

Knowledge, attitude and practice among rural mothers about Home-related injuries in a rural area in El-Minia Governorate, Egypt

Emad Girgis Kamel, Shima Anwer Emam, Eman Sameh Mohammed

Department of Public Health, El-Minia Faculty of Medicine, El-Minia, Egypt

Email address:

Emadegypt3@hotmail.com (E. G. Kamel), Shima_anwer3@yahoo.com (S. A. Emam), emansameh7@yahoo.com (E. S. Mohammed)

To cite this article:

Emad Girgis Kamel, Shima Anwer Emam, Eman Sameh Mohammed. Knowledge, Attitude and Practice among Rural Mothers about Home-Related Injuries in a Rural Area in El-Minia Governorate, Egypt. *Science Journal of Public Health*. Vol. 2, No. 6, 2014, pp. 653-659. doi: 10.11648/j.sjph.20140206.35

Abstract: Background: unintentional injury remains the leading cause of morbidity and mortality among children worldwide. Objectives: to measure the incidence and types of home injuries affecting rural children aged up to 12 years and to assess their mother's knowledge, attitudes and practices (KAP) about the first aids. Methods: this cross-sectional descriptive study included 283 mothers from Damares village, El-Minia, Egypt. Structured interview sheet was developed containing data about socio-demographic characteristics and the mother's KAP towards home injuries. Results: it was found that 39.8% of the children suffered from home injuries at the previous 8 weeks. About 30% of the injured children were aged ≤ 3 years and over 63% of them were males. Cut/wound represented the highest percentage of home injury (48%) followed by fracture/fall (36%) and burn (11.9%). The study revealed that 22.3% of mothers did not know the term of first aid, most of them were illiterate. The main source of the mothers' knowledge was from television (38.5%). The practices of mothers towards the children home injuries were increased better with increasing educational level. The older the mother was the better the practice in case of home injuries. The mother's level of education, source of knowledge about first aid, older age and occupation were significant predictors of KAP score among the studied mothers ($p < 0.001$). Conclusions: the well educated and the older mothers have better knowledge, attitude and practice regarding home injuries than other mothers.

Keywords: Home Injuries, Mother's Education, Knowledge, Attitudes, Practice

1. Introduction

Injuries cause almost half of all deaths among children aged 1–4 years (Baker et al., 1992), as home is the place where children spend most of their time in, this is where most injuries occur, especially among younger children (Maciel and Poes, 2004). Most home injuries involving children under 5 years old are caused by falls from heights, burns, scalds and poisonings and are presumed to be preventable through removal of particular hazards (Choinière and Robitaille, 1997).

Waisman et al. (2002) assessed patients aged 0 to 14 years and found out that 51.9% of injuries took place at home and that the younger the child, the higher the frequency of household injuries. Relative to girls, boys have a greater risk of experience injuries (Kendrick et al., 2013A). Children from the most deprived families and communities are more likely to suffer unintentional injuries than children from more

affluent families and communities (Thomas and Kavanagh, 2007).

According to the National Safe Kids Campaign in the United States 40% of deaths and 50% of non-fatal unintentional injuries occur in and around the home (National Safe Kids Campaign, 2014). In Egypt too it has become a public health problem (Kamal, 2013). For example, in 1998 the overall rate of injuries in the indoor home environment was 72.5% among children below age 5 years (Amin et al., 1998). The incidence of home accidents among children under 6 years in Assuit governorate in the year 2003 as perceived by their mothers was 50.3% (Abd El-Aty, 2005).

First aid is the provision of initial care for an illness or injury, usually by a non-expert but trained person, until medical treatment can be accessed. Provision of immediate first aid to patients who require emergency care can make a

big difference to the outcome (Kendrick *et al.*, 2013B). In certain self-limiting illnesses or minor injuries, appropriate first aid measures may be sufficient to avoid a medical consultation (Hecht, 2011). Parents' knowledge and practice about first aid is especially important, as many adverse consequences of injuries can be averted if parents know what actions to take (Ibrahim, 1991).

The objectives of this study in Damares village, El-Minia, Egypt were to measure the incidence and types of home injuries affecting rural children aged up to 12 years; to assess the knowledge, attitudes and practice (KAP) of rural mothers regarding first aid measures to be taken for injured children; and to identify some of the factors associated with mothers' level of KAP.

