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A Study on Pattern of Adolescent Deaths- A Retrospective Study

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ABSTRACT

Adolescence is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood. During transition from childhood to adulthood people are exposed to various hazards having potentiality to lead to unnatural deaths by distorting physical, mental and social wellbeing. Studying pattern of unnatural deaths helps stakeholders to formulate policies for prevention of loss of important human resource. The present study is a retrospective study undertaken in the Department of Forensic Medicine and Toxicology, Karnataka Institute of Medical Sciences, Hubballi, to determine the pattern of adolescents deaths (10-19 years) brought for autopsy during the period of January 2016 to December 2016. Total 82 cases were studied and it was observed that the incidence rate of adolescent deaths was 6.49% among which 43were males (52.43%) and 39 females (47.56%). Rural deaths were higher when compared to urban, accidental deaths were the highest and road traffic accidents followed by poisoning and burns were the commonest causes of deaths. In conclusion, behavior change communication of parents, teachers, career guides, office masters, law keepers etc. for fostering congenial environment for upbringings of adolescents is needed to prevent unnatural deaths.

Keywords: *Adolescence, accidental deaths, road traffic accidents, congenial environment, upbringing.*

INTRODUCTION

The World Health Organization (WHO) defines an adolescent as a person between the ages of 10 and 19 years old. Around 1 in every 6 persons in the world is an adolescent: that is 1.2 billion people are aged 10 to 19[1]. Adolescence is further divided into early adolescence (11-14 yr), middle adolescence (15-17 yr), and late adolescence (18-21 yr)[2]. Adolescents (10-19 years) constitute about one fourth (21.4% or 243 million) of India's population and young people (10-24 years) about one third (or 350 million) of the population[3].

Youth - the critical phase of life is a period of major physical, physiological, psychological, and behavioral changes with changing patterns of social interactions and relationships[4]. During this turbulent phase of life the young individuals are exposed to various needs, demands, challenge, failure, conflicts, problems, uncertainty of career etc. leading to be the prey of stress and addictions. Many of them fail to cope with the growing stress and develop psychiatric illnesses.

In India, nearly 1,36,000 persons voluntarily ended their lives in a suicidal act as per official reports in 2011[5]. About 40 per cent of suicides in India are committed by persons below the age of 30 years[6]. Out of their enthusiasm, curiosity and lack of experience adolescents indulge in risky life styles. Road traffic injuries (1,85,000 deaths; 29 per cent of all unintentional injury deaths) are the leading cause of unintentional injury mortality in India[7]. An average of 565 adolescents and young adults between the ages of 10 and 29 years die each day as a result of interpersonal violence across the world[8].

Studies from India reported that 19 to 42.8 per cent of adolescent females had experienced domestic violence[9,10]. Even if the distribution of skills and autonomy varies within the age groups, adolescents will still grow up and become fundamental contributors to development in any country. For this reason alone, it is necessary to investigate the levels and causes of adolescent mortality since it has a direct impact on the size and health of the future population[11]. That's why the present study was contemplated to describe the state of the art about the unnatural deaths among adolescents.

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MATERIAL AND METHOD

This study was performed in department of Forensic Medicine & Toxicology at KIMS, Hubballi. The data was collected retrospectively from the police inquest and autopsy reports from January 2016 to December 2016. Finally, the obtained data were tabulated and analyzed.

DATA ANALYSIS

Data analysis was performed by SPSS (version 22), and results were presented as frequency and percentage in figures and tables.

Ethics: Confidentiality of patient's information was maintained when data were obtained from the medical records. All guidelines of the declaration of Helsinki were observed in all stages of the study.

RESULTS

Total 1262 cases were autopsied at KIMS mortuary from 1st January 2016 till 31st December 2016, out of which 82cases were between the adolescent age group of 10-19 years. So the prevalence of adolescent deaths was 6.49%.

Sex wise distribution: Out of 82 cases studied, 43 were males (52.43%) and 39 females (47.56%).

