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Mother's Characteristics, Knowledge and Practices about Children Burn Injury in Sulaimani City

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Abstract: ***Burn is described as one of the leading causes of injury throughout the world, and is one of the most frequent causes of hospitalization. The aim of this study was to determine mother's characteristics, Knowledge and practices for burn injuries and burn infection prevention. A cross sectional descriptive study was undertaken in Sulaimani city, Iraq, from October 2015 to July 2016. Participants were evaluated using a structured questionnaire by face-to-face interview. Data were computerized and analyzed using Statistical Package for Social Sciences version 22.0 software. A total of 126 mothers who had burn injury in their children and admitted to burning hospital during the study period, the mean score knowledge of mothers was (3.63), the mean score practice of mothers accounted (4.63), the respondent practice score ranged from (1-8). They had poor, intermediate, and good score knowledge about burns injury and burn infection 79.37%, 18.25%, and 2.38% respectively. In regard to mother's related practice, there were 66.67% within poor practice level, 30.95% of an intermediate level, and 2.38% had a good practice level. The study shows that mother knowledge and practice in Sulaimani city in relation to burn injury and infection among their children was at a low level and the local health authority should incorporate health education for parents, especially mothers in the prevention of pediatric burn at home involving hot liquid and flames also other domestic hazardous as well as the important activities after burn or pre-hospital admission.***

Keywords: Burn, Children, Knowledge, Practice, Prevention, infection

1. INTRODUCTION

Burn is described as one of the leading causes of injury throughout the world, and is one of the most frequent causes of hospitalization. Burn is a major cause of morbidity and mortality, and it is the fourth most common type of trauma worldwide [1, 2]. Burn is a major issue on public health in terms of infection control and cost of treatment in both developing and developed countries, and burn in pediatric range from minor to severe injuries [3]. Injuries in pediatrics are predictable, avoidable and preventable. Burn prevention is unavoidable parts of every child care program and an important responsibility of both parents and caregivers. Parents with burn injury experiences can help children to avoid being burned [4, 5]. high incidence of childhood burns among Low-income population is because of poor parent's educational level [6]. But in high-income countries the variation rate of burn injury are nearly the same level in all educational families such as in Denmark the rate per 1000 childhood injuries is 1.8 % in high education level, secondary school 2.0% and primary school 2.8 % [7].

Parents' knowledge about burn injuries and burn preventions especially in children will decrease the burden and ongoing the burn [5]. First aid is a basic rule by cooling the burned area, prevent ongoing burning and prevent contamination. Cooling burn is one of the oldest methods for treating [6]. First aid is an important practice and it should be done after each burn injury by the families, cooling the burn surface for 5 minutes is a good example practice [8].

According to the WHO hand washing improvement strategy and hand hygiene is a certain rule to protect patients from pathogen which transports by health care worker and parents hands [9]. A previous study showed England parents have more tends to wash their hands rather than the Taiwan parents before and after touching patients, and Taiwan patients have more visitors than England patients [10]. Also a previous study demonstrated that personal hygiene among the mothers was a good way of preventing infections, most mothers submitted the hygienic practices, by washing their hands, especially before and after eating, before holding the child [11]. The aim of this study was to determine mother's characteristics and assess their Knowledge and practices for burn injuries and burn infection prevention.

2. PATIENTS AND METHODS

A cross sectional descriptive study conducted from October 2015 to July 2016 at Sulaimani Burn and Plastic Surgery Hospital, Sulaimani, Iraq. Which is the main hospital for treatment of severe burns for many years and that has been giving routine health services for Sulaimani city and other referral cases from different regional states of Iraq.

Sample collection

A questionnaire was used to collect data from the mother's patient, self-administered questionnaire by face to face interview. Pre-test was used in 5% of the sample

size before the study is started. The questionnaire contains three major sections: Mothers Socio-demographic characteristics, mothers' knowledge about burn injury and infections and practices to prevent burn injury and infections.

First section consists of 7 questions regarding background information of participants. The following data were obtained from mothers whom with burn injury in their children and admitted to the burn units; registration data: age, occupation, family size, educational level, socio-economic status, number of children and parental observation status were include.

Second section concerns knowledge questions about burn injury and infection as well as preventable thinks; this section consists of 11 questions. The participants could choose one from two predetermined options which were (Yes) and (No) answer. Each correct answer received one point for (Yes) answers and zero for (No) answers. The knowledge scoring range was from zero (minimum score) to 11 (maximum score). The scale classified knowledge levels as: poor knowledge, intermediate knowledge and good knowledge level.

