

Health Needs and Problems Related to
Food Hygiene Practices Among Primary
School Children

Thesis

Submitted for the partial fulfillment of Master degree
of Nursing (Community Health Nursing)

By

Sabreen Gaber Abdel Aziz Helal

(B.S.C. Nursing)

**Faculty of Nursing
Ain Shams University
2011**

Health Needs and Problems Related to Food Hygiene Practices Among Primary School Children

Thesis

Submitted for the partial fulfillment of Master Degree
of Nursing (Community Health Nursing)

By

Sabreen Gaber Abdel Aziz Helal
(B.S.C. Nursing)

Supervisors

Dr. Suheir A.H. Mekhemar

Professor of Community Health Nursing

Ain Shams University

Dr. Hanaa A. ElHakeem Ahmed

Professor of Community Health Nursing

Ain Shams University

Faculty of Nursing
Ain Shams University

2011

الاحتياجات والمشاكل الصحية المرتبطة بممارسات الصحة الغذائية بين

أطفال المدارس الابتدائية

رسالة مقدمة للحصول على درجة الماجستير
في تمريض صحة المجتمع

مقدم من

صابرين جابر عبد العزيز هلال

بكالوريوس تمريض
كلية التمريض جامعة المنصورة

تحت إشراف

أ.د/ سهيل مخيمر
أستاذ تمريض بكلية التمريض
جامعة عين شمس

د/ هناء عبد الحكيم
أستاذ تمريض بكلية التمريض
جامعة عين شمس

كلية التمريض
جامعة عين شمس
٢٠١١

SUMMARY

Food hygiene is the action taken to ensure that food is handled, stored, prepared and served in such a way to prevent the contamination of food. Poor food hygiene may cause food poisoning outbreaks and eventually loss of lives.

The present work was conducted to assess health needs & problems related to food hygiene practices and assess knowledge and practices of primary school children.

A Descriptive study was done using multistage sample on 503 6th grade primary school children from 10 governmental school, 2 private school and 2 Azhar schools in Elmealla alkoubra city.

Three tools were used to collect the data:

- 1- **Self administered questionnaire sheet:** Was designed to collect the following data:

a- Socio demographic data regarding to a gender, rank, total number of house held members, crowding index, level of education and work of both parents.

b- Questions related to food hygiene knowledge such as:

- Sources of food contamination.
- Diseases which are transmitting by food.
- Signs & symptoms of food borne illness.
- Signs of food spoilage or contamination.
- Criteria of food establishment.

c- Questions related to food hygiene practices:

- Hand washing habits, method of hand washing.

Acknowledgement

First and fore most thanks are due to Allah who gave me the strength and ability to complete this work.

I would like to express my deepest thanks to **Professor Dr. Suheir A.H. Mekhemar**, Professor of Community Health Nursing, Faculty of Nursing, Ain Shams University, for her meticulous supervision, constructive criticism, creative guidance and tremendous help.

No words can adequately assure my deepest thanks to **Professor Dr. Hanaa Abdel Hakeem**, Professor of Community Health Nursing, Faculty of Nursing, Ain Shams University, for her great support and help through my work. Also for guiding me in all the steps of the research and for her positive role.

Faithfully dedicated to my husband Mr. Belal Abu Elnasr for his great encouragement. Also to my mother for her supportive work and to my children (Eman, Ahmed and Nada) the angels of my life.

LIST OF CONTENT

Chapter	content	page
	- List of table	ii
	- List of figure	iii
	- List of abbreviation	v
	- Abstract	vi
I	Introduction & aim of study	1
II	Review of literature	6
	- Developmental characteristics of primary school children	6
	- Food Hygiene	15
	- Food Borne Illnesses	50
	- Role of School Health Nurse	66
III	Subjects and Methods	79
IV	Results	87
V	Discussion	110
VI	Conclusion and Recommendation	118
VII	Summary	122
VIII	References	127
	Appendixes	147
	Arabic summary	v

