge of the Rural School Children Regarding Sanitation and Hygiene

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ABSTRACT

Sanitation and hygiene means promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Schools are a stimulating learning environment for children and stimulate or initiate change. If the students are brought into the development process as active participants on different aspects, they will be able to take care of their own health as well as the health of others and as a result they can become change agents within their families and a stimulus to community development for a healthy and safe environment. Therefore, assessing the knowledge of the school students from rural areas regarding sanitation and hygiene is very essential. A split half reliability coefficient of the test was corrected by using the Spearman Brown formula and it was found to be 0.24 which indicates that the knowledge check developed was found to be effective for collecting data from the school children.

Key words: Knowledge, Sanitation, Hygiene

INTRODUCTION

Sanitation and hygiene means promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Hazards can be physical, microbial, biological or chemical agents of disease. Hygiene is the science of health, its promotion and preservation while sanitation is the hygienic disposal or recycling of waste.

After the family, schools are the most important places of learning for children; they have a central place in the community. Schools

are a stimulating learning environment for children and stimulate or initiate change. If the students are brought into the development process as active participants on different aspects, they will be able to take care of their own health as well as the health of others and as a result they can become change agents within their families and a stimulus to community development for a healthy and safe environment. Knowledge in the Present study is operationally defined as the existing information on sanitation and hygiene possessed by students.

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Therefore, assessing the knowledge of the school students from rural areas regarding sanitation and hygiene is very essential.

The present study was carried out in order to develop knowledge check to assess the sanitation and hygiene knowledge of the rural school children.

MATERIAL AND METHODS

Construction of knowledge scale

The following major steps were undertaken by adopting the procedure followed by Rahman², Saikia³ and Saikia⁴.

Collection of items

Based on the content area, thirty seven (37) statements for measuring the existing knowledge of students were prepared by consulting with subject experts and relevant literatures to form initial test battery to carry out the item analysis.

The prepared item pool was subjected to scrutiny by a panel of ten experts in the field of extension and communication management. The content validity of the knowledge statements were judged in terms of clarity/ambiguity and relevancy. As per judgment of panel of experts on the knowledge statements, --- items were eliminated. Finally, --- items were selected to form initial test battery for developing a standardized knowledge test. All selected items were asked in statement form which were answered as correct and incorrect.

Administration of knowledge scale on selected scale

The knowledge scale thus prepared was administered on ninety (90) non sampled respondents from the schools situated in rural areas of Jorhat District of Assam. Scores of one and zero were given for correct and

incorrect responses respectively. Therefore, there was a possibility of respondents scoring the maximum points for all correct answers and zero for all wrong answers. Thus, the range of obtainable score was 0-37 after computing the total scores obtained by each respondent on scientifically validated statements on sanitation and hygiene. They were arranged in descending order of the total scores. The respondents were divided into six equal groups – G1, G2, G3, G4, G5 and G6 with 15 respondents in each group. For the purpose of item analysis, the middle two groups namely G3 and G4 were eliminated retaining only the four terminal groups with high scores (G1 and G2) and with low scores (G5 and G6).

Item difficulty index (P)

Item difficulty was determined by the percentage of individuals able to pass each item. In practice, if an item is to distinguish among individuals, it should not be so easy that all persons can pass it, nor should be difficult that none are able to pass it.

The index of item difficulty indicated the extent to which an item was difficult. The item difficulty as worked out in the present study was P *i.e.* the percentage of respondents answering an item correctly. The item with P values ranging from 20 to 80 only was considered for the final knowledge test.

Item discrimination index (E1/3)

The second criteria for item selection were the discrimination index indicated by E1/3 value for an item. The function of item discrimination index is to find out whether an item really discriminates a well-informed respondent from a poorly informed respondent. The formula used is as follows:

$$E1/3 = \frac{(S1+S2) - (S5+S6)}{N/3}$$

Where S1, S2, S5 and S6 = frequencies of correct answers in groups G1, G2, G5 and G6 respectively.

N = Total number of respondents in the sample selected for item analysis.

In the present study, the items with E1/3 values ranging from 0.20 to 0.80 were

considered for the final selection for inclusion in the knowledge test.

For establishing internal validity of the check point biserial correlation coefficient (rpbis) was established since the items were scored simply as 1 if correct and 0 if incorrect. According to Garrett¹ point biserial r assume

$$E1/3 = \frac{M_p - M_q}{\sigma} \times pq$$

Where, rpbs = Point biserial correlation coefficient

M_p = Mean score on continuous variable of successful group on dichotomous variable

σ = Standard deviation on continuous variable for total groups

p = Proportion of persons falling in successful group on dichotomous variable

q = 1-p, or the second group

Eventually, 12 items having significant biserial correlation at 0.01 level and 0.05 level of probability were selected for the final knowledge check.