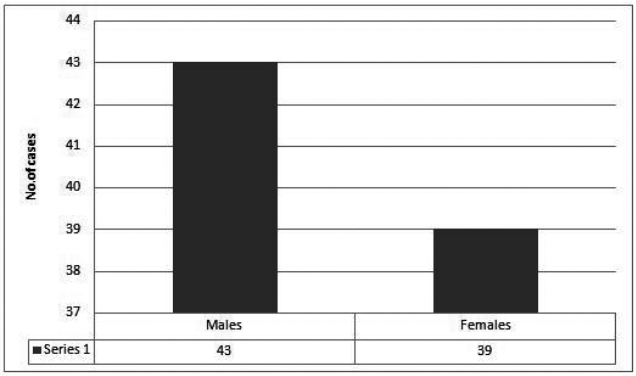

Fig. 01: Showing sex wise distribution of cases

Age wise distribution: Among 43 males, 08 males (18.60%) belonged to early adolescent age group of 10-14 years and 35 males (81.40%) were between 15- 19 years. Among females out of 39 cases majority of the cases were between 15-19 years 36 cases (92.30%) while only 03(7.7%) cases were between 10-14 years. From this in can be inferred that late adolescent period that is age group of 15-19 years is more prone and vulnerable group of adolescent unnatural deaths.

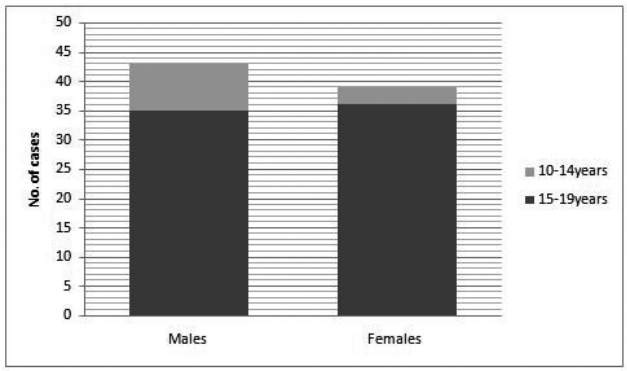

Fig. 02: Showing age wise distribution of cases.

Area wise distribution: The incidence was highest in rural areas when compared to urban areas. 51 cases (62.19%) were in rural area and 31 cases (37.81%) were noted in urban area.

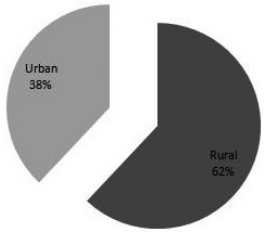

Fig. 03: Showing area wise distribution of cases

Manner of death: Among 43 males, accidental death was most common 27 cases (62.79%), followed by suicidal deaths in 13 cases (30.23%) and homicidal deaths in 03 cases (06.97%).

In 39 females, 21 cases were accidental (53.84%), 17 cases were suicidal (43.58%), no homicidal cases were noted among females and one case was death due to natural disease.

Table 01: Showing manner of death among adolescents

	Accidental	Suicidal	Homicidal	Natural Disease	Total
Males	27 cases (62.79%)	13 cases (30.23%)	03 cases (06.97%)	00	43
Females	21 cases 53.84%),	17 cases (43.58%)	00	01(2.56%)	39
Total	48	30	03	01	82

Cause/Mode of death: In males most common cause of death was road traffic accidents 20 (53.48%), followed by poisoning in 09 cases (20.93%), hanging in 04 cases (9.30%), 03 cases of assault with stab injuries (6.97%), 02 cases each of snake bite and electrocution and one case each of drowning, burns and railway accident were noted.

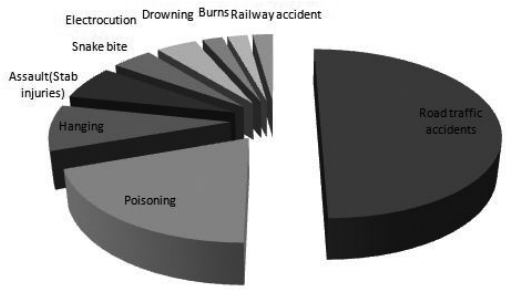

Fig. 04: Showing cause of deaths in males

Among 39 females, most common cause of death was poisoning and burns 18 cases each (33.33%), followed by hanging in 04 cases (10.25%), snake bite and road traffic accidents 03 cases each (7.69%) and one case each of electrocution, fall from height and death due to natural disease (lobar pneumonia).