Third section concerns practices questions about preventable practices for burn injury and infection. This section consists of 2 parts. First part focused on practices before hospitalization, which contain 6 questions. The participants had two predetermined options to choose between which was (Yes) and (No) answer to determine practice level. Each correct answer received one points while zero point was given for incorrect answers. Second part focused on practice after hospitalizations which consist of 5 questions. Mothers had two choices to answer (Yes) and (No), who answered (Yes) received one point and (No) received zero point.

Statistical analysis

Data were computerized and analyzed using Statistical Package for Social Sciences (SPSS software, version 22.0). Mean and confidence interval are used to summarize continuous variables whereas categorical variables to be summarized in form of proportions and frequency tables. Chi-square ($\chi 2$) test was used to test for significance of associations between the predictor and outcome variables in the categorical variables to find an outcome related to health issues. Analysis of variance (ANOVA) was used to compare mean scores of variables to find association with P-value of ≤ 0.05.

Ethical issues

Official letter of permission from technical college of health, community health department was submitted to burn and plastic surgery hospital. The study was carried out after the approval by the college committee. Collected data was kept confidential and no one except the members of the research team had access to the collected information. An oral informed consent was also obtained from mothers who participated in the study.

3. RESULTS

Mother's characteristics

A total of 126 mothers participated in the study, of these 70 (55.6%) of them were illiterate, followed by primary education level, secondary and higher education level 34(27.0%) and 22(17.5%) respectively. Also mother's occupation status classified on to three groups, housewives were 116 (92.1%), governmental employee were 7 (5.6%), and teachers 3(2.3%). 89 (70.6%) cases were from rural area and 37 (29.6%) were from urban area. Mothers who had more than 3 children accounted majority of cases 76 (60.3%). The majority of mother ages were less than twenty five years 51 (40.5%), followed by more than thirty years of age 48 (38.1%) and then 25-30 years 27 (21.4%). Regarding mother socio-economic status the majority of cases was with low economic status 93 (73.8%). According to the observation by their parents, highest of cases were with single parents observation 89 (70.6%) (Table 1).

Mother's knowledge and practice score level

A total of 126 mothers who had burn injury in their children and admitted to burn hospital during study period, the mean score knowledge of mothers was 3.63 (95%CI 3.29-3.99) (Table 2), the respondent knowledge score ranged from (0-9). The mean score practice of mothers accounted 4.63 (95% CI 4.33-4.9) (Table 2), the respondent practice score ranged from (1-8). They had poor, intermediate, and good score knowledge about burn injury and burn infection 79.37%, 18.25%, and 2.38% respectively.

In regard to mother's related practice, there were 66.67% within poor practice level, 30.95% within intermediate level, and 2.38% had a good practice level (Figure 1).

Mother's knowledge

The first four part of knowledge section of questioner focused on mothers knowledge about burn injury and factors leading to burn injury. Majority of mother have no information about burn injury and factors leading to burn injury, 63.5% mothers had not information about mechanism of burn injury, while 77.0% of them did not have knowledge about factor leading children to burns, and 77.8% of mothers did not have knowledge for ways to prevent burn injury. Also 56.3% of mothers had no information about presence of burn hospital in Sulaimani city (Table 2).

Also majority of mothers 77.8% did not have information about prevention of burn infection. About transmission of microbial in burn patients; 54.0% were accounted. For question about immediate transport patient to hospital, the highest proportion of mother's respondent answered (No) accounted 52.4%.

Regarding mother's knowledge about personal hygiene is one way to prevent burn infection; those answered (Yes) and (No) were equal to 50% (Table 2).

Table 1: Socio-demographic Characteristics of mothers. (No.=126)

Characteristics	No.	(%)
Mothers education level		
Illiterate	70	(55.6)
Primary	34	(27.0)
Secondary & Higher	22	(17.5)
Residency		
Urban	37	(29.4)
Rural	89	(70.6)
Mothers occupation		
Housewives	116	(92.1)
Governmental staff	7	(5.6)
Teacher	3	(2.3)
Mothers age group		
<25	51	(40.5)
25-30	27	(21.4)
>30	48	(38.1)
No. of children		
<3	50	(39.7)
≥3	76	(60.3)
Mothers socio-economic status		
Low	93	(73.8)
Mild & Good	33	(26.2)
Present of both mother & father during time of burn		
No	89	(70.6)
Yes	37	(29.4)