Testing the reliability of the knowledge check

$$rtt = 2 roe/1 + roe$$

Where,

rtt = reliability coefficient of the whole test

roe = reliability coefficient of the half test found experimentally

Both these coefficients provide an estimate of the internal consistency of the test and thus the dependability of the test scores. According to Garrett¹, “The method

Validity of the scale

Content validity was measured by the extent to which the items included in the test represent the total universe of sanitation and hygiene in schools. The universe of the content was covered widely from the available literature and through interviews with several farm, experts and extension personnel. Hence, it was assumed that the scores obtained by administering the knowledge test measures what it was intended to be measured.

that the variable, which has been classified into two categories, can be thought of as concentrated at two distinct points along a graduated scale or continuum. The formula for the point biserial r is:

A split half reliability coefficient of the test was also corrected by using the Spearman Brown formula and it was found to be 0.24. The reliability coefficient of the whole test was estimated from the formula

Moreover, the validity of the test – item was also tested by method of point biserial correlation coefficient (rpbis). The items with highly significant biserial correlation coefficients at 0.01 and 0.05 levels of probability indicated the validity of items in relation to the knowledge test designed to measure the knowledge of students.

The knowledge check developed could serve the purpose for measuring knowledge of students about sanitation and hygiene.

The final scale consisted of --- statements. The responses of the students were recorded on a two point continuum as correct and incorrect and scored as 2 and 1.

Table 1: Final statements for checking the Knowledge of the students regarding sanitation and hygiene

Sl. No	Statement on knowledge	Correct	Incorrect
1.	Water is a good medium for transmission of diseases like diarrhea, Cholera, Dysentery, Typhoid, Polio, Hepatitis, etc. (+)		
2.	Use of chlorine or bleaching powder helps to kill germs in drinking water (+)		
3.	Tube - well is one of the safest source of drinking water (-)		
4.	The pond used for drinking water do not get contaminated if used as fishery (-)		
5.	Water does not get infected if the pond is used for bathing and other purpose (in the pond or just near to the pond) (-)		
6.	Tube – well water gets contaminated if there is water logging in the platform (+)		
7.	Bathing and washing clothes in the platform do not contaminate the water of the tube well (-)		
8.	The sides of the pond or well are to be sufficiently high to prevent water pollution from outside water (+)		
9.	The surrounding of the source of drinking water does not contaminate the water source (-)		
10.	Drainage system around the house do not create a hygienic atmosphere in the environment (-)		
11.	Garbage should be dumped at a particular place to keep the environment clean (+)		
12.	Water gets polluted if the toilet is near the source of water (+)		
13.	Safe and clean water is for sick people should drink only (-)		
14.	Wearing slippers at the toilet do not help to prevent germs (-)		
15.	Properly washed plates helps to prevent germs(+)		
16.	A major medium for transmission of water – borne disease is our hands and fingers (+)		
17.	Washing of hands without soap before taking the meal helps to get rid of germs (-)		
18.	Washing hands with soap or hand wash is not a best solution of getting rid of germs after defecation(-)		
19.	Regular bathing is good for health(+)		
20.	Open air defecation do not have any impact on health(-)		
21.	Low cost latrine is not as hygienic as the septic tank sanitary latrine (-)		
22.	Safe disposal of excreta of diseased person and children help to prevent excreta borne pathogens (+)		
23.	Animal wastes need not to be disposed hygienically (-)		
24.	Use of long handled container to take out drinking water from the vessel is a good hygienic practice(+)		
25.	Trimming of nails regularly has no effect on health (-)		
26.	It is compulsory to change home wear dress daily (+)		
27.	Wearing clean school uniform is not necessary to maintain hygiene(-)		
28.	Removing shoes and slippers before taking mid day meal is a hygienic practice (+)		
29.	Stagnation of water near the residential area causes harm to the health(+)		
30.	Mopping of rooms with disinfectant gives protection from germs (+)		
31.	Sun drying of utensils after washing helps to kill germs(+)		
32.	Kitchen smoke increases the chance of developing lung disease (+)		
33.	Use of smokeless chullah does not protect the kitchen from getting dirty (unhygienic atmosphere) (-)		
34.	Edible items are to be covered to prevent contamination(+)		
35.	Washing of hands with soap after contact with pets/animals is a good hygienic practice (+)		
36.	Regular cleaning of toilets, urinals and wash basins prevent germs (+)		
37.	Washing feet before entering into the house is not compulsory to protect the house from germs (-)		

CONCLUSION

The knowledge check developed was found to be effective for collecting data from the school children. Hence, the check could serve the purpose for assessing the knowledge regarding sanitation and hygiene.

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