2. Methods

This cross-sectional descriptive study was carried out in Damares, a selected village in El-Minia governorate, Egypt. The fieldwork was conducted over a period of 4 months from October 2013 to the end of January 2014.

2.1. Sample

Cluster random sample was used to choose the participants, in which the village was divided into 5 squares (based on boundaries determined during polio campaigns), from which 3 squares were chosen by simple random sampling using a lottery technique. All mothers in the chosen squares who had children up to 12 years old were the target population. The number of mothers who agreed to participate was 283.

2.2. Data Collection

A verbal informed consent was obtained from each mother before participation. An interview questionnaire sheet was used to collect data from the mothers. The questionnaire included items about the sociodemographic characteristics of the studied mothers, items to measure the incidence and types of home injuries for their children in the previous 8 weeks and questions to assess the KAP of mothers towards first aid measures to be taken during these situations. The questions about KAP of mothers were 30 questions, with each correct answer scored 1, so that the total score for KAP was 30.

A pilot study was carried out before performing the actual study on 25 mothers in order to test the validity and clarity of the tools items as well as to estimate the time needed for data collection, the necessary modifications were done, and those participants were excluded from the sample. The approval from the ethics committee of El Minia Faculty of Medicine was obtained before starting the study.

2.3. Statistical Analysis

The collected data were tabulated and analyzed using SPSS software version 20. Qualitative data were presented as frequencies and percentages, while quantitative variables were presented as mean, standard deviation (SD). Chi-squared test and fissure exact test were used as tests of significance. Stepwise multiple regression analysis was used to detect the significant predictors of KAP score of the mothers. $P < 0.05$ was considered significant.

3. Results

Table (1). Distribution of mothers ($n=283$) by selected socio-demographic characters

	Number (Total $n=283$)	%
Mother's age		
<25y	55	19.4
25-<35	99	35.0
35-<45	86	30.4
≥ 45	43	15.2
Mean \pm s.d	33.9 \pm 8.5	
Mother's education		
Illiterate /Read & write	90	31.8
Secondary education	127	44.9
University or above	66	23.3
Mother's occupation		
At health sector	34	12.1
Other jobs	79	27.9
Not working	170	60
Family size		
≤ 4 members	173	61.1
5 members	53	18.7
6 members	31	11.0
≥ 7 members	26	9.2
Number of children	991	100
Injured	394	39.8
Not injured	597	60.2

Table (2). Distribution of children suffered from home related injuries (n=394) by age, sex and type of injury

	Number (total n=394)	Incidence rate
Child's age		
≤3y	117	29.7
3-≤6 y	96	24.4
6-≤9 y	121	30.7
9-≤12 y	60	15.2
Child's sex		
Male	251	63.7
Female	143	36.3
Type of injury		
Cut/wound	189	48.0
Fall/fracture	142	36.0
Burn	47	11.9
Poisoning	5	1.3
Chocking	5	1.3
Animal bite	6	1.5

Table (3). Relationship between mother's education and their knowledge and attitudes about first aids

	Illiterate / Read & write (n=90)	Secondary education (n=127)	University or above (n=66)	Total (n=283)
Source of knowledge				
Books	0 (0.0%)	4 (3.2%)	6 (9.1%)	10 (3.5%)
Part of curriculum	0 (0.0%)	6 (4.7%)	12 (18.2%)	18 (6.4%)
Relatives/Friends	6 (6.7%)	32 (25.2%)	11 (16.7%)	49 (17.3%)
Doctors/Nurses	3 (3.3%)	12 (9.4%)	8 (12.1%)	23 (8.1%)
Television	28 (31.1%)	63 (49.6%)	18 (27.3%)	109 (38.5%)
Attend training course	0 (0.0%)	3 (2.4%)	8 (12.1%)	11 (3.9%)
Do not know the first aid	53 (58.9%)	7 (5.5%)	3 (4.5%)	63 (22.3%)
Fissure exact test = 147.2, p<0.0001				
Attitude				
1- Mothers with young children should know about first aids				
Yes	54 (60%)	102 (80.3%)	62 (93.9%)	218 (77%)
No	36 (40%)	25 (19.7%)	4 (6.1%)	65 (23%)
Chi square = 26.2, p<0.0001				
2- Training is required to offer correct first aids				
Yes	59 (65.6%)	89 (70%)	50 (75.8%)	198 (70%)
No	31 (34.3%)	38 (30%)	16 (24.2%)	85 (30%)
Chi square = 1.9, p=0.34				
3- Willing to undergo training course on first aids				
Yes	44 (48.9%)	101 (79.5%)	59 (89.4%)	204 (72%)
No	46 (51.1%)	26 (20.5%)	7 (10.6%)	79 (28%)
Chi square = 37.4, p<0.0001				

