Child- to- child health as a model of community participation for combating Avian Influenza in selected slum and rural areas, Egypt

Raed Alazab, Rawda Elsheikh, and Iman Kamal

Department of public health and Occupational medicine, Faculty of medicine, Alazhar University, Cairo, Egypt.

raedelazab@hotmail.com

Abstract:

Background: Avian influenza (H5N1) is a new emerging public health threats in Egypt. WHO reported that among 382 cases of avian influenza distributed all over the world, Egypt has 50 cases (22 of them were died). Almost 70% of the infected cases are children and 30% are women. **Objectives:** Building up skills of the selected children towards methods of health education and to prepare them for implementing the methodology of child- to- child health through their communities. **Methodology:** 650 children were selected from governmental schools and community development associations. Building capacity of these children was planned and implemented through the integration between communities based associations, universities and the international nongovernmental organizations working in Egypt. Quality assurance on regular intervals was conducted to insure that the knowledge of the children were updating. Surveillance system for avian influenza cases was established in the selected areas. **Results:** significant improvement in the knowledge, attitude and practice of the studied group was reported after the intervention. No cases of Avian Influenza was recorded in the areas where the children were disseminated their health message to their communities. The quality assurance of this program picked up some obstacles during intervention phase and these obstacles were managed by new planning and follow up program. Quality improvement of child- to-child health program was determined by appropriate plan for health administration in the selected areas. **Conclusion:** The role of children in community participation might be used as a tool of prevention of Avian Influenza in rural and slum areas. **Recommendations:** child-to-child health program might be a promising preventive program for avian influenza.

Background:

The Child-to-Child approach has been successfully implemented since 1978. Education, Health Promotion and Community Development Programs using the approach are active in over 70 countries and directly and indirectly impact an estimated 1.5 million children annually. Child-to-Child is a rights-based approach to children's participation in health promotion and development, grounded in the United Nations Convention on the Rights of the Child (CRC).Through participating in Child-to-Child activities the personal, physical, social, emotional, moral and intellectual development of children is enhanced. The Child-to-Child Approach is an educational process that links children's learning with taking action to promote the health, wellbeing and development of themselves, their families and their communities (Child-to-Child Trust, 2004).

Health education is the part of health care that is concerned with promoting health behavior through encouraging people to make their own choice for a healthy life without forcing them to change and understanding the effect of their behavior on their health. Health education does not replace other health services, but it is needed to promote the proper use of these services to promotes health, prevents illness, cures diseases, facilitates rehabilitation, improves health status of individuals, families, communities and enhances the quality of life for all people which are at the heart of health education programs (Whitehead, 2003).

Community based health care is a radical approach to health which aims to put care into the hands of those who need it most. The community rather than the hospital becomes the focal point as the community based health care is involved more in health care than in medical care. This process has been described as health of people, by the people, for the people (Ted, 2006).

Avian influenza is an infection caused by avian (bird) influenza (flu) viruses. These influenza viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, avian influenza is very contagious among birds and can make some domesticated birds such as chickens, ducks and turkeys very sick and kill them (CDC-1, 2007).

Up to the end of 2003, highly pathogenic avian influenza (HPAI) was considered a rare disease in poultry. Since 1959, only 24 primary outbreaks had been reported world-wide (Ortrud and Timm, 2006).

During late 2003 and early 2004, outbreaks of avian influenza H5N1 occurred among poultry in eight countries in Asia (Cambodia, China, Indonesia, Japan, South Korea, Thailand, and Vietnam). By March 2004, the outbreak was reported to be under control. By June 2004, new outbreaks of influenza H5N1 among poultry and wild birds were reported in Asia. Since that time, the virus has spread geographically (WHO, 2006).

It is concluded that all over the world the total number/year of cases and deaths from 2003 till June, 19, 2008 was: at 2003 (4 cases and 4 deaths), at 2004 (46 cases and 32 deaths), at 2005 (98 cases and 43 deaths), at 2006 (115 cases and 79 deaths), at 2007 (86 cases and 59 deaths) and at 2008 (34 cases and 26 deaths). So, the total number of cases and deaths in the period from 2003: June, 19, 2008 was 385 and 243 respectively (WHO, 2008).

