

Food Safety Challenges And Responsibilities Faced By Leaders Of Family – A Study With Reference To Mothers Of Infant

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Abstract:

In today's world, children constitute a major proportion of the global population and they are the one who are easily affected by food borne diseases because of their weak immune system. It has been reported that 10% of the 5.8 million people living in the world are children less than 5 years of age, and among them annually 1.8 million children die from the direct effects of diarrhoeal diseases. (World Health Organisation, 1998)⁴. The potential risk factors leading to diarrhoea in an infant are, feeding leftover and overnight foods, not washing hands prior to cooking and feeding, consumption of the spilled food on the floor, use of dirty cloth for wiping hands and utensils and the use of unsterilized and dirty feeding bottles for the infants (Sheth, M., &Arora, S., 2001)². Poor environmental sanitation and poor personal hygiene of the caretaker and mothers also continue to remain leading etiological factors for food borne diseases among infants (Mini Sheth & Reeta Dwivedi, 2006)³.

INTRODUCTION

In today's world, children constitute a major proportion of the global population and they are the one who are easily affected by food borne diseases because of their weak immune system. It has been reported that 10% of the 5.8 million people living in the world are children less than 5 years of age, and among them annually 1.8 million children die from the direct effects of diarrhoeal diseases. (World Health Organisation, 1998)⁴. The potential risk factors leading to diarrhoea in an infant are, feeding leftover and overnight foods, not washing hands prior to cooking and feeding, consumption of the spilled food on the floor, use of dirty cloth for wiping hands and utensils and the use of unsterilized and dirty feeding bottles for the infants (Sheth, M., &Arora, S., 2001)². Poor environmental sanitation and poor personal hygiene of the caretaker and mothers also continue to remain leading etiological factors for food borne diseases among infants (Mini Sheth & Reeta Dwivedi, 2006)³. Throughout the world, mothers are the principal guarantors of food safety and quality of food at the house hold level. They are the ones who most often purchase, produce, handle, prepare and serve food for the family (Food Agriculture Organisation 2009)⁵. Therefore the mothers are the final line of defence against food borne illnesses. Though mothers know that washing of hands and, cleanliness of surrounding are the necessary perquisites of food safety, they do not follow these practices at home because they are not aware that, these unsafe practices leads to viable micro-organism growth in food and cause

infant mortality. Infant mortality is an important measure of public health. It is regarded as a reliable and sensitive index of the total health of a community and is often used as an indicator to gauge the level of socio-economic development of a country (Margaret Kosek, et. al., 2003)¹. The Government of India also has taken many steps to reduce the infant mortality rate. Educational programs and written educational pieces are circulated among the consumers and food handlers. Media campaigns are also organized which helps in awareness reaching a large number of the consumers and mothers at homes. Videotapes are also telecasted at particular locations where people come together (Mary Alice Gettings and Nancy Ellen Kiernan, 2001)⁷. In spite of the precautions taken by the government to create awareness, infant mortality rate has been increasing year by year. This study highlights the need for educating the mothers to strictly adhere to hygienic practices such as washing hands before preparing PIF (Powdered Infant Formula), sterilizing the equipments, immediate feeding, rewarming bottles after storage in refrigerator and throwing away left over food after 24 hours to reduce infant mortality rate. There are hardly any studies in India to understand the reasons for infant mortality rate and perception and practices of food safety among the mothers of infants. Hence the researcher has made an attempt to analyse the cause and effects of infants' death rate and their food borne diseases.

OBJECTIVES OF RESEARCH

The main objective of the study is to analyse the food handling practices and safe food preparation among mothers of infants. Based on the main objective, the following other objectives are analysed:

1. To identify the reasons for infant mortality rate and its cause and effect.
2. To examine food safety knowledge and attitude among mothers of infants
3. To analyse food safety practices among mothers and their impact on infant mortality rate.

REVIEW OF LITERATURE

Koehler, K. M. et al., (2006)⁸ in their study reported that the incidence of infection with food borne pathogens is significantly higher in children less than one year of age than in older age groups.

Giuseppe Calamusa, (2009)⁹ stated that risk of food borne illness in infants could be reduced when caregivers strictly adhere to hygienic practices such as washing hands before preparing PIF (Powdered Infant Formula), sterilising the equipment, immediate feeding, rewarming bottles after storage in refrigerator and throwing away reconstituted PIF after 24 hours.

