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ORIGINAL ARTICLE

Study of Association of Demographic Variables with Types of Burns Presenting in a Tertiary Care Medicolegal Clinic

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ABSTRACT

Background: In day to day life every human whether young or the old happens to deal or face the fire sources or any relevant entity. Great research is available in all the regions of the world and generous emphasis had been delivered widely. Though the advantages of the energy sources outweighs its disadvantages if dealt with proper care but accidents do happen in this process. The study focuses on the association of the demographic variables like age, gender, marital status and level of education.
Aim: To observe the association of demographic variables with types of the burns.
Methods: A total of 250 victims of burns presenting in the Medicolegal Clinic of King Edward Medical University Lahore/ Emergency of Mayo Hospital Lahore expanded over a period of several months from December 2017 to August 2018.
Results: A grossly significant association of the age, gender, occupation and level of education of the victims of burns with types of different burns i.e. scalds, dry flame burns, chemical burns and electrical burns was observed with a 0.000 p value. A little lower significance of marital status of with a p value of 0.036 was observed when compared to different types of burns.
Keywords: Scalds, Dry flame, Chemical, Electrical, Burns, Age, Gender, Marital Status, Occupation

INTRODUCTION

Burns acting as a source of energy is a daily requirement of human life and hence incidents with burns are unavoidable. This energy source can be found in variety of forms. Any form of energy including heating source that may be dry flame burns, liquids like chemicals, electricity, thermal sources or even any hot object coming in contact with human body can cause injuries[1]. Therefore burns are considered the most drastic injuries caused to human bodies[2]. Among all the injuries of burns caused regarding the medium of burns; scalds and dry flame burns are ranked as the most while chemical and electrical injuries are the least frequent mediums of the burns[3]. The male suffered the double of the strength of the females in all types of burns and children being the more prone age group falling victims to burns[4]. Converse was observed as female suffering the twice of males in Pakistan, Bangladesh and India.[5] Children especially under the age of five years is the most commonly encountered victims to burns.[6] Highest incidence of burns had been observed in children[7].

Most of the victims of burns were unmarried being children, adolescents and young adults[8]. Female gender and married persons were found to be more fallen victim of burn injuries.[9] Some regions especially South Asia has witnessed highest preponderance in terms of involvement to burn incidences in younger age, female sex, lower education level and lower socioeconomic status. No specific occupation or profession had been found to play a role in frequencies of burns or any other associated injuries[9-12].

MATERIALS AND METHODS

The study was carried out over a period of 8 months from December 2017 to July of the next year. The cases were presented in ER and Medicolegal Clinic of a leading Tertiary Care Hospital i.e. May Hospital Lahore of the province of Punjab which drains the one of the huge share of burn victims. A total of 250 burn victims were presented during this period and were included in the study.

A descriptive cross-sectional study was carried out to assess the association of medium of burns with that of the demographic variables of its victim. The demographic variables included Age, Sex, Marital Status, Education/Literacy Level and Occupation were studied and its association with that of medium of burns like Scalds, Dry/Flame Burns, Electrical and Chemical Burns. The said data was collected using a standardized and pretested questionnaire for the purpose. Data was analyzed on SPSS version 20.0.

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RESULTS

Frequency Distribution of Age and Gender: Age was categorized into different strata like 1) Infants (Less than 01 Year), 2) Child (1 Year to12 Years), 3) Adolescents (13 Years to 25 Years), 4) Adults (26 Years to 50 Years) and 5) Elders (Above 50 Years) for the purpose of better understanding of the age of population.

The maximum frequency distribution of 113(45.2%) was in children with composition of male preponderance of 62(24.8%) while little lower count of females as 51(20.4%) was observed. Similarly the least frequency distribution of 3(1.2%) was observed in adolescents with a segregation of 2(0.8%) females and 1(0.4%) male. The two extremes showed converse in the gender distribution with male being involved in higher frequencies in children while female taking preponderance in adolescents' age group.