Table (4). Relationship between mother's education and their practice in case of the common home injuries

	Illiterate / Read & write (n=90)	Secondary education (n=127)	University or above (n=66)	Total (n=283)
Wound				
Go to hospital	3 (3.3%)	15 (11.8%)	2 (3.0%)	20 (7.1%)
Traditional methods	3 (3.3%)	9 (7.1%)	1 (1.5%)	13 (4.6%)
Proper first aids	45 (50.0%)	84 (66.1%)	60 (90.9%)	189 (66.8%)
Do not know	39 (43.4%)	19 (15.0%)	3 (4.6%)	61 (21.5%)
Fissure exact test = 51.5, p<0.0001				
Fracture				
Go to hospital	29 (32.2%)	62 (48.8%)	17 (25.8%)	108 (38.2%)
Traditional methods	0 (0.0%)	3 (2.4%)	0 (0.0%)	3 (1.1%)
Proper first aids	12 (13.3%)	35 (27.6%)	49 (74.2%)	96 (33.9%)
Do not know	49 (54.5%)	27 (21.2%)	0 (0.0%)	76 (26.8%)
Fissure exact test = 100.1, p<0.0001				
Burn				
Go to hospital	10 (11.1%)	34 (26.8%)	7 (10.7%)	51 (18.0%)
Traditional methods	12 (13.3%)	14 (11.0%)	4 (6.1%)	37 (13.1%)
Proper first aids	25 (27.8%)	62 (48.8%)	51 (77.3%)	139 (49.0%)
Do not know	43 (47.8%)	17 (13.4%)	4 (6.1%)	64 (22.6%)
Chi square = 68.8, p<0.0001				

Table (5). Relation between mother's age and their practice in case of common home injuries

	≤35 years (n=154)	>35 years (n=129)
Wound		
Go to hospital	37 (24.0%)	32 (24.8%)
Traditional methods	29 (18.8%)	39 (30.2%)
Proper first aids	30 (19.5%)	35 (27.1%)
Do not know	58 (37.7%)	23 (17.9%)
Chi square = 15.3, p<0.002		
Fracture		
Go to hospital	38 (24.7%)	32 (24.8%)
Traditional methods	17 (11.0%)	27 (20.9%)
Proper first aids	24 (15.6%)	48 (37.2%)
Do not know	75 (48.7%)	22 (17.1%)
Chi square = 37.8, p<0.0001		
Burn		
Go to hospital	41 (26.6%)	43 (33.3%)
Traditional methods	32 (20.8%)	47 (36.4%)
Proper first aids	23 (14.9%)	25 (19.4%)
Do not know	58 (37.7%)	14 (10.9%)
Chi square = 27.9, p<0.0001		

Table (6). Stepwise multiple regression analysis of factors affecting scores on knowledge, attitudes and practice about first aid of the studied mothers

Variable	Beta	95% CI	P
Mother's age	5.91	0.80-1.71	<0.001
Education level	2.81	1.11-3.20	<0.001
Source of knowledge about first aids	-1.30	-1.32-1.09	<0.01
Occupation	0.90	0.81-1.92	<0.001
Attending course on first aids	0.13	0.53-1.15	<0.002

The independent variable was the score of the KAP score of the mothers

$R^2 = 0.81$

Table (1) showed that the mean age of mothers was 33.9 ± 8.5 years, 30.4% of them were aged 35-45 years and 35% were 25-35 years old. Only 23.3% of mothers were highly educated and 31.8% were illiterate or just read and write. Regarding occupation status, 60% were housewives and only 12.1% work in the health sector such as in the primary health unite, in a private clinic or in a pharmacy. According to family size, it was found that 61.1% had 4 members or less. The studied 283 mothers had 991 children, 39.8% of these children suffered from home injuries during the last 8 weeks.

Table (2) showed that 29.7% of the injured children were aged ≤ 3 years, 24.4% were aged 6- ≤ 9 years and over 63% were males. It was found that the most common injury was cut/wound (48%) followed by fall/fracture (36%) and burn (11.9%). Poisoning, choking and animal bites were found only in 1.3%, 1.3% and 1.5% of children respectively.

