



Full Length Research Paper

Socio-demographic factors in accidental poisoning in children

^{*1}Dominc O. Osaghae and ²Godwin Sule

^{*1}Department of Paediatrics, Igbinedion University, Okada, Benin City, Nigeria

²Modic Medical Centre, 7 Ugiayugbo Street, Off Akenzua, P O BOX 4488, Benin City, Nigeria

Abstract

Accidental poisoning contributes significantly to childhood morbidity and mortality. Previous studies have established the direct causes of accidental poisoning in Nigerian children but the risk factors that predispose the children to poisoning have not been sufficiently highlighted. Consequently, this retrospective study examined the contribution of social and demographic factors to accidental poisoning in 262 children. Social and demographic factors were extracted from the case files and analyzed descriptively. Fifty three percent were aged ≤ 2 years; 44.1% aged 3 – 5 years; and 2.5% aged ≥ 6 years. Males and females accounted for 56.9% and 43.1% respectively. Seventy two percent and 28% were from low and high social classes respectively. Age, socio economic status of families and birth order are the key factors that contribute to increased incidence of poisoning in children. Children aged ≤ 2 years are more likely to be poisoned accidentally as compared to those of them aged 3 - 5 years. Similarly, the proneness to accidental poisoning is higher in children aged 1 – 5 years (93.1%) as compared to those younger than 1 year and ≥ 6 years of age (6.9%). Consequently, one may infer that the risk of AP in children is least before the first birth day, peaks at 2 years of age and generally declines as age increases.

Keywords: Accidental poisoning, socio-demographic factors.

INTRODUCTION

Accidental poisoning is common in children and it contributes significantly to childhood morbidity and mortality (Maconochie, 2007; Oguce et al 2007; Ochigbo et al., 2004). Consequently, various household products and drugs have been identified as the causative agents of childhood poisoning in different regions of the world. Whereas household products like petroleum distillates are the leading causes of poisoning in developing countries (Ochigbo et al., 2004; Olomu, 1992; Adejuyigbe et al., 2002; Sarker, Ghosh and Barik, 1990); drugs are most commonly implicated in developed nations (Andiran, Sarikayalar, 2004; Steele, Spyker, 1985).

The direct causes of childhood poisoning have been extensively examined and reported in many studies from diverse centers in Nigeria. (Olomu, 1992; Ochigbo, 2004; Fagbule, Joiner, 1982; Oguce, 2007; Belonwu,

Adeleke, 2008). In this regard, kerosene was found to be the most frequent cause of poisoning in the country. The other causes include caustic soda, alcohol and bleach among others.

Unfortunately, the risk factors that tend to predispose Nigerian children to poisoning have not been sufficiently highlighted. In this regard, it is assumed that young age < 5 years is sole factor that predispose children to accidental poisoning. Consequently, this study examined the possible contribution of social and demographic factors as predisposing risk factors in accidental poisoning in children.

PATIENTS AND METHODS

Case records of children with accidental poisoning seen In Modic Medical Centre over a 10 year period from January 1, 2002 to December 31, 2011 were retrieved from the registers and records Unit of the hospital. The information extracted from the case files include: age,

*Corresponding Author E-mail: jmms.research@gmail.com

Table 1: Age and Gender Distribution in 202 cases of Poisoning in Children

Age (Years)	Cases	Males	Females	%
< 1	9	5	4	4.4
1 – 2	99	56	43	49
2 – 3	65	37	28	32.2
3 – 4	16	9	7	7.9
4 – 5	8	5	3	4.0
>5	5	3	2	2.5
	202	115	87	100

gender, social class, maternal educational status, father's occupation, living conditions, and the types of care givers. The data was entered into register and presented by descriptive statistics.

RESULTS

Two hundred and sixty children were identified but 202 (89.4%) fulfilled the study criteria.

Age and Gender

One Hundred and Eight (53.5%) children were aged ≤ 2 years; 89 (44.1%) aged 3 – 5 years; and 5 (2.5%) aged ≥ 6 years. Males and females were 115 (56.9%) and 87 (43.1%) respectively. The age and gender distribution is shown in Table 1.