Redmond, E., C. & Griffith, C. (2009)⁴ reported that reconstitution and handling of infant formula in a potentially contaminated domestic environment and poorly cleaned feeding bottles at home by mothers of young infants may put them at risk of infection,

particularly when they are aged less than five months, have low birth weight or are immune compromised.

METHODOLOGY

A well-structured interview schedule was made to collect the primary data from the respondents. The interview schedule consisted of four important parts. The first part of the schedule included the reasons for infant mortality rate, the second part dealt with the food safety knowledge and attitudes of the mothers of infant and the third part of the schedule covered the food safety practices of mothers of infant. Data were collected from mothers who have infants at the age of 0 –5 years. The data were collected by 14 interviewers, who are post – graduates students. The questionnaires were completed under the supervision of the researcher. The objective of the study was briefly explained to the mothers with infants. To guarantee anonymity of responses and easy identification of questionnaires by individuals, identification numbers were randomly assigned to each questionnaire. Items in the questionnaire were explained when necessary and administered at one sitting as far as possible.

RESULTS AND DISCUSSION

Food Safety Practices among Different Age Group of Mothers

Null Hypothesis: Execution of food safety practices has no influence on mothers' age.

	Mothers age	N	\bar{X}	σ	F value	P value
Feeding unboiled water	Below 20	27	3.89	1.577	.910	.436*
	21 - 30 years	577	4.05	1.559		
	31 - 40 years	139	3.91	1.633		
	Above 40 years	4	5.00	.000		
Using unboiled water to mix infant feed	Below 20	27	2.56	1.717	.688	.560*
	21 - 30 years	577	2.44	1.755		
	31 - 40 years	139	2.65	1.805		
	Above 40 years	4	2.00	1.155		
Using sterilized bottles, nipples, bowls and spoons	Below 20	27	1.85	1.537	.712	.545*
	21 - 30 years	577	2.31	1.748		
	31 - 40 years	139	2.35	1.805		
	Above 40 years	4	2.75	2.062		

*Significant at 5% level

The above table shows the food safety practices among the mothers in different age groups. As per the acceptance of null hypothesis ($P > 0.05$), in the variables of feeding unboiled water, using unboiled water to mix infant feed and using sterilized bottles, nipples, bowls and spoons are not significantly associated with the age of the mothers. Age of the mothers is not a hindrance in executing the food safety practices for infant.

Hygienic Practices and Education of the Mothers

Null Hypothesis: Mothers education has no significant impact on executing hygienic practices of infant.

	Education	N	\bar{X}	σ	F value	P value
Feeding unboiled water	College Level	126	4.04	1.617	2.170	.090*
	School Level	497	4.09	1.533		
	Illiterate	91	3.64	1.697		
	Read and Write	33	4.03	1.489		
Using unboiled water to mix infant feed	College Level	126	2.45	1.836	1.445	.228*
	School Level	497	2.53	1.771		
	Illiterate	91	2.45	1.682		
	Read and Write	33	1.88	1.431		
Using sterilized bottles, nipples, bowls and spoons	College Level	126	2.52	1.892	4.753	.503*
	School Level	497	2.35	1.769		
	Illiterate	91	2.11	1.574		
	Read and Write	33	1.30	.847		

*Significant at 5% level

F test has been used to ascertain the significant difference between the education of mothers and their awareness in executing of hygienic practices for their infant. As per the acceptance of null hypothesis ($P > 0.05$) mothers' education is not significantly associated with the variables of feeding unboiled water, using unboiled water to mix infant feed and using sterilized bottles, nipples, bowls and spoons. The execution of hygienic food preparation practices among mothers of infant does not depend on their educational qualification.