In Egypt, Avian influenza H5N1 outbreak was confirmed on 17 February, 2006 as it led to a number of human infections and deaths especially in rural areas. Egypt is the ninth country to report laboratory - confirmed human cases in the current outbreak and up till now Egypt is still battling with bird flu which involves 21 governorates (out of 28) allover the country and up to April, 2008, of the 50 cases confirmed to date in Egypt, 22 have been died (MOHP, 2008), (SIS, 2007) and (WHO, 2008).

It was reported in Egypt that 39% of the total population (about 80 millions) are children (DHS, 2008)) and the statistics stated that 70% of the died cases from avian influenza in Egypt were children so, the hypothesis of the present study is that; building capacity of the children towards methods of prevention and control of avian influenza might be a preventive tool against the spread of avian influenza in Egypt.

Objectives:

- To increase the ability of selected group of children to cope effectively with the hazard of Avian influenza in the society they live in.
- To find out to what extent the child-to-child health approach is effective as a health education tool.
- To evaluate the quality of the implemented program of child-to-child health.

Subject and Methods:

Research setting:

This study was conducted within 3 months in some selected community based health facilities linked to Community Development Associations (national non governmental organizations). The selected health facilities were located in Marg (Cairo east), Ezzbet khayrallah (Cairo south), Giza villages and Kalubia villages. The health facilities were selected purposively as there were facilities in conducting the study. Plan international organization in Egypt (international non governmental organization) funded and supported all the steps of this project.

Study design:

An intervention study passed 3 phases: Preparatory phase: during which site of the study, target population, health facilities, selection of the trainers, preparing the scientific content of the training course, preparation of checklist to evaluate the level of knowledge among the studied children before and after the training, pilot study, sampling and ethical consideration (the parents/guardians of children were informed in advance about the objectives and methods of the consultations and gave approval for their children's involvement) were conducted. Implementation phase: during which training was conducted and evaluation of the level of knowledge of children before and after the intervention was assessed. Evaluation phase: during which data entry, statistical analysis, results, discussion, conclusion and recommendations were conducted.

Target population and health units:

The studied children were selected from 3 slum areas of Cairo east, 2 slum areas from Cairo south of Cairo governorate, 4 villages from Kalubia governorate and 4 villages from Giza governorate. The selection of the children was assisted by community development associations. Balance was considered in terms of age group and sex. Other considerations included social groups within a community, school attendance, and disability. 50 children from each area were selected So, total number of selected children was 650 children.

Methods:

The selected children were subjected to training course on: definition of Bird Flu, clinical picture in birds, mode of transmission between birds and how the disease spread between countries, mode of transmission of the disease from birds to human, possibility of transmission of the disease from person to person, clinical symptoms of Avian influenza in human, possibility for vaccination in birds and human, availability of medical treatment for the disease in human, definition of vulnerable groups, possibility of continued chicken meals, methods of prevention and control of Avian influenza, what measures should be applied in case of spread of the disease, what measures should be applied in case of finding a dead bird, what is the healthy method of washing hands, how to contact the emergency units in case of need and correction of common misconceptions among the community members. These topics were adopted from (WHO, 2005) and (CDC-2, 2007).

The training was conducted by group of children previously trained on the same subjects and exposed to training of trainers (TOT) and examined very carefully before permitting them to conduct the approach of the child-to-child health. These children were trained by the researchers and consultants from MOHP (Ministry of Health and Population). During the

child-to-child health training sessions the researchers and the consultants were present as a coordinator to follow up and to intervene for any needed further knowledge or to correct any mistake. The trainers (children) planned to use a range of participatory techniques, including active games, drawing, stories and group discussion. Through these methods, children were invited to illustrate their current involvement and their experiences of the disease. They were invited to make recommendations on what role they and others could play in the future: before, during and after the emerging of the diseases. The training was done on three consequent days every week for consequent four weeks. The studied children were classified into small groups, each group composed 10 children. Pre and post training tests were conducted for the selected children to assess the level of improvement in their knowledge and practices. Quality surveillance of the implemented health education program was conducted by using a modified form from (Hawes, 2003). The surveillance of quality was conducted every training session and by the end of the training the net result of the surveillance was reported. Scoring by standard is carried out based on the percentage of positive answers from the total number of questions asked for that standard. The following was the categories of quality evaluation: fully implemented (100%), partially implemented (>50%: <100%), poorly implemented (>0%:50%) and not implemented (0%).