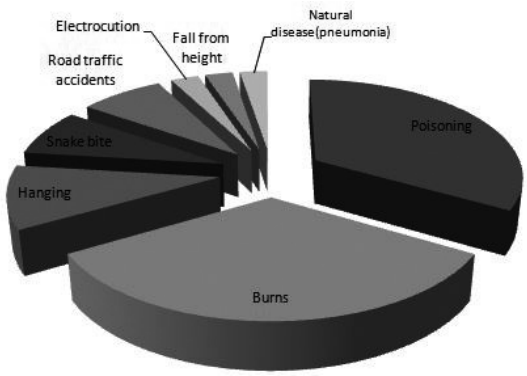

Fig. 05: Showing cause of deaths in females

DISCUSSION

The present study reported higher number of unnatural deaths from rural area (62.19%) and majority were males 43 cases (52.43%) which has concurrence with the observation made by Kumar A et.al[12] who found in their study conducted at Varanasi involving children below 19 years of age that 88.37% were rural inhabitants and male predominance (56.55%) in similar to the present study.

Kanchan T et.al[13] reported in their study conducted at Manipal that Road traffic injuries were responsible for maximum mortalities (38.4%), followed by those because of burns (24.9%) and poisoning (15.9%), similar to our study which constituted maximum mortalities due to road traffic accidents (28.04%), followed by poisoning (26.82%) and burns (17.07%).

In this study most of the cases took place in the rural area which might be due to multiple causes like high probability of snake bite, fall, drowning, death caused by easy accessibility of pesticides at household level etc. As per Ghatak S[14], the most suicidal deaths took place in rural areas because of the higher availability of pesticides combined with poorer access to emergency medical care in such areas. Indians prefer to consume pesticides for killing themselves instead of taking an overdose of sleeping pills. Therefore, the fatality rates may be higher in India as compared to the western countries. Nearly, 49 percent suicide deaths in men and 44 per cent suicide deaths in women aged 15 years and above occurred due to poisoning, mostly from consuming pesticides, similar to our study in which poisoning and burns were commonest mode to commit suicide employed by females belonging to rural areas.

Meel B L[15] carried out a study between 1996 and 2004 at Umtata General Hospital (UGH) reviewing medico-legal autopsies of subjects aged 18 years or below and reported that trauma accounted for 70.9% deaths and 29.1% deaths were due to other causes such as hanging, burns, lightning stroke, drowning, gas suffocation, falls from a height and poisoning. Motor vehicle accidents and homicides accounted for 45.6% and 54.4% deaths. Hanging, 81 (19.2%), drowning, 166 (39.4%), lightning strike, 38 (9%), burns, 51 (12.1%), gas suffocation, 24 (5.7%), poisoning, 33 (8.4%) and falls from a height 28 (6.7%) were non-traumatic deaths. Contrary to that the present study reported only 3.65% homicidal deaths. But 58.53% deaths were reported due to trauma, due to hanging, due to burns 17.07% etc. were found to be in concurrence with the present study.

Limitation of the study: Sample size was small consisting of only one year's unnatural deaths. Analysis involving data for few more years e.g. five years could help between groups comparison more effective by meeting the requirement of adequate sample size of different subgroups and also could reflect the changing pattern over time.

CONCLUSION

Adolescence is viewed as a transitional period between childhood and adulthood, whose cultural purpose is the preparation of children for adult roles. It is a period of multiple transitions involving education, training,

employment and unemployment, as well as transitions from one living circumstance to another. Hence it is important to study from all perspectives to prevent the unnatural deaths among adolescents who form the major part of the society and considered to be the future pillars of the nation's development and success.

Multipronged concerted efforts should be taken to develop congenial environment for successful fostering of responsible groups to monitor, evaluate and mentor adolescents. During any behavior change they, specially the parents can help adolescents by providing love, affection, care and concern, and hold their hands for leading a successful life in stressful period, without the journey unreached letting the dreams unfulfilled, the goals unachieved. Parents, teachers, career guides, seniors, office masters, physicians etc. are the stakeholders and increasing awareness and behavior change communication (BCC) of them regarding the problems and needs of adolescence may be the starting block. Measures like strict enforcement of traffic rules, certifying system by Panchayat Raj Institution (PRI) for purchasing of pesticide can also yield palpable outcome. The cause of death was found to vary across gender and sex- specific programmes and interventions need to be developed to avert further increase in mortality with special emphasis in rural settings. Innovation for better treatment modality for burns and mild to moderate degree of poisoning may bring better hope in future. A community based study would help more in this regards.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: Taken from institution ethical clearance committee.

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