LIST OF TABLES

Table	Title	page
1	Distribution of Student in relation to their sociodemographic characteristics.	88
2	Distribution of Student's knowledge in relation to food hygiene	90
3	Distribution of Student's concept in relation to food hygiene	92
4	Distribution of Student's personal cleaning practices in relation to food hygiene	93
5	Distribution of Student's operational practices in relation to food hygiene	95
6	Distribution of Student's breakfast in Relation to food hygiene	97
7	Distribution of Students in Relation to their Physical Assessment	98
8	Distribution of Student's knowledge score according to their practices score	100
9	Distribution of Student's practices score in Relation to their physical health score	101
10	Distribution of Student's practices score in Relation to their level of school environment	102
11	Distribution of Student's knowledge score in Relation to their mother's & father's education & job	103
12	Distribution of Student's practices score in Relation to their mother's and father's education & job	112
13	Distribution of Student's knowledge score in Relation to their gender, rank	111
14	Distribution of Student's practices score in Relation to their gender, rank, crowding index	112

LIST OF FIGURE

Figure	Title	page
1	Heating ,lighting &ventilation of classroom	10
2	Hand washing facilities	12
3	Food services	13
4	Hygienic production of food sources	17
5	Food establishment	19
6	Design & layout	19
7	Personal hygiene facilities	22
8	Personal cleanliness	26
9	Personal behavior	27
10	Food safety basics	28
11	Safe food sources	29
12	Refrigeration storage	30
13	Preparation ,handling &holding	37
14	Cooking	38
15	Pest control system	41
16	Transportation	42
17	Indication of food spoilage or contamination	45
18	Common sources of food borne illness	50
19	Food borne illness peaks in summer-why?	57
	Figures related to results:	
1	Distribution of Students in Relation to Sources of Their Knowledge	97
2	Distribution of students in relation to previous complain of some food born illness	98
3	Distribution of students environment related to food hygiene practices	99

List of abbreviations

U.S	United States
CDC	Center for Disease Control & Prevention
PTA	Parent Teacher Association
PTO	Parent Teacher Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization
HACCP	Hazard Analysis and Critical Control Point
USDA	United States Department of Agriculture
SHN	School Health Nutrition

ABSTRACT

Food hygiene is the action taken to ensure that food is handled, stored, prepared and served in such a way to prevent the contamination of food.. **Aim of study:** This study aimed to assess health needs & problems related to food hygiene practices through assessment of knowledge and practices of primary school children. **Sampling: Type:** Multistage **Size:** 503 students **Criteria** at 6th grade. **setting:** 14 primary schools in El Mehalla Elkoubra. **Tools:** three tools were used to collect the data: self administered questionnaire sheet, student's Physical assessment sheet, Observation check list for school environment. **Results:** Minority of students reported good practices. Students need education about food hygiene practices, sanitary school environment and collaboration with teachers and parent. Basic health problems were deficit in knowledge and practices. Knowledge, factors positively affecting the student's practices were knowledge & school environment . **Conclusion:** The primary school children need education about food hygiene, sanitary school environment, frequent guidance and role model from school staff to follow healthful practices . Their health problems including knowledge deficit, practices deficit, and unsanitary school environment **Recommendations:** Health education for children about healthy food hygiene practices with provision of sanitary school environment and involving parents and teachers to act as a model for healthy habits.

Key words: food hygiene practices, knowledge, school children, school environment.

INTRODUCTION

INTRODUCTION

Children are future parents and what they learn is likely to be applied in the rest of their lives. They have important roles in the household, taking care of younger brothers and sisters. They can become changing agents within their families and a stimulus to community development., They will take care of their own health and the health of others.(**Dolf JH,TE Lintelo, 2009**).

Schools are a stimulating learning environment for children and stimulate or initiate change. If sanitary facilities in schools are available, they can act as a model, and teachers can function as role models. Schools can also influence communities through outreach activities, If sanitation and hygiene facilities are absent, or are badly maintained and used, schools become risky places where diseases are transmitted. (**Nam-E Kang,et al,2010**)

Food hygiene practices focus on limiting the presence of naturally occurring contaminants and those acquired from cross-contamination. and preventing growth of organisms resulting from time and temperature rules not being followed. The primary school children need education about the principals of food hygiene practices to control over cause of contamination (**Notification of The National Committee on Agricultural Commodity and Food Standards, 2007**).