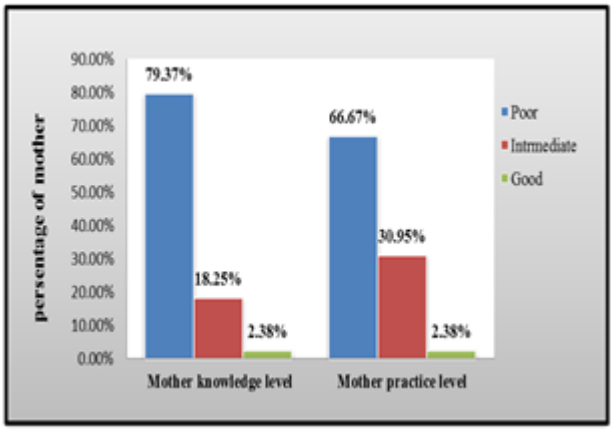

Figure 1 knowledge and practice level of mothers

Table 2: Knowledge of mothers on burn injury and burn infection. (No.=126)

Knowledge		No.	(%)
Mechanism of burn injury	No	80	(63.5)
	Yes	46	(36.5)
Type of burn infection	No	117	(92.9)
	Yes	9	(7.1)
Factors leading children to burn injury	No	97	(77.0)
	Yes	29	(23.0)
Prevention of children from burn injury	No	98	(77.8)
	Yes	28	(22.2)
Burn hospital	No	71	(56.3)
	Yes	55	(43.7)
Crowding & visiting to burn patient are risks for infection	No	100	(79.4)
	Yes	26	(20.6)
First aid is good after burn injury	No	76	(60.3)
	Yes	50	(39.7)
Immediate transport burn patient to hospital	No	66	(52.4)
	Yes	60	(47.6)
Personal hygiene one way to prevent burn infection	No	63	(50.0)
	Yes	63	(50.0)
Prevention of burn infection	No	98	(77.8)
	Yes	28	(22.2)
Transmission of microbial in burn injury	No	68	(54.0)
	Yes	58	(46.0)

Mother's practice to prevent burn injury and burn infection

The practice sections of questioner consist of two parts, first part; focused on practices done by mothers before admitted to hospital (before occurrence and after burn injury). The study showed that 98 (77.8%) cases were not separated cooking parts from other part inside the home and statistically not significant to infection p=0.1, the same percent showed with mothers no avoiding their children away from cooking place during cooking times. 97 (77.0%) of mothers do not covered the wound after injury for their children. Also majority of mothers 69 (54.8%) did not performed first aid or cooling the burn after injury and statistically not significant to infection p=0.5. The highest proportion of positive mothers practices were immediately transport patient to hospitals, and done health care for their children after burn injury in another health center 97 (77.0%), and 70 (55.6%) respectively (Table 3).

Second part of questioner; focused of parent practice after admitting to hospitals. Out of 126 mothers 117(92.9%) were received health education by health care workers. Regarding practice about washing hands

after eating, 62(49.2%) of mothers were with no hand washing and statistically significant to infection p=0.02. Also majority of mothers were not used mask during health care 107(84.9%), which is not significantly related to infection p=0.9. In addition mothers who respondent to practices were 89(70.6%) at high proportion in washing their hand before dealing and contacted with their children, but 37(29.4%) of mothers were with no hand washing before dealing with the patient that is statistically highly significant to infection (p<0.001). Regarding family members visiting to hospital, less of patients 34(27.0%) had visitor, and it is highly statistical significant to infection p<0.001 (Table 3).

Mean Score levels

The mean score of mothers regarding knowledge about burn injury and infection was 3.63 (95%CI 3.29-3.99) (Table 4). The mean score of mothers with both secondary and higher educational level was 4.59 (95%CI3.56-5.62), while the mean score for mothers with no education level was 3.33 (95%CI 2.88-3.77), these differences were statistically significant (P-value=0.03). In addition, the mean score of mothers occupation for the housewives was 3.33 (95%CI 3.11-3.84), but mean score for the teacher was 7.00 (95%CI 2.7-11.3), this difference was statistically significant p=0.003. Mothers >30 years of ages had greater mean score knowledge 3.98 (95%CI 3.39-4.57), also mothers from mild to good socio-economic families had greater mean knowledge score 3.94 (95%CI 3.21-4.67) (Table 4).