The following are some definitions of avian influenza -related terminologies (From the UN International Strategy for Disaster Reduction (UN/ISDR, 2004): Hazard: A potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation. Vulnerability: A set of conditions and processes resulting from physical, social, economic and environmental factors that increase the susceptibility and vulnerability of a community to the impact of hazards. Capacities: Positive factors that increase the ability of people and the society they live in to cope effectively with hazards.

Data Collection and statistical analysis:

Data entry and statistical analysis were done by using IBM compatible personal computer with the help of Epi info program. Proportion and chi square were the statistical methods used in analysis of data. P value < 0.05 was accepted as a level of significance.

Results:

Table (1): shows that mean age of the studied group of children was 11.2 ±0.6, 61.5% were from rural areas, 73.7% from alimentary schools and all of them were from low socioeconomic level.

Table (2): shows that awareness on the epidemiology of avian influenza was increased after the intervention but not reached to cover all the studied children. The improvement of awareness was as following: source of infection (from 11.1% to 85.2%), causative agent (from 3.2% to 82.6%), incubation period (for 0.0 to 63.2%), as regards methods of transmission; human inhalation of dust contaminated with excreta of the diseased birds (increased from 4.3% to 83.5%), from flies (decreased from 56.0% to 13.4%, from bird To bird (increased from 14.3% to 100%), from bird To rabbit, sheep, cattle (decreased from 88.6% to 4.8%), from bird to pigs, tigers, leopards, whales, ferrets, horses, seals, domestic cats (increased from 5.5% to 77.1%), from bird To human (from 63.4% to 100.0%) and from human – human (decreased from 86.3% to 6%). It

was noticed that knowledge about clinical picture in birds was increased from 7.5% to 88.6% and clinical picture in human increased from 4.9% to 86.6%.

Table (3): shows that the level of the health practices among the studied children before the intervention was ranging from 1.7% to 30.3%. these practices were improved after the intervention to be ranged from 83.7% to 98.9% except for the report to the health authority in case of finding a dead bird which had improved to 100%.

Table (4): shows that level of practices of dealing with dead infected birds was very low among the studied children before the intervention. The level of these practices was improved to reach range from 73.2%: 100%.

Table (5): shows that the level of healthy practices of hand washing was very low and ranged from 0.6%:12%. This level was increased after the intervention to be ranging from 92%:97.1%. as regards disinfection of the virus it was shown that the proportion of the knowledge that the virus is killed by heat (56°C for 3 hours or 60°C for 30 minutes or 70°C for seconds) was 0% before the intervention and the proportion of the knowledge that chlorine concentrations used in drinking water treatment are sufficient to inactivate the virus was 4.5%. These proportions were improved to 96.3% and 77.7% respectively after the intervention.

Table (6): shows that there were 15 misconceptions among the studied children. The most prevalent misconceptions were; Drinking water might transmit infection with Avian influenza (83.5%), the disease is fatal and not curable (100.0%), Heating not boiling is enough to kill the virus (90.3%), Eating birds should be avoided (87.5%), Birds could be raised at home in case we know the preventive measures (87.1%), Slaughtering of birds at home is safe (86.8%) and dead infected birds could be transferred or buried safely by any person (86.3%). These proportions were decreased to 2.9%, 16.8%, 5.1%, 14.3%, 2.6%, 10.0% and 6.6% respectively.

Table (7): shows that the net results of the quality of the implemented health education program was as following: 55.6% of the quality surveillance cores were fully met, 11.1% were partially met and 33.3% were not met.