Socio – economic status of families of the children

- Social class: One hundred and Seventeen (72%) and 46 (28%) children were from low and high social classes respectively.
- Housing: One Hundred and Ten (68%) and 52 (32%) lived in 1 or 2 bed rooms in passage houses and in 3 or 4 self – contained flats respectively.
- Educational status of 105 mothers: Primary school (52%); Secondary school (38%); Post secondary (10%)
- Occupation of 94 fathers: Artisans, bike riders, trading, unemployed, teachers, civil servants, contractors
- Birth order: The birth orders were recorded in 98 children and 22 (22.4%), 57 (58.2%), 10 (10.2%) and 9 (9.2%) were 1st, 2nd, 3rd and 4th born respectively.
- Care givers: The care givers at time of poisoning include parents 67 (41%); older siblings 15 (9%); grand - parents 37 (23%); other relatives 3 (2%); neighbors 8 (5%) and nannies 33 (20%).

DISCUSSION

The findings of this study have revealed that age, gender;

socio economic status of families, birth order and type of care givers are key factors that contribute to increased incidence of poisoning in children. Thus, in this study, 97.5% of the children were aged ≤ 5 years and this value is higher than a previous observation in Benin City (Olomu, 1992) that recorded a prevalence of 87%. The finding is however, in agreement with the general observation that children aged 5 years or less are particularly prone to accidental drug poisoning.

It was however found that children ≤ 2 years (108 or 53.5%) are more likely to be poisoned accidentally as compared to those of them aged 3 - 5 years (89 or 44.1%). Similarly, the proneness to AP was higher in children aged 1 – 5 years (188 or 93.1%) as compared to those younger than 1 year and ≥ 6 years of age^{1, 3, 4} as previously reported. (Moconolie, 2007; Ochigbo et al., 2004; Olomu 1992). Moreover, it was found that children aged 2 years in particular are more prone to AP than 3 year old and at any other age for that matter.

This finding is however not surprising because at 2 years of age, a child is at a developmental stage that is characterized by inquisitiveness, restlessness and impulsivity (Njokanma, Nkanginieme, 2007). As a result, the 2year old child engages in aggressive exploration of his or her total environment and in doing so, every object in sight is closely examined for form, texture and taste. Hence, as expected, such a child is at high risk of being easily poisoned or injured by products in the environment.

Additionally, it was also found that children aged either less than 1 year old or ≥ 6 years are least prone to AP. Children < 1 year old are often with parents or care givers because of young age. Consequently, one may infer that the risk of AP in children is least before the first birth day, peaks at 2 years of age and generally declines as age increases. Thus implying that the ailment tend to occur at a time that children need the highest level of close supervision.

The finding of this study also showed that boys are more likely than girls to be accidentally poisoned by various environmental agents; thus corroborating previous finding of male preponderance in cases of poisoning in children. The explanation for this apparent difference is uncertain but may be traced to genetic

factors rather than other considerations because the male sex is linked to restless, forceful and reckless behaviours as compared to girls (Manzar et al., 2010).

It was noteworthy that most of the children were from families of low social class (Olusanya, Okpere, Ezimokhae, 1985) and lived in overcrowded homes with poor facilities. For example 68% of the children in this study lived with parents in 1 or 2 rooms in passage houses. These houses use common facilities like kitchen and conveniences.

Needless to say, such homes also lacked separate rooms for the storage of various house hold products like kerosene and bleach. Therefore, parents are likely to litter the living areas with house hold products that can be easily ingested by toddlers while exploring the environment. This possibility was high because such products were stored in assorted containers of soft drinks and water bottles that were improperly sealed and easily mistaken for water by the inexperienced toddlers. Hence, it was not surprising that children from lower social classes were more prone to accidental poisoning than counterparts from higher social classes.

Furthermore, this possibility was high because of the likely inexperience of the care givers that included first degree relatives in 50% of the children in this study. Besides, majority of the mothers of the affected children, attained low levels of education that is a recognized factor in poor quality of care rendered to children (Osaghae, Amabunos 2012).

In addition, older siblings participated in the care of the toddlers at the time of poisoning and the children were likely to be relatively of young age because of young ages of the mothers. Grandparents also offered care to 23% of the children at the time of poisoning. Though grandparents are supposed to be experienced in child craft but their capacity in this regard may be hampered by various physical infirmities and sometimes ignorance. Unfortunately, we were not able to confirm the ages, educational levels or infirmities in the grandparents.