There were a total of 24(9.6%) infants with 13(5.2%) females and 11(4.4%) males, 38(15.2%) adults comprising of 24(9.6%) females and 14(5.6%) males and the last age category of 72(28.8%) elders consisted of 40(19.6%) females and 23(9.2%) males.

Table 1: Frequency Distribution of Age and Gender

Category	Age	Male	Female
Infants (Less than 01 Year)	24(9.6%)	11(4.4%)	13(5.2%)
Child (1 to12 Years)	113(45.2%)	62(24.8%)	51(20.4%)
Adolescents (13 to 25 Years)	3(1.2%)	1(0.4%)	2(0.8%)
Adults (26 to 50 Years)	38(15.2%)	14(5.6%)	24(9.6%)
Elders (Above 50 Years)	72(28.8%)	23(9.2%)	49(19.6%)
Total	250(100%)	112(44.8%)	138(55.2%)

Table 2: Association of Demographic Variables with Types of Burns.

Factors	Types of Burns					p value
	Scalds (*n*=134)	Dry (*n*=92)	Electrical (*n*=17)	Chemical (*n*=7)	Total (*n*=250)	
Age						
Infant	18	6	0	0	24	0.000
Children	74	34	5	0	113	
Adolescents	1	2	0	0	3	
Adults	19	14	4	1	38	
Elders	22	36	8	6	72	
Gender						
Male	74	41	12	6	133	0.036
Female	60	51	5	1	117	
Marital Status						
Single	108	52	8	2	170	0.000
Married	26	40	8	5	79	
Divorced/ Widowed	0	0	1	0	1	
Education Level						
Illiterate	83	36	3	2	124	0.000
Primary	27	40	11	1	79	
Secondary	14	3	0	1	18	
Higher Secondary	5	8	3	3	19	
Graduate	5	5	0	0	10	
Occupation						
Minor	93	58	5	1	137	0.000
Laborer	13	20	6	3	42	
Govt. Servant	3	4	2	0	9	
Private Service	10	13	3	3	29	
House Wife	15	17	1	0	33	

Association of demographic variables with types of burns: The association of the demographic variables such as age, sex, marital status, education level and occupation of the victims of burns has been studied and results are analyzed below.

The types of burns were classified into four major categories such as scalds including all types of liquid burns other than chemicals, dry burns as those of all burns having flames, electrical burns in all of its formats and finally all types of chemical burns like corrosives of different nature, alkalies and acids.

The statistical analysis revealed that among 250 victim of burns there were 134 victims of scalds, 92 victims of dry burns, 17 victims that of electrocution or electrical burns and only 7 burns of chemical nature. In this way the highest cases of more than half of all the victims of burns were those of scalds followed by dry burns and least of chemical burns as shown in table 02 above. The association of these types of burns with that of demographic variables like age, sex, marital status, education level and occupation has been further analyzed as under.

Age: The association of age with that of the types of burns was found grossly significant with a p value 0.000 showing maximum type of scalds burns and that in children and infants while dry burn victims preponderance in adolescents and elders. The chemical burns were reported just in a single victim of adults and also among 6 elders. Our study revealed p value <0.05 showing significant involvement of types of burns with that of age.

Gender: Gender association with that of types of burns was also significant having 0.036 p value hence less than 0.05 value of p. There 138 females with 174 victims of scalds and 36 victims of dry burns. There was just a single chemical burns and six victims of electrocution as shown in table 02 above. Among the male gender there were 60 victims of scalds and 34 victims of dry flame burns. In addition there were 12 victims of electrocution and exactly half of that were chemical burns in males. Statistically significant association was observed between the gender of the victims and types of burns.

Marital Status: Highly significant association of types of burns with that of marital status with a p value 0.000 was observed. Among unmarried victims of burns there were 108 victims of scalds and 52 dry flame burns while only 8 victims of electrocution along with 6 unfortunate chemical burns. Among the married victims there were 26 scalds and 41 dry flame burns and hence opposite preponderance was observed when compared to the unmarried victims. Among electrocution and chemical burns there were 8 and 5 unfortunate victims respectively. There was only 1 unfortunate divorced or widowed electrocuted victim among different types of 250 victims of burns. The association was found grossly significant as shown in table 02 above.