Discussion:

It is a common situation in Egypt that the families in slum urban areas and rural areas raise up birds, sometimes they do that in cages and sometimes inside the houses and commonly you can see these birds get out from the houses to walk and eat from the surrounding streets. Also, it is common in these areas to find children play with these birds in the streets or sleep inside their houses beside these birds. If we considered the figure that 39% of total population in Egypt is children and 70% of died cases from avian influenza in Egypt were children (SIS, 2008) so, we can consider the children as the main target group who need to know methods of prevention and control of avian influenza. The present study supported this hypothesis as seen in tables (2:6) when found low level of knowledge about epidemiology of the disease, low level of healthy practices and high level of misconceptions among the studied children towards avian influenza. It was noticed that in spite of the intervention didn't achieve 100% improvement in all knowledge about the epidemiology of the disease (table 2) but it provided the studied children with the essential information about the disease and they digested these information in a figure around 80%. This coincides with what achieved in Nigeria and Burkina Faso as the health education improved the knowledge of the

community health workers about the epidemiology of avian influenza (UNICEF-1, 2006). Another study performed in Armenia reported that the improvement of knowledge of different community sectors including health professionals towards bird flu was obtained by health education and the use of different communication materials as posters, brochures, leaflets and TV spots (UNICEF-2, 2006). Similar results were reported by researchers of (CCP, 2007) in their project to increase awareness of Egyptians about bird flu by using different health education tools.

The present study might claim that child-to-child health education might be a tool for prevention and control of the transmission or acquiring the infection from the bad health habits in the community (table, 3). This might be allocated to the improvement in the level of healthy practices among the studied children by the children. This coincide with a Study from Pakistan (Muzaffar Bhutta, 2006) which declared that child-to-child approaches improved the health practices among children and make them more participatory in their communities. Another study in Zanzibar (Komba 1996) stated that child-to-child health improved the acquired health knowledge and the proper health habits, although there was not sufficient evidence about attitude changes.

It was reported that child-to-child health approaches to HIV and AIDS (Carnegie 2004) enabling children to strengthen their coping skills to deal with the illness and promoting social inclusion of children affected by and living with HIV and AIDS to reduce stigma of the disease. This contributed with the finding obtained from the present study (as shown in table 4) which found improvement in the practices of the children to deal with a dead bird. This will make these children more supportive to their community members and working as a barrier for spread of the disease.

Child-to-Child health Helping Children in Emergencies as stated by (Khamis, 2006) who gave an example by his study of how Afghan refugee children learned the necessary health messages by the approach of child-to-child health. This coincides with the results of the present study (table 5) which improved the practices of hand washing and disinfection of the avian influenza virus among the studied children. This improvement is expected to be a preventive tool in case of emergency and spread of the disease.

It was found that many misconceptions were highly prevalent among the studied children (table 6). These misconceptions were improved to a high extent after the intervention. The improvement of the misconceptions might be the encouraging factor for making the children keen on gaining knowledge and appropriate health practices. This in addition to make them and their families deal with the risk of avian influenza in a healthy manner without fear. Holloway, 2004 stated that misconceptions about specific disease might enforce the exposed people to gain more knowledge about this disease.

It was shown in (table 7) that the 55.6% and 11.1% of quality cores were fully and partially met respectively during the conduction of the child-to-child health education program. It could be recommended that quality improvement of the child-to-child health education program will maintain and keep on the success of this approach in health education. The results of the quality of the program were used to build a new plan for improving the conduction of the health messages through the child-to-child health. This was done by close cooperation between the governmental health authorities, the non governmental organizations and the community development associations.

Conclusion:

The intervention approach of child-to-child health improved Knowledge about clinical picture in birds from 7.5% to 88.6% and clinical picture in human increased from 4.9% to 86.6%. The level of the health practices among the studied children was improved after the intervention to be ranged from 83.7% to 98.9%. Dealing with dead infected birds was improved to reach range from 73.2%: 100%. Practices of healthy hand washing were ranged from 0.6%:12% and increased after the intervention to be ranging from 92%:97.1%. There were 15 misconceptions among the studied children; all of them were improved after the intervention but not reach 100%. 55.6% of the quality surveillance cores of the implemented program were fully met, 11.1% were partially met and 33.3% were not met.

