

# Effectiveness of Child to Parent Communication Using Information Package on Food Hygiene

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## Abstract

*School children can act as change agent not only for families but for community. The study aimed to assess effectiveness of information package on knowledge and practices of parents/family members of school children studying in Govt. Sr. Sec. School on food hygiene in Dhanas and Daddu Majra Colony, UT, Chandigarh. A non-randomised controlled trial was conducted on 201 school children studying in VIIIth standard and their parents/family members. Purposive sampling technique was utilised to enrol 101 in case and 100 participants in control group. Interview schedule for knowledge assessment and observation checklist for assessing the practices of parents/ family members was used. Pre assessment of both the groups was done by a home visit. Experimental group school children were educated on food hygiene as per the protocol. Pre and post-test knowledge of school children on food hygiene was assessed and were asked to disseminate the information to their parents/family members. After 15 days, second time home visit was done to the parents/family members of both the groups for the post assessment of knowledge and practices. Significant improvement in knowledge and practices of parents/family members related to food hygiene was observed. Hence, school children can be an effective tool in health related knowledge dissemination which can further promote healthy practices.*

**Keywords:** *Health communication, School children, parents/ family members and food hygiene.*

## Introduction

Dissemination of health information plays a very important role in the field of health communication. School children can be educated on different aspects of health and its related issue. Food hygiene is one aspect where they can be used as a medium of disseminating health related information on the prevention of food borne disease.

Food borne diseases are major public health problem causing morbidity and mortality in developing countries. In India, for the past 29 (1980–2009) years 37 outbreaks occurred due to food poisoning affecting 3,485 persons. (WHO 2017, Sudershan et. al) This was due to contamination of food at different stages i.e. purchasing, food storage, preparation, kitchen hygiene, personal hygiene, water storage, pest control, hand washing and disposal of refuse.

Many people do not believe in this regard that majority of the food borne illness incidents occur at home. Home cooked poultry, contaminated water, cross contamination of food resulted in food poisoning at the household levels where even school children involved in cooking demonstrated a risky behaviour. (Angela et. al, Sakia et. al, Bredbenner et. al, Ovca et al, Labib et. al)

Child to parent communication can bring a desirable change in the behaviour of their parents/family members. School children have acted as a major agent in bringing behavioural and physical changes in the home environment of their family by disseminating the information that they received in their schools. Information related to hand washing facilities, boiling and filtering water, improving utensil hygiene, food preparation, building dish racks and latrines at home has been disseminated by school children to their families. (Onyango W et.al)

Two focus group discussions (FGD) with 16 pupils resulted in safe sanitation practices and hygienic behaviour at school and participants wanted to continue this practice at home due to high perceived risk of disease. Pupils discussed a need and a desire to have a safe sanitation and reported negotiating with their parents to influence in constructing latrines at their home. For hand hygiene, they build tippy taps at home. (Sara B et.al) School children can transfer their knowledge learned at school and can encourage the parents to develop a positive attitude by bringing a change in their practices.

Studies have shown that the health messages that was delivered to the school children on visceral leishmaniasis, diabetes, hypertension, dengue, malaria prevention and control at different settings was well communicated to their parents, family members and the community and were found to be effective in managing the concerned problems. (Magalhaes et. al., Sheeladevi et. al, HeFJ et. al., Sokrin et. al, Deepthi et. al, Ayi et al.). School children had followed and shared the health messages given from the school with their parents resulting into a significant improvement in safe water and hygiene practices and increase concern for a healthy environment. (Sara et.al, Reily et.al, Saminathan et.al)

It is evident that school based education has helped in managing different health problems by child to parent communication. Food borne and diarrhoeal diseases is a common problem in every country where there is a need for increased public awareness on food hygiene and its safety practices among the general community. Thus, it is very important to bring awareness regarding food hygiene among the families. School based health teaching intervention on food hygiene is very important as these will help the student to gain basic knowledge and take this message to their families so that the families can adopt the healthy practices and prevent the food borne disease. Hence, present study was aimed to assess effectiveness of information package on knowledge and practices of of parents/ family members of school children studying in Govt. Sr. Sec. School on food hygiene in Dhanas and Daddu Majra Colony, UT, Chandigarh.