Nonetheless, it can be assumed that the quality of supervision received by the children was generally inadequate. Hence it was not surprising that AP was highest in children < 5years generally but mainly in those aged 2 years or less as explained earlier in this study.

It was also found that the 1st and 2nd born children were more prone to AP as compared to either 3rd or 4th born children. The trend showed that it was menhigh in 1st born children but increased remarkably with 2nd born and declined sharply with subsequent orders. Thus, in general, it can be concluded that the 2nd born child was the most likely birth order to be involved in poisoning as compared to other birth orders. Indeed, the frequency of occurrence suggested that it was highest with the 2nd born and declined sharply thereafter.

Limitations

This is a hospital based study and does not fully reveal the full picture of socio demographic profile of children involved in accidental poisoning. Nonetheless, since the affected children were drawn from the community, the findings of this study give an insight to actual situation on ground. Moreover, this study is a retrospective work and the usefulness is limited by incomplete documentation of relevant information. Regardless of these limitations, the results of this study are useful because they have provided some information on relevant social factors in childhood poisoning and basis for the conduct of well controlled community based studies on the subject matter.

CONCLUSION

Therefore, it may be concluded that the important socio - demographic factors for accidental poisoning include age ≤ 2 years; 2nd birth order and low social status of families.

RECOMMENDATIONS

Education of parents and care givers on improved supervision of children through public enlightenment campaigns by relevant organs of government and civil society including Ministries of Education, Health, Women Affairs and Social Welfare as well as Professional Associations such as Paediatric Association of Nigeria.

REFERENCES

- Adejuyigbe EA, Onayade AA, Sebanjo IO, Oseni SE (2002). Childhood poisoning at the Obafemi University Teaching Hospital, Ile – Ife, Nigeria. *Niger. J. Med.*; 11:183-6
- Andiran N, Sarikayalar F (2004). Pattern of acute poisonings in childhood in Ankara: What has changed in 20 years? *Turk. J. Paediatr*; 46:147-52
- Belonwu RO, Adeleke SI (2008). A 7 – year review of accidental kerosene poisoning in children at Aminu Kano Teaching Hospital, Kano. *Niger. J. Med.*; 17:380-2
- Fagbule DO, Joiner KT (1982). Kerosene poisoning in childhood: A 6 – prospective study at the University of Ilorin Teaching Hospital. *West Afr J Med.* ; 11:116-21
- Maconochie I (2007). Poisoning in children, In: Lissauer T, Clayden G ed. *Illustrated text book of Paediatrics*. Edinburgh. Mosby (Publishers): 93- 95
- Manzar N, Saad MAS, Manzar B, Fatima SS (2010). The study of etiological and demographic characteristics of acute household accidental poisoning in children – a consecutive case series study from Pakistan. *BMC Paediatr*; 10:28-31
- Njokanma OF, Nkanginieme KEO (2007). Growth and development, In: Azubuike JC, Nkanginieme KEO, ed. *Paediatrics and child health in a tropical region*. Owerri: African Educational services (Publishers), 56-69
- Ochigbo SO, Udoh JJ, Antia-O (2004). Accidental childhood poisoning in Calabar at the turn of the 20th century. *Nig J Paediatr*; 31:67-70
- Oguche S, Bukbuk DN, Watila IM (2007). Pattern of hospital admissions of children with poisoning in Sudano-Sahelian North Eastern Nigeria.

- Niger. J. Clin. Pract.; 10:111 - 5
- Olomu IN (1992). Accidental childhood poisoning in Benin City. Nig J Paediatr; 19:24–29.
- Olusanya O, Okpere E, Ezimokhai M (1985). The importance of social class in voluntary fertility control in a developing country. West Afr J Med; 4:205-12
- Osaghae DO, Amabunos EA (2012). Social Factors in Neonatal Tetanus: Focus on Maternal educational status. J. Med. Med. Sci.; 3:200–204
- Sarker AK, Ghosh S, Barik K (2002). A study of accidental poisoning (in children) in a rural medical college Hospital of West Bengal. Ind. J. Public Health; 34:159–62.
- Steele P, Spyker DA (1985). Poisonings. In Symposium on Injuries and Injury prevention: The Pediatric Clinics of North America. 32;77–85.