Recommendations:

Child-to-child health approach might be a promising tool for prevention and control of avian influenza

References:

- Carnegie R (2004): Child-Centred Approaches to HIV and AIDS and CCATH. London. Child-to-Child Trust.

- CDC-1 (2007): Questions and answers about avian influenza (bird flu) and avian influenza A (H5N1) viruses. Implications of avian influenza to human health. 1600 Clifton Rd, Atlanta GA 30333, USA. Available at: http://www.cdc.gov/flu/avian/gen-info/qa.htm

- CDC-2 (2007): Key facts about avian influenza (bird flu) and avian influenza A virus. Avian influenza in birds. 1600 Clifton Rd, Atlanta GA 30333, USA. Available at: http://www.cdc.gov/flu/avian/gen-info/facts.htm

- CCP (2007): Muppets, pharmacists and media aid avian flu prevention. Centre for Communication Programs, Bloomberg School of public health, public affairs media, Johns Hopkins University. Available at: paffairs@jhsph.edu

- Child-to-Child Trust (2004). Early Years Children Promote Health: Case Studies on Child-to-Child and Early Childhood Development. London

- DHS (Demographic and Health Survey), 2008: Population statistics in Egypt. Central Agency for public mobilization and statistics, internal report.

- Hawes H (2003): Skills based health education. Content and quality in primary schools, London University.

- Holloway J. (2004): Genes and disease: more knowledge can equal more fear. American psychological association publication 2004; 35(4).

Khamis T (2006) Child-to-Child Helping Children in Emergencies and Affected By Conflict. Early Childhood Matters. Number 104. p. 47-50.

Komba (1996) Impact Evaluation of the Child-to-Child Health Education Project in Zanzibar. London: Child-to-Child Trust.

- MOHP (2008): All you should know about bird flu, Ministry of health and population, Egypt. Available at http://www.mohp.gov.eg/main.asp

- Muzaffar Bhutta S. (2006) Health Education Practice in Primary Classrooms : A Study from Pakistan. Unpublished Phd Thesis: Oxford University.

- Ortrud W. and Timm C. (2006) : Influenza report 2006. Avian Influenza; Flying Publisher 2006; 3(2):48-73.

- SIS (State Information Services),2007: All you need about bird flu, bird flu statistics. Egypt State Information Service. Available at http://birdflu.sis.gov.eg/html/flu0103.htm

- SIS (State Information Services), 2008: population statistics in Egypt. Internal published report. Cairo, Egypt

- Ted Lankester (2006): Setting up community health programmes. A practical manual for use in developing countries. Macmillan education LTD. London. P 4

- UNICEF-1 (2006):Community-based, participatory action research on avian influenza. www.unicef.org/influenzaresources/files/Final_Burkina_English_color_2 - sided.pdf

- UNICEF-2 (2006): Testing of communication materials on avian flu and rapid assessment on avian flu prevention. Available at: www.unicef.org/armenia/Unicef_Final_Report-count.doc

- Whitehead D. (2003): Health promotion and health education viewed as symbiotic paradigms: bridging the theory and practice gap between them. J Clin Nurs 2003 Nov; 12(6):796-805.

- WHO (2005): Highly pathogenic H5N1 avian influenza outbreaks in poultry and in human: food safety implications. WHO, Geneva. Available at: www.who.int/foodsafety/fs_management/No_07_AI_Nov05_en.pdf

- WHO (2006): Avian influenza (bird flu) Fact sheet. History and epidemiology. WHO, Geneva. Available at: http://www.who.int/mediacentre/factsheets/avian_influenza/en/#history

- WHO (2008): Avian influenza - situation in Egypt. WHO, Geneva. Available at: http://www.who.int/csr/disease/avian_influenza/updates/en/

Acknowledgment: To Plan international Egypt: Plan is committed to its Child Centered Community Development. Founded in 1937 to help children orphaned during the Spanish Civil War, Plan now works for and with children, families and communities in 45 countries across Asia, Africa and Latin America. Plan carries out advocacy, development education and fundraising in 15 countries in the industrialized world. Plan has no religious or political aims or affiliations. Through direct grassroots work, Plan supports the efforts of children, communities and local organizations to make a reality of rights to education, health, a safe environment, clean water and sanitation, secure incomes and participation.