Food contamination can be resulted from five points, namely; poor hygiene, unsanitary conditions (contaminated water of irrigation & unpasteurized items), cross contamination (from cutting boards& kitchen tools), unsafe preparation (improperly canned food) and inadequate storage (defect in temperature control). (**Julian Parfitt, et al,2010**).

Contamination of food can occur during growing, harvesting, processing, storing, shipping, or final preparation. Sources of produce contamination are varied as these foods are grown in soil and can become contaminated during

growth or through processing and distribution. Contamination may also occur during food preparation in a restaurant or a home kitchen. When food is cooked and left out for more than 2 hours at room temperature, bacteria can multiply quickly. The microbes can become reactivated when the food is thawed after freezing. **(U.S. Department of Agriculture, 2006).**

It was pointed out that poor food hygiene may cause many problems including: food poisoning outbreaks and eventually loss of lives, food contamination, and infestation by pests like flies, rats, cockroaches and ants. Poor food hygiene may also lead to waste food due to spoilage, loss of production and efficiency and eventually lead to customers complaining about the situation. **(Kumiko Takanashi, et al, 2009).**

Parents, guardians, and families play a key role in food safety because they are ultimately responsible for their child's behavior and care. Families can also teach their child appropriate behavior by modeling, enforcing good food safety practices, advocate for the health, safety, and well-being of their student in school through avenues such as the parent teacher association (PTA) and parent- teachers organization (PTO), and by meeting with health care providers. **(SF Bloomfield, et al, 2006).**

A school nurse's knowledge and skills can be critical to the food-safe school team in promoting prevention strategies; identifying a potential food borne illness or outbreak; reinforcing key food safety and hand washing policies or procedures; - monitoring infection control; assessing and managing care of ill students; and communicating with other health professionals, school administrators, and parents. **(American Academy of Pediatrics, 2007).**

Ensuring food safety in schools affects many individuals and groups: administrators and office staff, food service managers and workers, classroom teachers and aides, facilities managers and employees, health services staff,

health care providers, policymakers, students, families, health departments and other community agencies. **(J. Pommier, et al, 2009)**

This research was utilized to assess health needs and problems related to food hygiene practices among primary school children, identify contributing factors to food hygiene practices which help to find suitable recommendations to overcome this problems & provision of needs in order to improve pupil's practices and control food borne diseases.

Justification of the problem

Ministry of Health and population of Egypt reported that 12% of the Egyptians suffer from chronic hepatic disorders caused by food & water contamination. in addition to Typhoid fever which occur as a result of food contamination. **(Egyptian Health Journal, 2008)**

Millions of people fall ill and many of these suffer from serious disorders, long-term complications, or die as a result of eating unsafe food. It is estimated that nearly 5 500 persons die each day from bacteria in food. Unsafe food remains a widespread public health problem in all parts of the world. Surveys in New Zealand, Europe, and North America suggest that each year up to 10% of the population suffer from diseases caused by unsafe food. **(UNESCO, 2008).**

Estimated from CDC place the annual incidence of food borne diseases at approximately 76 million cases, 325.000 hospitalizations and 5.200 deaths. **(CDC ,2009)**. Improper food safety practices cause numerous illnesses and cost Americans billions of dollars each year.**(Byrd-Bredbenner C,2007)**

It is estimated that 5.4 million Australians get sick annually from eating contaminated food and that up to 20% of this illness results from food handling behavior**(Barbara A. Mullan,and Cara L. Wong, 2006)**

Historical background : In developing countries, a polluted environment, lack of a safe water supply and poor sanitation increase the likelihood of food contamination.and there are average 10.000 – 20.000 persons per1000.000 suffer from food born diseases yearly. **(Nertheland S' Emerging Infectious Disease, 2001 and Tuckler NA, 2003)**