Regarding the mean score of the practices, the mean score was 4.63 (4.33-4.90), and there was not any significant correlation for all the socio-demographic characteristics (Table 4).

4. DISCUSSION

It is known that effective surveillance and early detection of infections in burn patients help in better management of patients and reduce emerging infection, mortality rate, length of hospitalization and associated cost [12]. Few studies were conducted about pediatric burn injury in Kurdistan region [13-15].

A total of 126 mothers participated in the study, those who were younger than 25 years old their children were at the risk to burn injury 40.5%. The result is in agreement with a study done by Laursen, B. and J.W. Nielsen in Denmark which reported that the risk of injury was higher for children in families whose mothers' age less than 25 years old [7]. This is explained that older ages of mother have more experiences related to enhance the development of safety habits, leading to burn injury reduction.

The current study result showed that burn injuries were more frequent in families whose mother at low education (illiterate) levels. This finding is in agreement with Siaw, N.A. study which is obtained that low parental education level is a major risk for burn injury among their children [16], but the result is not consistent with Laursen, B. and J.W. Nielsen which reported that mothers with primary education level are more relevant to cause burn in their children [7]. In addition, a study by Tse, T., et al revealed that the majority of parents who have children with burn injuries completed secondary educational level [17]. Result of the current study, revealed that burn injury are more frequent in families who have more than three children 60.3%. A previous study by Laursen, B. and J.W. Nielsen from Denmark showed the same finding for a child who burned at home [7]. But Marissa Bane revealed that 61.10% of burn injury occurred when 1-2 children present at home [18].

Socioeconomic level also is an important factor considered in burn injury. In our study, most of mothers are from families with the lowest income level 73.8%. This is similar to the WHO global burden of disease project makes it clear that burns are important contributor to overall disease among children in low and mild income families [6]. A high income increases the capability to live in safe dwelling and able to buy safety equipment, thus reducing the risk exposure.

In the present study 63.5% of 126 mothers did not have knowledge about the mechanism of burn injury and 92.9% of them had no information about burn infection. As well as 77.0% of them did not have information about factors leading children to burn injury and 77.8% of mothers had no information about the ways that prevent children from burn injury. Our finding is agree with the results of previous study which obtained by Chikwanha, T.M., T. Chinhengo, and A. Chadambuka [19]. Also most of mothers did not have knowledge about burn hospital and should immediately transport burn patients to burn hospital. This finding disagree with the study done by Rimmer, R.B., and his coauthors which reported that parents of children with visible burn have more concern about early transporting burn patient to hospital [4].

In the current study most of mothers did not take precautions about separating the cooking place from the other parts at home and did not take their children away from the cooking place during cooking time. These findings are consistent with a study done by Chikwanha, T.M., T. Chinhengo, and A. Chadambuka [19]. This is probably due to lack of burn prevention precaution within the home, especially during meal preparation which is required to prevent burn injury. Pre hospital care in our study is not applied adequately and it could be due to lack of implementing educational program for parents and they not have desire to follow up and look up for health subjects.

Overall mothers had poor, intermediate and good scores knowledge on the burn injury, burn prevention and burn infection in percentage of 79.37%, 18.25% and 2.38% respectively. Therefore, the score ranging for practice section is like the above about mothers practice on prevention burn injury and burn infection in percentage 66.67%, 30.95% and 2.38% respectively. These differences may be due to the participant's information on burn injury and burn prevention. Also depriving the communities to health and prevention education have a role in this outcome.

Table 3: Practice of mothers on burn injury and infection. (No.=126)