## Material and Methods

A non-randomised controlled trial was conducted after obtaining ethics clearance from the Institutional Ethical Committee. Parents/family members and the school children residing in Dhanas and Daddu Majra Colony, students of standard VIIth studying in Govt Senior Secondary School of Dhanas and Daddu Majra Colony, ability to understand Hindi and English were included. Sample size estimate was based on a pilot study in which two sample t-test mean difference was 7, standard deviation was 19.35 with power

0.95 using mini tab statistical software. The sample size came out to be 200.

Two schools were allotted as per the permission from District Public Instructions, U.T, Chandigarh. The permitted schools were randomized by lottery method into case and control group. Purposive sampling (homogenous sampling) technique was utilised to enrol 101 in case group and 100 in control group. Interview schedule and observation checklist was used for data collection. Interview schedule consist of two parts i.e. socio demographic profile of the parent and knowledge assessment questionnaire on food hygiene. Percent score was calculated for all the domains of food hygiene to score the respondents. Observational checklist to assess the practices of the parents and family members consist of four parts i.e. hand washing assessment checklist, food preparation assessment checklist, kitchen hygiene practice checklist and personal hygiene checklist and percent score was calculated for all the domains of food hygiene checklist to score the respondents. Thereafter, median knowledge and practice score for parents/family members was calculated. For school children, knowledge assessment questionnaire on food hygiene comprised of total 15 questions and the total score was given as 15 where median knowledge score was calculated. A pilot study was conducted prior to the main study in Khudda Jassu, U.T, Chandigarh and the results was used for improving the questionnaire and observation checklist.

Content validity of tool and information package was done by the experts in the field of Nursing, Community Medicine, Psychology and Sociology. Reliability of the interview schedule (Cohen Kappa was 0.98) and observation checklist (Cohen kappa was 0.77) was assessed using Cohen Kappa method. Knowledge assessment questionnaire (Cronbach's alpha 0.82) for school children was assessed using Cronbach's alpha method. The consent form and the tool were translated from English to Hindi and Hindi to English by the researcher prior to the administration for checking translation validity.

Data was collected into three phase: In the beginning phase, assessment form was given to the school children and they were asked to fill socio demographic proforma. With the address obtained from the socio demographic profile proforma, home visits were made to their families and an informed consent was obtained from the parents/family members. A total of 101 participants of case group and 100 of control group agreed to participate in the study. Pre assessment knowledge and practices of the parents/family members on food hygiene for Dhanas and Daddu Majra was done by administering the questionnaire. During 2nd phase administration of the informational package on food hygiene to the school children studying in standard VIIth of Dhanas Govt. Sr. Sec. School was done. The information package on food hygiene included all the measures to ensure the

safety of food i.e. purchasing, storage, preparation, kitchen hygiene, personal hygiene, water storage, pest control, hand washing and disposal of refuse was taught to the school children of standard VIIth via health talk using charts, flash cards, pamphlets and demonstration. An extensively tested and modified information package was provided for 1 hour every day for 5 days. Post-test was done after the complete administration of information package. The children were motivated to disseminate the information to their parents/family members. During 3rd phase i.e. after 15 days of intervention, post assessment of knowledge and practices on food hygiene of parents/ family members of Dhanas and Daddu Majra Colony was done through home visit. After the completion of the study as per the protocol, information package was provided to the school student studying in Daddu Majra Colony, U.T, Chandigarh.

The outcome of the study i.e. dissemination of information on food hygiene from school children to parents/ family members was observed at the end of the study. Analysis and interpretation of data was done using descriptive and inferential statistics. In descriptive statistics, percentage, mean, and standard deviation was used to analyze the data. In inferential statistics, Mann Whitney Test and Wilcoxon Signed Rank Test was used to determine the level of significance.

## Results

Participants were recruited from July 19, 2016 to September 15, 2016. Mean age of the students were  $12.30 \pm 1.05$  in case and  $12.28 \pm 1.00$  in control group (Table 1).