Awareness about Food Safety Knowledge and Practices among Mothers of Infant

Null Hypothesis: Lack awareness of food safety knowledge and practices is not associated the variables of feeding unboiled water, using unboiled water to mix infant feed and using sterilized bottles, nipples, bowls and spoons.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.557	.187		19.037	.000
	Feeding unboiled water	.137	.040	.276	3.393	.001
	Using unboiled water to mix infant feed	-.117	.049	-.244	-2.380	.019
	Using sterilized bottles, nipples, bowls and spoons	.087	.047	.192	1.868	.064
R value 0.331 ^a						

	R square value 0.110					
	F statistics (3, 138) 5.672					
a. Dependent Variable: Lack of food safety knowledge and practices						

*Significant at 5% level

Dependent variable : Lack of food safety knowledge and practices

Independent variables : Feeding unboiled water, using unboiled water to mix infant food, using sterilized bottles, nipples, bowls and spoons.

Multiple R : 0.331

R square : 0.110

Adjusted R square : 0.090

F value : 5.672

P value : 0.000

R^2 describes the amount of variability has been explained by independent variables of feeding unboiled water, using unboiled water for mixing infant feed, using sterilized bottles, nipples, bowls and spoons. Here it is (0.110) 11%. Adjusted R^2 gives the indication whether there is any insignificant factor or not. It should be close to R value (Multiple), Here R^2 (0.110) and adjusted R^2 (0.090) are very close to each other which indicates a good model. (Adjusted R^2 always $<$ or $=$ multiple R square).

The regression analysis R^2 value always increases with the inclusion of parameters, but adjusted R^2 may not be. This indicates the presence of nuisance parameters in the model.

The significant P value for F test indicates at least one variable has significant contribution to the model. The P value of t – test is significant ($P < 0.05$) which indicates all these variables have significant effect on lack of food safety knowledge and practices.

R^2 is a measure designed to indicate the strength on the impact of the independent variables feeding unboiled water, using unboiled water to mix infant food, using sterilized bottles, nipples, bowls and spoons on lack of food safety knowledge and practices. The number can be between 0 and 1, with values closer to 1, meaning a strong relationship. R^2 is 11% of variation in lack of food safety knowledge and practices is connected by the independent variables of feeding unboiled water, using unboiled water for mixing infant food and using sterilized bottles, nipples, bowls and spoons.

This analysis indicates that there is a relationship between the lack of food safety knowledge and practices and the independent variables of feeding unboiled water, using unboiled water for mixing infant food and using sterilized bottles, nipples, bowls and spoons.

CONCLUSION

Foodborne illness costs lives and money. Millions of people become sick each year and thousands die after eating contaminated or mishandled foods. Infants, with weakened immune systems are especially vulnerable to foodborne illness. Temperature and time are the two most controllable factors for preventing foodborne illness. Cooking food to safe temperature and cooling food quickly, therefore, are critical steps in the prevention of foodborne illness. Incorrect storage of food also causes food poisoning among infants. High – risk food should be kept at 5 °C or below, and above 60 °C to avoid the “temperature danger zone”, where bacteria multiply fastest. Hand washing is one of the most important action mothers can take to prevent foodborne illness in their children. Proper cleaning of hands with soap and water for 20 seconds, discarding the kitchen surfaces and sterilizing infant bottles, nipples and utensils, clean fruit and vegetables will help eliminate bacteria and reduce the risk of foodborne illness and infant mortality.

Diarrhoeal disease is considered has a leading cause of death and frequent health problems in infant under five years old. Food is the major cause of diarrhoea, when it is prepared or stored in unhygienic conditions. Diarrhoea is both preventable and treatable if mothers strictly adhere to safe sanitation and hygienic practices. A percentage of diarrhoeal disease can be also prevented through safe drinking-water.

Mothers should possess the knowledge of checking the food products in the time of buying are essential for protecting the health of the infants. In this study, most of the mothers have completed only their school level education. The study has revealed the need on the part of the mothers for having access to educational facilities to improve their inefficient purchasing behaviours. Therefore government should take necessary steps in educating the mothers and care-givers about food safety and basic principles in purchasing and preparation of safe food for their infant to prevent diarrhoeal diseases and infant mortality.

Consumption of unsafe water is also considered as one of the reason for infant mortality and frequent health problem among the infant. In this study most of the mothers use tap water for feeding and mixing infant food. Therefore mothers should be educated about the hygienic methods of handling water for their infant while consuming, feeding and storing.

At the end of the study it was found that, the mothers of infant had better levels of knowledge and awareness about food safety than those mothers who experienced infant mortality.

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