Research Article

The causes of death among reproductive age group: Perspective of African countries

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ABSTRACT

Background: Nearly, every day young people die from injuries, especially from motor vehicle injuries, poisoning, violence, falls, and burns. **Objective:** The present study aimed to address the major causes of death and its burden in Africa. **Materials and Methods:** This population-based cross-sectional study, which a dataset was created by compiling from the World Health Organization for 2010–2015. **Results:** This study indicates the correlation was considered to be higher in "drowning" for young people (r = 0.926) than the old population (r = 0.589). In addition, this study reported that the leading cause of death in Africa is due to road injuries. Correlation coefficient shows that young people the greater the chance to lose life due to road injury (r = 0.753) and is lower compared to the old people (r = 0.476). In addition, young people lose their lives through poisoning injuries; the correlation was slightly higher (r = 8.25) and lower for old people (r = 0.650). **Conclusion:** Young people are among the most vulnerable when it comes to injuries. The international organizations must work with partners in Africa to raise the awareness on road traffic injuries, drowning, poisoning, and falls.

KEY WORDS: Death; Injury; Reproductive Age Group; Africa

INTRODUCTION

Worldwide, injuries are the leading cause of death among young people. Definition for injuries is damage to somebody's body caused by electrical, chemical, mechanical, and radiation energy.[1] This problem is also affecting Africa continent, every day 2300 adolescents die from injuries, especially from motor vehicle, drowning, falls, and burns injuries.[2] Drowning is a leading killer in Africa, in 2015, almost 360,000 people lost their lives due to drowning. Most of drowning deaths occur in low-income countries. Among children under 15 years, burns and falls are significant cause of mortality in Africa.[3]

Injury is a health issue and economic consequences. The previous study estimated that injuries increased from 8.8% of total mortality in 1990–9.6% in 2010 and the most affected continent is Africa.[4] In 2013, Africa had the highest rate of death due to road traffic injuries at 26.6/100,000 population, and the affected population are children and elderly.[5] The most common mechanism of injury in the elderly population is falling.[1] Almost 30% of falls in the old population result in minor injuries including bruises and lacerations, but an estimated 10% of falls in seniors cause major injuries including fractures injuries. 1% of all falls in this population result in hip fractures, which pose a significant risk for post-fall morbidity and mortality.[6] In addition, falls were the leading cause of traumatic brain injury-related deaths in persons aged 65 or older between the year 2006 and 2010.[7]

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The Africa region will continue to experience problems when it comes to fatal injuries, especially among the young people, yearly more than 20,000[8] young people lose their lives due to fatal injuries. European continent experiences the same issue of fatal injuries among male young people than all other causes of death combined such as diseases of the respiratory and nervous systems.[2] Majority of these fatal injuries among male young people are due to unintentional injuries, and few are because of intentional injuries due to suicide and self-harm. The major causes of death and its burden have not been yet appropriately identified in Africa. Thus, the present study aimed to address the major causes of death and its burden in Africa.

MATERIALS AND METHODS

This population-based cross-sectional study, which a dataset was created by compiling from the World Health Organization for 2010–2015. This study adopted the WHO definition of reproductive age group "all women aged 15–49 years."[9] This study will use two categories when it comes to age. The young people that refer to 15–29 years and "old people" that refer to 30–49 years. Descriptive statistics were used for the main independent variables. The panel data have been used for bivariate and multivariate linear regression analysis. Dependent variable "death" has been used for multivariate linear regression analysis. Explanatory variables were selected based on theoretical considerations. To compare outcomes of cause of death, multiple variables Poisson regression models adjusting for overdispersion were used to compute rate ratios with 95% confidence intervals (CIs). All the variables were transformed into natural logarithms so as to avoid outliers and normalize the variables. All statistical modeling was carried out using SPSS version 21. The Committee of Economic Commission for Africa Fellowship programme sanctioned this study.

RESULTS

Descriptive Analysis

Figure 1 indicates the cause of death of injury for reproductive age group. From 2000–2015, "drowning" was the highest cause of death which recorded the average 70% followed by "poisoning" which recorded average of 62% and the last been "road injury" which recorded 60% for the age group of 15–29 years. As for the age group of 30–49 years, the highest cause of death was "falls" which recorded around 52% and followed by "Exposure to mechanical force" with average of 55% from 2000 to 2015 [Figure 1].

Bivariate Analysis

Table 1 summarizes correlation coefficients (r) to examine strength and significant of linear relationships between the variables in this study.