**Table 1: Socio-demographic profile of school children**

**N=201**

Socio demographic profile of school children	Case group (n <sub>1</sub> =101) f (%)	Control group (n <sub>2</sub> =100) f (%)
<b>Age (yrs)of school students*</b>		
• 10 – 11	25(24.8)	22(22.0)
• 12 – 13	62(61.4)	70(70.0)
• 14 – 15	14(13.8)	08(8.0)
<b>Gender of students</b>		
• Male	60(59.4)	46(46.0)
• Female	41(40.6)	54(54.0)
<b>State</b>		
• Punjab/Haryana/Chandigarh/ Delhi	19(18.8)	21(21.0)
• Bihar/ Nepal	19(18.8)	9(9.0)
• Utrakhand/ Himachal Pradesh/ UttarPradesh	63(62.4)	70(70.0)
<b>Per capita Income of the family<sup>#</sup></b>		
• <1000	46(45.6)	49(49.0)
• 1001 – 1500	20(19.8)	28(28.0)
• 1501 – 2000	17(16.8)	13(13.0)
• >2000	18(17.8)	10(10.0)
<b>Type of the family</b>		
• Nuclear	79(78.2)	90(90.0)
• Joint	22(21.8)	10(10.0)
<b>Total members of the family</b>		
• ≤5	50(49.5)	50(50.0)
• ≥5	51(50.5)	50(50.0)
<b>Religion</b>		
• Hindu	75(74.3)	89(89.0)
• Others*	26(25.7)	11(11.0)
*Others include Sikh, Muslim, Christian		
<b>Type of House</b>		
• Pucca	62(61.4)	96(96.0)
• Kutcha	39(38.6)	4(4.0)

Mean age of the parents/ family members involved in cooking was  $32.44 \pm 5.50$  years in case and  $32.06 \pm 6.37$  years in control group (Table 2). There was no significant difference in baseline parameters.

Table 2: Socio demographic profile of parents/family members in case and control group		N= 201
Socio demographic profile of the parents/ family members	Case group (n <sub>1</sub> =101) f(%)	Control group (n <sub>2</sub> =100) f(%)
<b>Member involved in cooking</b>		
• Mother	91(90.0)	91(91.0)
• Others(*Sister/ brother/ sister –in –law/aunt/student itself)	10(10.0)	9(9.0)
<b>Age of the member involved in cooking</b>		
• ≤ 20	5(5.0)	8(8.0)
• 21 – 30	32(31.7)	24(24.0)
• ≥31	64(63.3)	68(68.0)
<b>Educational status of the parents/ family members</b>		
<b>Mother</b> (N- E=99, C=99)		
• Illiterate	70(70.7)	63(63.7)
• Primary	12(12.1)	13(13.1)
• Middle	11(11.1)	13(13.1)
• Matric and above	6(6.1)	10(10.1)
<b>Father</b> (N- E= 94, C=97)		
• Illiterate	34(36.1)	33(34.0)
• Primary	18(19.1)	21(21.6)
• Middle	26(27.7)	18(18.6)
• Matric and above	16(17.1)	25(25.8)
<b>Other family member</b> (N- E=9, C=8)		
• Illiterate	2(22.2)	1(12.5)
• Primary	2(22.2)	1(12.5)
• Middle	2(22.2)	2(25.0)
• Matric and above	3(33.4)	4(50.0)
<b>Occupational status of the parents/ family members</b>		
<b>Mother</b> (N- E=99, C=9)		
• Working	16(16.1)	34(34.3)
• Housewife	83(83.9)	65(65.7)
<b>Father</b> (N- E= 94, C=97)		
• Working	94(100)	96(99.0)
• Unemployed	--	1(1.0)
<b>Other family member</b> (N- E=9, C=7)		
• Student / Working	8(88.9)	5(71.4)
• Housewife/ Unemployed	1(11.1)	2(28.6)

\*Mean ± SD age in years(range)

Parents/ family members involved in cooking: Case group: 32.44 ±5.50 (15-45), Control group: 32.06± 6.37 (13-45)

There was a significant increase in knowledge score of school children in case group after implementation of intervention package (p value = <0.01 as per Wilcoxon Signed Rank Test) (Table 3).

**Table 3: Knowledge score of school children in percent of case group before and after administering intervention**

Knowledge score (%)	Pre test	Post test	Wilcoxon Signed Rank Test
<b>Case group (n<sub>1</sub>= 101)</b>			
<b>Median score (IQR)*</b>	8.0- 12.0(10.0)	12.0- 14.0(13.0)	<b>&lt;0.001</b>

\*Inter quartile range (IQR)

There was a significant increase in knowledge and practice score of parents/ family members in case group after implementation of intervention package (p value = <0.01 as per Wilcoxon Signed Rank Test) (Table 4).