Table (1): General characteristics of the studied children

General characteristics	**Studied children (N = 650)**	
	N.	**%**
Age:		
Rang	10 – 14	
Mean ± St. D	11.2 ±0.6	
Residence		
Rural	400	61.5
Urban	250	38.5
Place of residence		
Giza villages	200	30.8
Kalubia villages	200	30.8
Cairo South	150	23.0
Cairo East	100	15.4
Educational level:		
Alimentary school	479	73.7
Prepatory school	1 71	26.3
Socioeconomic level		
Low	650	100.0

Table (2): Level of awareness on epidemiology of Avian influenza among the studied children before and after the intervention

Epidemiology of Avian influenza	***before intervention***		***after intervention***	
	Total N. = 650			
	N.	***%***	***N***	***%***
Source of infection:				
- Birds	72	11.1	554	85.2
Causative agent:				
- Virus only	21	03.2	537	82.6
Incubation period :				
3-7 days	0	0.0	411	63.2
Methods of transmission:				
- human inhalation of dust contaminated with excreta of the diseased birds	28	4.3	543	83.5
- From flies*	364	56.0	87	13.4
- From bird To bird	93	14.3	650	100.0
- From bird To rabbit, sheep, cattles*	576	88.6	31	4.8
- From bird To pigs, tigers, leopards, whales, ferrets, horses, seals, domestic cats.	36	5.5	501	77.1
- From bird – human	412	63.4	650	100.0
- From human – human*	561	86.3	39	6.0
Clinical picture in birds:				
Skin bluish discoloration, body swelling, low egg production.	49	7.5	576	88.6
Clinical picture in human: History of contact with birds, fever, cough, sore throat and muscle ache	32	4.9	563	86.6

*: wrong message

Table (3): Level of healthy practices among the studied children before and after the intervention

Healthy practices	***before intervention***		***after intervention***	
	Total N. = 650			
	N.	***%***	***N***	***%***
Raw eggs should be washed by water and soap then, hands washed	33	5.1	544	83.7
Eggs should not be eaten raw	23	3.5	611	94
Raw egg yolk should not added to uncooked food	46	7.1	612	94.1
Hand washing should follow the process of cleaning of raw chicken	13	2.0	621	95.5
Used utensils must be thoroughly washed with water and soap after washing raw chicken	56	8.6	598	92
Children should not play where poultries exist	61	9.4	650	100.0
Never to transmit live or dead birds from place to place even they are healthy	11	1.7	602	92.6
If the street or the roof are polluted with excreta of birds, the individual should took off the shoes before going inside home and clean it with water and soap then, wash hands	12	1.8	597	91.8
Never directly deal with birds	54	8.3	643	98.9
Those who are not dealing with poultries nor with land birds are not exposed to be infected	23	3.5	594	91.4
It is mush better to wear gloves while cleaning the poultries then wash the gloves very well too.	34	5.2	567	87.2
If you discovered a poultry collective death, convey and inform, immediately, the nearest medical center or Agricultural Guiding Center	197	30.3	650	100.0
It is not preferable to put neither the towels nor the cloths in the balconies, if you know that there are birds around.	22	3.4	590	90.8
Never raise any poultries inside the houses	39	6.0	643	98.9
Never throw birds wastes, feather, dead birds in the garbage boxes or in water canals (Nile, drainage, canals,,)	61	9.4	623	95.8