Table 1 summarizes the correlation was considered to be higher in "drowning" for young people (r = 0.926) than the old population (r = 0.589). Road injury is one of the primary causes of death in this study. Correlation coefficient shows that young people the greater the chance to lose life due to road injury (r = 0.753) and is lower compared to the old people (r = 0.476). In addition, young people lose their lives through poisoning injuries; the correlation was slightly higher (r = 8.25) and lower for old people (r = 0.650). As expected, "fall" is likely associated with old people than young people. Correlation coefficient shows that old people the greater the chance to lose their lives due to fall (r = 0.782) than the young people (r = 0.422). Last, association between exposures to mechanical force to greater among the old people (r = 0.802) than the young people.

Multivariate Analysis

Table 2 summarizes that age significantly influences death injuries as an outcome. Young people have a higher chance of dying than older people, with the odds for age remaining stable in all three models (odds ratio [OR] = 1.69; 95% CI 1.02, 3.22). Moreover, age is significantly associated with cause of death in all models.

When adding cause of death to the model 2, lower levels association was found for the incidence of falls and fire, heat, and hot substance as cause of death, while, and poisoning, drowning was associated with young people, the fall was only associated to the old people.

The final model 3 indicated that road traffic injuries play a crucial risk factor in the likelihood of young people and old people, independently of other factors. Old people (30–49 years) are highly associated with death caused by exposure to mechanical force. Cause of death on road injuries had nearly 7 times higher chances for older people, while the odds for young people are only lower (OR = 5.5). In the last model, cause of death on exposure to mechanical force was sufficiently among old people but not young people.

DISCUSSION

The key findings from this study, backings the hypothesis that age plays a key role in the cause of death among the reproductive age group. Therefore, the correlation was considered to be higher in "drowning" for young people (r = 0.926) than the old population (r = 0.589). Road injury is one of the main causes of death in this study. Correlation coefficient shows that young people the greater the chance to lose life due to road injury (r = 0.753) and is lower compared to the old people (r = 0.476). In addition, young people lose their lives through poisoning injuries; the correlation was slightly higher (r = 8.25) and lower for old people (r = 0.650).

Previous studies indicated that the largest cause of death among young people and more than 70% of these deaths are

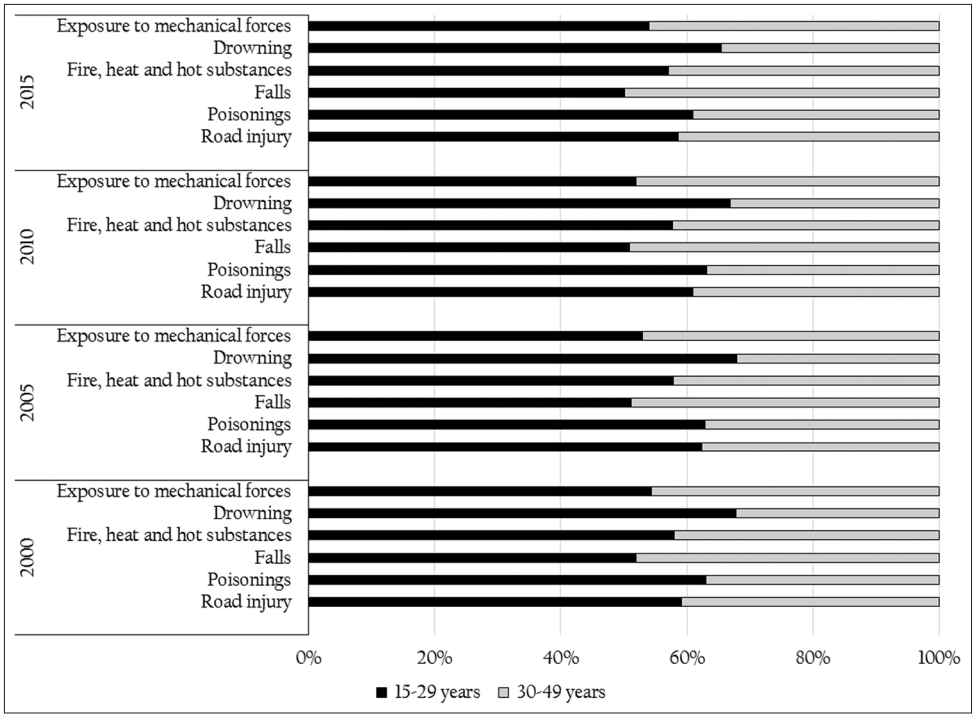

Figure 1: The trends of the causes of death from 2000 to 2015

Table 1: Correlation between the variables that were examined

Correlation	YNG	OLD	RI	PSN	FL	FHS	DWG	EMF
YNG	1.00	–	–	–	–	–	–	–
OLD	0.233	1.00	–	–	–	–	–	–
RI	0.753*	0.476	1.00	–	–	–	–	–
PNS	0.825*	0.650	0.102	1.00	–	–	–	–
FL	0.422	0.782**	0.334	0.185	1.00	–	–	–
FHS	0.382	0.466	0.458	0.240	0.294	1.00	–	–
DWN	0.926**	0.598	0.572	0.572	0.362	0.168	1.00	–
EMF	0.544	0.802*	0.341	0.471	0.528	0.326	0.453	1.00