The current study showed that the main source of knowledge about first aid was the television (38.5%). More than half of the low educated mothers (58.9%) and only 4.5% of the well educated mothers do not know the first aids. Books were not a good source of knowledge even among the well educated mothers (9.1%). Relatives and friends constituted the second source of knowledge among the low and moderate educated mothers. These findings were highly statistically significant (table 3).

The attitude of the mothers toward the first aids was

investigated in this study. It was found that 77% of mothers believe that mothers with young children should know about first aids, most of them were highly educated. Regarding "training is required to offer correct first aids", there was no significant difference between low, moderate and well educated mothers ($p=0.34$). Most of the well educated mothers (89.4%) were willing to undergo course on the first aids, compared to 79.5% of moderate and 48.9% of low educated mothers. This difference was statistically significant (table 3).

The current research studied the relationship between mother's education and their practice in case of home injuries (Table 4). It was found that 90.9%, 66.1% and 50% of the well educated, moderate and low educated mothers respectively manage the cut/wounds by proper first aid measures and 4.6%, 15% and 43.3% of them respectively do not know what they can do in such injuries ($p<0.0001$). Regarding to fall/fracture injury, 25.8% of well educated, 48.8% of moderate and 32.2% of low educated mothers go to hospital to manage their children, while 74.2%, 27.6% and 13.3% of them respectively can manage them by proper first aid measures ($p<0.0001$). About half of the low educated mothers (47.8%) reported that they do not know how to manage their children in case of burn compared to 13.4% of moderate and 6.1% of well educated mothers ($p<0.0001$).

Table (5) showed that old mothers (age >35 years) can manage wounds, fracture and burn by traditional methods or

by proper first aid measures, more than the young mothers. Moreover, young mothers reported that they do not know how to manage these common home injuries more than the old mothers. The relationships between mother's age and their practice in case of home injuries were statistically significant.

Stepwise multiple regression analysis (Table 6) showed that the age of mothers, mother's level of education, source of knowledge about first aid, occupation and attending training courses on first aid were significant predictors of KAP score among the studied mothers ($p < 0.05$).

4. Discussion

Unintentional injuries continue to be a major cause of death, ill health and long-term disability in childhood (Lee *et al.*, 2012), but are largely preventable with appropriate information and safe practices. Young children are particularly vulnerable to accidents due to their innate desire to explore their world and the inability to perceive the dangers of their actions. As children learn through experience, minor injuries are inevitable but providing a safe environment can reduce the risks, coupled with close supervision and setting the limits of safety. Parents should remember that they need to maintain a constant balance between overprotecting the child on one hand and giving him freedom in his process of learning the hazards of his environment (Halperin, *et al.*, 2008).

The present study revealed that more than half of mothers (60%) were not working. This finding agrees with (Hossein, 2009) who mentioned that the majority of mothers in El-Minia Governorate were housewives and the home accidents rate was high among their children. The studied 283 mothers had 991 children, 39.8% of these children suffered from home injuries during the last 8 weeks. This result approximate that reported by Ozturk (2010) who found that 36.5% of children in their study in Turkey had had a home accident and that reported by Eldosoky (2012) who found that 38.3% of children in Qalubeya Governorate suffered from home injuries. On the other hand, the current figure was higher than in a rural area in India among 1613 children aged < 14 years in which the rate of injuries was 23.0%, with more than half of these occurring at home (Mahalakshmy *et al.*, 2011). This lower figure might be explained by the demographic variations among the Egyptian and Indian populations. Moreover, the latter study investigated the rate of injuries over the previous year, which is a longer period to recall from memory and may have led to underreporting of incidents.

The current study revealed that about one third of injured children (29.7%) were aged ≤ 3 years, this may be due to the younger the child, the higher the frequency of household injuries. This study also found that 30.7% of injured children were aged 6-9 years. This may be because children in this age group in rural Egypt are often left alone at home or have less supervision from their mothers.

This study found that 63% of the injured children were

males, this result indicated that male are more impulsive and destructive than female, Mahalakshmy *et al.* (2011) in India also found that prevalence of injury was significantly higher among male children.