**Table 4: Knowledge and practice score of parents/ family members in percent before and after intervention in case and control group**

Knowledge score(%)	Case group n <sub>1</sub> = 101 Median score (IQR)*	Control group n <sub>2</sub> = 100 Median score (IQR)*	Mann- Whitney p-value
Pre test	56.0-67.8(62.37)	54.2- 68.9(60.0)	
Post test	65.2-78.8(72.0)	55.1- 66.1(61.3)	<0.001
Wilcoxon Signed Rank Test	<0.001	0.514	
<b>Practice score (%)</b>			
Pre test	49.8-67.6 (60.1)	50.9- 66.3(58.5)	
Post test	57.0-75.3(67.7)	50.3- 66.9(59.8)	<0.001
Wilcoxon Signed Rank Test	<0.001	0.370	

\*Inter quartile range (IQR)

### Discussion:

Dissemination of health information by the school children has become a best medium in bringing awareness among the family and the community on different aspects of health and its related issues. School children in the age group of 11-15 years are usually the active learners who take interest in learning new things. They are easily available population to approach the larger section of the community and educating them helps in managing and preventing the food borne infection.

It is known that majority of the school children in the age group of 10 – 12 years are involved in food preparation at home where unhygienic food handling practices were very common. (Academia et.al, Ovca et.al) With an increase in lifestyle changes and the family increase the dual working role of both parent, children were the one preparing meal and food back at home. (Toni et.al) Similarly, in the present study, school children was involved in cooking and feeding their younger siblings and were demonstrating risky behaviour associated with food hygiene practices at their home. The reason is because majority of the families were the migrant population from the other states where both the parents were employed as low skilled workers. This highlights the need for the importance of health education among the school children and their families. Hence, their knowledge regarding food hygiene practice significantly improved after administration of information package.

The present study depicted that the implementation of information package on food hygiene to the school children resulted in the improvement of different aspects of food hygiene in case group as compared to the control group. Similarly, studies have shown that the health messages that was delivered to the school children on visceral leishmaniasis, diabetes, hypertension, dengue, malaria prevention and control at different settings was well communicated to their parents, family members and the community and were found to be effective in managing the concerned problems. (Magalhaes et. al., Sheeladevi et. al, HeFJ et. al., Sokrin et. al, Deepthi et. al,Ayi et al.)

Literature related study has shown that when adequate health information was given to the school children it has resulted into increase level of health awareness by maintaining their personal and environmental hygiene. (Onyango et.al) Similar results were seen in the present study where personal and home hygiene practices of parents/family members had improved during post interventional period in case group as compared to the control group. Majority of the families were using polythene/ sack bag/ bamboo and some did not even have a dustbin for waste disposal at home. This could be due to negligence or dumping the waste directly into a community bin. Therefore, the implication of health promotion related to home and environmental hygiene should be emphasized.

The most common problem causing food borne illness is through faeco-oral contamination. Water contamination occurs during bathing, drinking, preparing the food or consuming the food which is prepared by using the contaminated water. (Wikipedia et.al) Food poisoning in tea garden of Assam had shown high level of faecal contamination in water. (Saikia et.al) In, Tamil Nadu consumption of contaminated water for butter milk caused food poisoning. (Reilly et.al) Another study conducted in Western Kenya, children acted as an agent ensuring that their household, utensils and the water are clean. (Onyango et.al) Present study has shown that main source of water supply was through the tap and all the families were storing drinking water. Implementation of protocol on water storage practices in the case group led a significant improvement of water storage practices like storing drinking water for less than 10-12 hours, washing water storage container every day among the parents/ family members.

Studies have stated that improper storage of raw meat/poultry and unsafe poultry preparation has been associated with food borne illness. (Angela et.al) In the present study, more than 60% of the respondents were non vegetarian and implementation of package significantly improved the practices of storing the raw meat/ poultry below the cooked food.

The implementation of information package protocol on food hygiene to the school children of Dhanas showed that there is a dissemination of knowledge between the school children and their parents which had shown an improvement in the knowledge and practices of food hygiene of parents/family member. (Table 4) Educating the school children brought the changes and arouses the health interest among the adults. Hence, similar research may be conducted on a larger sample in different communities to generalize the findings. Further school children can be utilize as a medium for disseminating other different health messages to their community.

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