Table (4): Dealing with dead birds suspicious to be infected with Bird flu before and after the intervention

	before intervention	***after intervention***

Dealing with dead birds	***Total N. = 650***			
	N.	***%***	***N***	***%***
Inform the operation center immediately to send a team to sterilize the area	76	11.7	650	100.0
Wear mask and gloves. Instead of the mask you may put a cloth on the mouth and nose and tie it at the back, also you may wear plastic bag instead of the gloves.	11	1.7	589	90.6
Put the dead bird in a bag, close the bag tightly, till the car comes and take it and bury in the healthy burial ground that were prepared by the governmental authorities.	7	1.1	601	92.5
It is not allowed to throw the dead birds in the garbage boxes or in the water canals (Nile – drainage – canal..)	21	3.2	621	95.5
If you need to take rapid effective action towards the dead birds. Put chlorine on the dead bird. This will kill the virus immediately.	0	0.0	476	73.2
Domestic nests should be erased from homes and roofs	43	6.6	617	94.9

Table (5): Practice of healthy hand washing and disinfection of bird flu virus before and after the intervention

	before intervention	***after intervention***

Practice of healthy hand washing and disinfection of bird flu virus	***Total N. = 650***			
	N.	***%***	***N***	***%***
Take off all the jewels you are wearing, open the tap with your forehand, wash thoroughly with water and soap.	21	3.2	598	92.0
Rub all parts of hands for a minute, and you may rub them more than a minute if they are too dirty.	4	0.6	631	97.1
Remove and clean any dirt below the nails where the quantity of the germs increases.	9	1.4	599	92.1
Wash the hands from the soap very carefully with water	78	12.0	627	96.5
Never put your hands, after washing, in the stagnant water in the basin.	69	10.6	612	94.1
Disinfection:				
- The virus is killed by heat (56℃ for 3 hours or 60℃ for 30 minutes or 70℃ for seconds)	0	0.0	626	96.3
- Chlorine concentrations used in drinking water treatment are sufficient to inactivate the virus	29	4.5	505	77.7

Table (6): Misconceptions among the studied children before and after the intervention

Misconceptions	***before intervention***		***after intervention***	
	Total N. = 650			
	N.	***%***	***N***	***%***
Drinking water might transmit infection with Avian influenza	543	83.5	19	2.9
Swimming in canals contaminated with excreta of infected birds might transmit infection	31	4.8	611	94.0
Eating fish from contaminated canals with excreta of infected birds might transmit infection	165	25.4	9	1.4
Shops sell live birds can continue in their work safely	326	50.1	32	4.9
The disease is fatal and not curable	650	100.0	109	16.8
Avian influenza could be treated at home	51	7.8	0	0.0
Vaccine against Avian influenza is available	431	66.3	41	6.3
Seasonal human influenza vaccine could prevent against Avian influenza	376	57.8	91	14.0
Heating not boiling is enough to kill the virus	587	90.3	33	5.1
Eating birds should be avoided	569	87.5	93	14.3
The diseased person is not infectious and we can be close to him during his sickness period	0	0.0	0	0.0
No benefit from transmitting the health message to the members of the community	91	14.0	0	0.0
Birds could be raised at home in case we know the preventive measures	566	87.1	17	2.6
Slaughtering of birds at home is safe	564	86.8	65	10.0
Dead infected birds could be transferred or buried safely by any person	561	86.3	43	6.6

Table (7): Net result of quality surveillance of the conducted health education program

Quality surveillance cores **Number of cores = 18**		
Fully met **(10/18=55.6)**	**partially met** **(2/18=11.1)**	**Not met** **(6/18=33.3)**
■ The scientific content considers age and interest of the children. ■ Attracted handouts are available. ■ Learning materials link learning in the classroom with life skills at home. ■ Children subjected to training on how to transmit the health messages through culturally acceptable approaches. ■ Cooperation ■ Charts and visual aids are available. ■ Practical demonstration ■ Discussion with class ■ Let the children to describe their experience. ■ Drama used e.g. films	■ Methods of health education involve children not only in activity but in active thinking and learning. ■ Health education stressed on refusing to follow the lead of others who suggest bad health habit.	■ Health messages are reinforced, where possible across the curriculum ■ All children from the served communities were involved in the training not just some of them. ■ Children are involved in planning community activities rather than merely carrying out a well designed program by adults. ■ Practical examination was done for every included child at the end of the training. ■ Activity in class, e.g. drawing/modeling ■ Practical activity outside the class.