It is observed from the study that the most common injury was cut/wound (48%) followed by fall/fracture (36%) and burn (11.9%). These results show similar trends to other community based studies outside Egypt. In Brazil, burns, falls and poisoning were the most frequent types of household injuries (Paes and Gaspar, 2005). In Egypt, in Assiut governorate, cut wounds were the most common accidents among the studied children (37.4%), which is similar to the current findings in Qalubeya governorate (31.0%) (Abdl El-Aty, 2005).

According to source of mothers' information about first aid, the current study showed that the main source of knowledge about first aid was the television (38.5%) followed by relatives and friends among the low educated mothers. This was agreed with Morrison and Stone, (2009) who found that television and family members were considered the primary source of parents' information by 31% about first aid measures. While only 3% of them depends on internet to obtain information. In addition, Joanne *et al.*, (2005) revealed that the most frequently cited sources of parents' information on their child's safety were family and TV, followed by friends/parents. In spite of the importance of a topic like first aid, 22.3% of the studied rural mothers had not heard the term. In a study in India an even higher proportion rate of the studied women had not heard about first aid (65.7%). This may be due to the different demographic characteristics of the populations (Sonavane and Kasthuri, 2008).

As regarding to relation between mother's education and their practices regarding care of cut/wounds, fall/fracture and burn there was statistically significant difference as it was found that the higher the educational level the better the mother's practices. This finding was in coherence with Hossein (2009) who also reported that illiterate mother's failed to obtain knowledge regarding home accidents.

The present study found that old mothers (age >35 years) can manage wounds, fracture and burn by traditional methods or proper first aids measures, more than the young mothers. Moreover, young mothers reported that they do not know how to manage these common home injuries more than the old mothers. This result goes in the same direction with Myhre *et al.* (2011) who found that younger mother age was an important risk factor for hospital-attended injuries in young children.

This study also investigated the possible factors affecting the KAP scores of mothers and it was found that the older mothers, mother's level of education, source of knowledge about first aid, occupation and attending training courses on first aid were significant predictors of KAP score among the studied mothers. Similar results were obtained by other researchers. Thein *et al.* (2005) reported that the higher the education of the mother, the more likely she was to possess the correct knowledge and practice on childhood injuries.

Tomruk (2007) concluded that those who had graduated from university were health care personnel, had taken a first aid course or had a first aid certificate had better knowledge.

The limitation of this study was that the information on the incidence of injuries was collected retrospectively, which might have been affected by recall bias; however, this limitation is inherent in this type of community survey.

5. Conclusions and Recommendations

Although home-related injuries are a common problem among rural children aged up to the age of 12 years, mothers in El-Minia governorate did not have enough knowledge regarding first aid practices in these situations. Factors found to affect KAP scores of the mothers were age of mothers, level of education, sources of their knowledge about first aid, occupation and previous attendance of training courses on first aid. It is recommended that female illiteracy problem must be eradicated because it is associated to every child's health. In addition, increase the community awareness about accidents prevention and how to provide first aid for children in emergency situations through mass media specially television.