Education Level: Literacy level association with that of the type of burns was found grossly significant with 0.000 p value. The highest involvement was with among illiterates with just one less than half of the entire population under study being 250 in total. There were unfortunate 83, 36, 3 and 2 unfortunate victims of scalds, dry flame, electrocution and chemical burn victims respectively. Opposed to illiterates were the graduates which in total were 10 out of 250 burn victims with equal contribution of scalds and dry flame burns and fortunately not even a single got electrocuted or chemically burnt.

Opposed to all above the primary school and higher secondary school certificate education level presented with dry flame burns more frequent than scalds. The 79 victims with primary school education showed maximum victimization to dry flame burns being 40 unfortunate victims and just 27 scalds. There was a relatively a higher contribution of electrocution with 11 victims and just 1 burnt chemically. There were 19 victims of burns with higher secondary school certificate level of education with maximum share of dry flame burns being 8 victims and unfortunate 3 fell to scalds and thankfully none was electrocuted but single case of chemically burnt victim was reported.

Graduates fell least to burns incidents with just five victims each in scalds and dry burns and likely no fell victim to electrical and chemical burns.

Occupation: Grossly significant association of the occupation of burn victim with that of types of burns was observed with 0.000 p value. Very unfortunate 137 victims of burns were minor 93 of which were scalds and 58 dry flame burn victims. There were 5 unlucky electrocution victims and 1 was chemically burnt among the minors. Laborers and private sector job holders held greater contribution to dry flame burns with 20 and 13 victims respectively. There 13 and 10 victims of scalds among laborers and private sector workers respectively second to dry flame burns. There were 3 victims of chemical burns and twice of that were electrocuted among laborers. Besides that among 29 victims of burns of private sector workers 3 unfortunate victims fell each to electrocution and chemical burns.

The least public sector employee were effected from burns. Among the total of 9 of those 4, 3 and 2 were dry flame burns, scalds and electrocution victims. Luckily no chemical burnt victim was reported. Among the house wives there 17 victims of dry flame burns, 15 scalds and just one case of electrocution with no chemical burn case reported. However, statistically very significant association was observed between the occupation and types of burns.

DISCUSSION

Our study revealed highly significant association between the demographic variables such as that of age, gender, marital status, education level and occupation with types burns like scalds, dry flame burns, electrocution and chemical burns[2,3].

The grossly significant association of the types of burns with that of age and gender as revealed in our study were in consistence with that of Park J. et all (2018)[6], Alemayehy S. (2020)[7], Norona D. (2007)[8], Zavlin D. (2018)[12], Goswami P. (2016)[13], Ahmad M. (1999)[14] and Steiner T. (2015)[15]. There was no significant research data available to be found in contradiction to our observations as revealed in this study.

Similarly the statistically significant association of the marital status with that of types of burns with less than 0.05 p value was observed. This primary contribution in our study was that of minors and thus being unmarried was observed. The findings were in consistence with those of Alemayehy S. (2020)[7] and Zavlin D. (2018)[12] while these finding were not found in contrast to any of the available data to that of our observation in current study.[9,10]

Education level and occupation was significantly associated with a p value of 0.000 to that of types burns in our study. The study findings were in consistence with that of Peck M. (2011)[9], Golshan A. (2013)[10] and Wolf S. (2012)[11].

CONCLUSION

We concluded our study with statistically grossly significant association of all the demographic variables of current study i.e. age, gender, marital status, education level and occupation with types of burns like scalds, dry flame burns, electrical and chemical burns.

All classes of age like infants, children, adolescents, adults and elders were found grossly significant with all the mentioned types of burns with 0.000 p value.[4,6-8] Similarly both the genders were found significantly associated with types of burns with less than 0.05 p value[4-8].

Marital status, level of education and occupation was also revealed in our current study to be significantly associated with all types of burns[9-11]

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