Practices		No. (%)	Not infected No. (%)	Infected No. (%)	p-value
Practices before admitted to hospital					
Place of cooking separated from other part in home	No	98(77.8)	63 (64.3)	35 (35.7)	0.1[a]
	Yes	28(22.2)	22 (78.6)	6 (21.4)	
Your children away from cook place during cooking times	No	98(77.8)	63 (64.3)	35 (35.7)	0.1[a]
	Yes	28(22.2)	22 (78.6)	6 (21.4)	
Covering wound after burn	No	97(77.0)	64 (66.0)	33 (34.0)	0.5[a]
	Yes	29(23.0)	21 (72.4)	8 (27.6)	
Immediately transported to burn hospital	No	29(23.0)	20 (69.0)	9 (31.0)	0.8[a]
	Yes	97(77.0)	65 (67.0)	32 (33.0)	
`Before admitted to hospital given any health care for your child in another health center	No	56(44.4)	35 (62.5)	21 (37.5)	0.2[a]
	Yes	70(55.6)	50 (71.4)	20 (28.6)	
Doing first aid after burn injury	No	69(54.8)	45 (65.2)	24 (34.8)	0.5[a]
	Yes	57(45.2)	40 (70.2)	17 (29.8)	
Practices after admitted to hospital					
Received health education after admission by health care worker about hygiene	No	9(7.1)	5 (55.6)	4 (44.4)	0.4[a]
	Yes	117(92.9)	80 (68.4)	37 (31.6)	
After eating cleaned your hand	No	62(49.2)	36 (58.1)	26 (41.9)	0.02[a]
	Yes	64(50.8)	49 (76.6)	15 (23.4)	
Used mask when remain with your child	No	107(84.9)	72 (67.3)	35 (32.7)	0.9[a]
	Yes	19(15.1)	13 (68.4)	6 (31.6)	
Other family member visited the patient	No	92(73.0)	77 (83.7)	15 (16.3)	<0.001[a]
	Yes	34(27.0)	8 (23.5)	26 (76.5)	
Before touch your child cleaned your hand	No	37(29.4)	15 (40.5)	22 (59.5)	<0.001[a]
	Yes	89(70.6)	70 (78.7)	19 (21.3)	
[a] chi-square test was used.					

Table 4: Association of socio-demographic variables with the knowledge and practices mean score of the respondents. (No.=126)

Variables	No.	Knowledge score Mean (95% CI)	p-value	Practice score Mean (95% CI)	p-value
Mothers education level					
Illiterate	70	3.33 (2.88-3.77)	0.03[a]	4.61 (4.24-4.99)	0.9[a]
Primary	34	3.65 (2.94-4.35)		4.62 (3.97-5.26)	
Secondary &Higher	22	4.59 (3.56-5.62)		4.68 (4.01-5.36)	
Mothers age group					
<25	51	3.07 (2.29-3.86)	0.1[a]	4.65 (4.19-5.11)	0.8[a]
25-30	27	3.58 (3.02-4.15)		4.74 (4.14-5.34)	
>30	48	3.98 (3.39-4.57)		4.54 (4.04-5.04)	
Mothers socio-economic status					
Low	93	3.53 (3.11-3.94)	0.6[a]	4.57 (4.23-4.91)	0.4[a]
Mild & Good	33	3.94 (3.21-4.67)		4.79 (4.25-5.33)	
Mothers occupation					
Housewives	116	3.33 (3.11-3.84)	0.003[a]	4.59 (4.29-4.90)	0.6[a]
Staff	7	4.84 (3.40-6.31)		4.86 (3.73-5.98)	
Teacher	3	7.00 (2.7-11.3)		5.33 (3.90-6.77)	
Residency					
Urban	37	4.35 (3.60-5.11)	0.01[a]	4.30 (3.74-4.86)	0.1[a]
Rural	89	3.34 (2.95-3.73)		4.76 (4.43-5.10)	
Overall	**126**	**3.63 (3.29-3.99)**		**4.63 (4.33-4.90)**	
a One-way ANOVA t-test with Tukey's comparison was used					

In regards the association of demographic characteristics with knowledge and practice toward mothers for burn injury and infection, in the present study we found that some factors such as: education levels, residency and occupational status of participants affected significantly the knowledge level of burn injury and infection. The present study showed that there were statistical significant differences between education level and knowledge of the mothers in which the higher education level has a greater mean score knowledge, p=0.03. While in terms of practice score there were no statistical significant differences between educational level and practices, but mothers with higher education level have little bit greater mean practice score. This means; when the educational level raised the knowledge and practices for burn prevention will probably increase.

In this study, mothers in urban residence had a greater mean score knowledge rather than rural residence and this difference statistically significant p=0.01. Regarding mothers knowledge about burn injury and infection, mothers living in rural areas tend to have less access to educational opportunity and health services. On the other hand, mothers' practices in rural residents have greater mean practice score than urban resident.

Conclusion

Mother knowledge and practice in Sulaimani city in relation to burn injury and infection among their children was not sufficient. Age, educational level, occupational status, family size, residency and poverty of parents, especially mothers was related to burn injury in pediatric population. Mother's knowledge and practice regarding first aid in the study was in a low level. Hand washing for mothers indicated serious problem to emerging burn infection on their children. The health education program is suggested to increase mother knowledge and practices about burn injury in children.

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CONFLICT OF INTEREST

The researcher declares that they have no conflict of interests.

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