References

- [1] Abd El-Aty NS. Assessment of knowledge and practice of mothers towards home accidents among children under six years in Assiut governorate. Assiut University Bulletin for Environmental Research, (2005) 8(2): pp11–28.
- [2] Amin M, Abd El-Moneim M and Haféz A. Epidemiological study of preschool injuries in rural community, Qalubeya Governorate. Egyptian Journal of Community Medicine, (1998)16: pp31–41.
- [3] Baker S, O'Neill B and Ginsburg M: The injury fact book. 2nd ed. New York: Oxford University Press (1992).
- [4] Choinière R and Robitaille Y: Methodological considerations and overall profile of mortality, hospitalizations and emergency room visits. In: Beaulne G, editor. For the safety of Canadian children and youth, Ottawa: Public Health Agency of Canada: (1997) pp11–47.
- [5] Eldosoky RSH: Home – related injuries among children: knowledge, attitudes and practice about first aid among rural mothers. Eastern Mediterranean Health Journal; (2012)18(10): pp1021–1027.
- [6] Halperin S.F, Bass J.L., and Mehta K.A.: Knowledge of accident prevention among parents of young children in nine Massachusetts towns, Public Health Rep.; (2008)98: pp548–53.
- [7] Hecht BK. First aid: from witchdoctors and religious knights to modern doctors. Medicine Net.com [online factsheet] (<http://www.medicinenet.com/script/main/art.asp?articlekey=52749>, accessed at 9th August 2014)
- [8] Hossien, YE: Effect of mother's education in relation to home accident prevention among preschool children in rural area in EL-Minia Governorate. EL-Minia MED. BULL; (2009)20(2): pp121–129.
- [9] Ibrahim A. Assessment of knowledge, attitude and practice of mothers attending Cairo University Hospital toward home accidents among preschool children [MSc thesis]. Egypt, Higher Institute of Nursing, University of Cairo (1991).
- [10] Joanne A.V., Mathilde J.S., Wim R.G. and Lex B.R.: Parents' perception, attitude and behavior towards child's safety: a study in 14 European countries, Taylor & Francis, International Journal of Injury Control and Safety Promotion: (2005) pp183–189.
- [11] Kamal NN. Home unintentional non-fatal injury among children under 5 years of age in a rural area, El Minia Governorate, Egypt. J Community Health; (2013) 38(5): pp873–9.
- [12] Kendrick D, Young B, Mason-Jones AJ, Ilyas N, Achana FA, Cooper NJ, Sutton AJ, Smith S, Wynn P, Mulvaney C, Watson MC and Coupland C. Home safety education and provision of safety equipment for injury prevention (Review). Evid Based Child Health.; (2013A)8(3): pp761–93.
- [13] Kendrick D, Mulvaney CA, Ye L, Stevens T, Mytton JA and Stewart-Brown S.. Parenting interventions for the prevention of unintentional injuries in childhood. Cochrane Database Syst Rev. (2013B) 28; pp3
- [14] Lee LK, Walia T, Forbes PW, Osganian SK, Samuels R, Cox JE and Mooney DP. Home safety practices in an urban low-income population: level of agreement between parental self-report and observed behaviors. Clin Pediatr (Phila). (2012)51(12): pp1119–24.
- [15] Maciel W and Paes CE. Riscos no ambiente doméstico e em áreas de lazer In: Campos JA, Paes CE, Blank D, Costa DM, Pfeiffer L, Waksman RD. Manual de Segurança da Criança e do Adolescente. Sociedade Brasileira de Pediatria/Nestlé Nutrição: (2004) pp65–74.
- [16] Mahalakshmy T, Dongre AR and Kalaiselvan G. Epidemiology of childhood injuries in rural Puducherry, South India. Indian Journal of Pediatrics, (2011)78: pp821–825.
- [17] Morrison A and Stone DH: Unintentional childhood injury mortality in Europe: a report from the EURORISC Working Group, Injury Prevention; (2009)5(3): pp171–176.
- [18] Myhre MC, Thoresen S, Grøgaard JB and Dyb G: Familial factors and child characteristics as predictors of injuries in toddlers: a prospective cohort study. BMJ (2011)8;2(2): pp 740–745.
- [19] National Safe Kids Campaign [online factsheet] (http://www.achd.net/injury/pubs/pdf/KidsSafety_pamphlet.pdf) accessed at 9th August 2014).
- [20] Oztürk C. Home accidents and mothers measurements in preschool children. Anatolian Journal of Clinical Investigation, (2010) 4: pp 15–21.
- [21] Paes CN and Gaspar VL. As injurias nao intencionais no ambiente domiciliar: a casa segura [Unintentional injuries in the home environment: home safety]. Jornal de Pediatria, (2005)81(5 Suppl.):S146–154.
- [22] Sonavane R and Kasthuri A. Knowledge, attitude and practice of first aid among women in a rural area [MD thesis]. Bangalore, India, Department of Community Health, Bangalore University (2008).

- [23] Thein MM, Lee BW and Bun PY. Knowledge, attitude and practices of childhood injuries and their prevention by primary caregivers in Singapore. *Singapore Medical Journal*; (2005)46(3): pp 122–126.
- [24] Thomas J and Kavanagh J: Accidental Injury, Risktaking Behaviour and the Social Circumstances in which Young People (aged 12–24) Live: A systematic review. London, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London (2007).
- [25] Tomruk O. First aid: level of knowledge of relatives and bystanders in emergency situations. *Advances in Therapy*; (2007)24: pp 691–699.
- [26] Waisman I, Núñez JM and Sánchez J. Epidemiología de los accidentes en la infancia en la Región Centro Cuyo. *Rev Chil Pediatr*: (2002): pp 404-414.