**Significant at $P<0.01$ level, *significant at $P<0.05$ level. YNG; Age 15–29 years, OLD: Age 30–49 years, RI: Road injury, PSN: Poisoning, FL: Fall, FHS: Fire, heat, and hot substance, DWG: Drowning, EMF: Exposure to mechanical force

Table 2: Multivariate linear regression models explaining the injuries

Injuries	15–29 years			30–49 years		
	OR (95% CI)			OR (95% CI)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
YNG	1.69 (1.02–3.22)	1.44 (0.98–3.20)	1.43 (0.88–2.67)	3.18 (1.45–10.20)	2.98 (1.40–9.91)	3.16 (1.06–9.48)
OLD	11.90 (3.30–19.40)	5.20 (3.10–8.60)	4.85 (3.60–7.92)	15.60 (14.90–48.80)	10.29 (3.16–33.32)	7.24 (2.06–13.40)
PSN	-	3.18 (2.60–5.12)	3.46 (2.61–5.67)	-	3.62 (2.33–5.08)	3.89 (2.68–5.91)
FL	-	1.71 (0.98–-3.99)	1.83 (1.08–4.04)	-	1.76 (0.98–3.09)	1.77 (0.95–3.77)
DWG	-	2.60 (1.66–4.90)	2.81 (1.71–4.13)	-	2.70 (1.55–4.55)	2.74 (1.57–5.06)
FHS	-	0.96 (0.79–1.68)	0.98 (0.88–2.12)	-	1.06 (0.90–2.88)	1.12 (0.94–2.92)
EMF	-	0.89 (0.63–1.32)	0.91 (0.88–1.75)	-	1.08 (0.97–2.65)	1.30 (1.05–2.69)
RT	-	-	5.48 (3.62–8.76)	-	-	6.81 (4.33–10.20)

YNG: Age 15–29 years, OLD: Age 30–49 years, RI: Road injury, PSN: Poisoning, FL: Fall, DWG: Drowning, EMF: Exposure to mechanical force, FHS: Fire, heat, and hot substance, OR: Odds ratio, 95%, CI: 95% confidence interval. Numbers in bold are significant at $P<0.05$

consequences of road traffic injuries.[10] This study verifies that in the cause of death of road traffic injuries is mostly associated with the young people. Age is a significant the cause of death, especially the young people in this paper.

The previous study indicates that in Malaysia road traffic injuries are the major cause of hospital admission,[11] and this study verifies that finding. In African region, poisoning is also a problem among young people,[12] and this study validates poisoning as a main cause of death among young people. The previous authors linked the death rates of poisoning injuries and found that is the second cause of death among the youth.[13]

This study reported drowning as the main causes of mortality in Africa, mainly affecting young people. However, the World Health Organization (WHO) highlights a higher frequency of fall injuries in African countries when compared to other continents. [14] Similar results were obtained in other studies,[15] this study observed more prevalence of young people victims. There is a decline in death rate due to drowning among young people from 2000 with 409,272–360,000 and still make drowning as the second main cause of death among this cohort age group.[16] Nevertheless, the previous studies have shown that injuries will continue to be a problem the young people will face in the future.

Strengths and Limitations

The strength of our study was that a comprehensive study was done to cover all the 54 countries in Africa. This gives a wider scope and a comprehensive comparison. However, this study is limited to only Africa not other continents. In future, another study can be done to compare different continents.

CONCLUSION

This study shows clearly that injuries take an insufficiently high toll on young people's health. In addition, if measures to prevent injuries among reproductive age group are not laid now, this situation is likely to exacerbate the problem in Africa. Young people are among the most vulnerable when it comes to injuries. The international organization like the World Health Organization must work with partners in Africa to raise the awareness about these injuries, especially drowning, poisoning, falls, road traffic injuries, and encourage good practice-related behavioral risk factors. Traffic road injuries are a serious public health problem. Drowning injuries among young people may be because of unenlightenment about safe swim environment; this area is in need of intervention. African countries can developing an awareness by introduction water safety campaigns, and this can increase the safety around water and save lives.

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