

Title: Adult mortality in Zambia: Where do Adults die?

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Extended Abstract

Introduction

Adult mortality in Zambia is high and a health burden. However, little research has been done on place of death (home, health facility, other). Place of death has important implications for public health policy. An understanding of determinants of place of death among adults is important for access and utilization of health services to health planners and decision-makers. This study, therefore, examines independent contributions of determinants associated with place of death among adults aged 15-59 years old in Zambia.

Methods

Bivariate and logistic regression analyses were performed using the 2010-2012 Sample Vital Registration with Verbal Autopsy (SAVVY) survey data. Place of death was the outcome with category of interest, an adult death occurring at a health facility. Determinants of interest associated with place of death were: age, sex, marital status, urban-rural residence, province, education, occupation, and cause of death.

Results

In the two-year period, 50.6 % of adult deaths occurred in a health facility and 41.5 % died at home (Table 1). Among all determinants examined, urban-rural residence, education, and sex contributed most to place of death (Table 2). Adult deaths in urban areas were 2.1 times more likely to occur at a health facility (Adjusted Odds Ratio (AOR)=2.08, 95%, CI [1.60-2.70]) than in rural areas. Adults with higher education were 3.8 times (AOR=3.83, 95%, CI [1.79-8.18]) more likely to die at a health facility than those without education. The odds of adult female deaths occurring at a health facility were 1.3 times higher (AOR=1.32, 95%, CI [1.01-1.72]) than of male adult deaths. Accidents and injury deaths were 0.35 times (AOR=0.35, 95%, CI [0.25-0.55]) less likely to occur at a health facility.

Conclusion

Over half of adult deaths occur at a health facility. There is need, therefore, for improvement in health facilities to ensure avoidable adult mortality. Health planners and decision-makers need to understand where most adult deaths are taking place and determinants. Place of death can be used as an indicator of access and utilization of health services in Zambia.

Table 1: Number and percentage distribution of adult deaths (15-59 years) by place of death and background characteristics

| Characteristic | Health Facility | Home | Other | Total |
|---------------------------------------|------------------------|------------------|----------------|------------------|
| Residence*** | | | | |
| Rural | 243(40.7) | 306(51.4) | 45(7.6) | 596(55.3) |
| Urban | 302(62.7) | 141(29.3) | 38(7.8) | 482(44.7) |
| Province | | | | |
| Central | 35(50.3) | 27(39.8) | 7(9.9) | 69(6.4) |
| Copperbelt | 41(61.0) | 23(34.8) | 3(4.2) | 67(6.2) |
| Eastern | 101(55.3) | 75(41.2) | 6(3.5) | 183(16.9) |
| Luapula | 59(38.7) | 85(55.2) | 9(6.1) | 153(14.2) |
| Lusaka | 130(53.0) | 84(34.3) | 30(12.4) | 245(22.7) |
| Northern | 34(48.9) | 28(40.3) | 8(10.8) | 70(6.5) |
| North-western | 23(56.7) | 15(36.7) | 3(6.6) | 40(3.7) |
| Southern | 68(54.0) | 46(36.3) | 11(9.0) | 126(11.7) |
| Western | 55(43.5) | 64(51.1) | 6(6.5) | 126(11.6) |
| Sex** | | | | |
| Male | 284(48.8) | 240(41.1) | 58(9.9) | 582(54.0) |
| Female | 261(52.6) | 208(41.9) | 25(5.1) | 496(46.0) |
| Age group | | | | |
| 15-24 | 91(52.0) | 63(36.2) | 21(11.8) | 175(16.2) |
| 25-34 | 165(49.6) | 144(43.3) | 24(7.1) | 332(30.8) |
| 35-44 | 168(53.7) | 122(39.0) | 20(6.4) | 313(29.0) |
| 45-54 | 91(46.2) | 91(46.3) | 15(7.5) | 197(18.3) |
| 55-59 | 30(49.1) | 27(44.1) | 4(6.7) | 62(5.7) |
| Education level*** | | | | |
| None | 32(33.6) | 61(63.5) | 3(2.9) | 96(8.9) |
| Primary | 231(45.1) | 243(47.6) | 35(6.9) | 511(47.4) |
| Secondary | 224(59.3) | 116(30.7) | 37(9.8) | 377(35.0) |
| Higher | 43(68.4) | 15(23.5) | 5(8.1) | 63(5.9) |
| Marital status** | | | | |
| Never married | 124(49.2) | 96(38.1) | 32(12.8) | 253(23.5) |
| Married/living with partner | 297(52.4) | 226(39.9) | 43(7.6) | 566(52.5) |
| Widowed | 52(54.3) | 42(43.7) | 1(1.0) | 96(8.9) |
| Divorced/Separated | 72(45.2) | 79(49.9) | 7(4.3) | 159(14.7) |
| Occupation*** | | | | |
| Legislators/Senior Officials/Managers | 15(74.3) | 4(20.6) | 1(5.1) | 20(1.8) |
| Professionals | 15(67.6) | 4(18.0) | 3(14.4) | 22(2.1) |
| Technicians/Associate Professionals | 15(65.8) | 8(34.2) | | 23(2.1) |
| Clerks | 41(60.3) | 23(33.9) | 4(5.8) | 67(6.2) |
| Service/Shop/Market Sales Workers | 60(60.8) | 29(29.2) | 10(10.0) | 99(9.2) |
| Skilled Agricultural/Fishery Workers | 120(36.2) | 189(56.8) | 22(6.7) | 332(30.8) |
| Craft & related Trade Workers | 20(66.2) | 4(13.9) | 6(19.9) | 30(2.8) |
| Plant & Machine Operators/Assemblers | 35(64.0) | 12(22.0) | 8(14.0) | 55(5.1) |
| Elementary Occupations | 224(52.2) | 175(40.7) | 29(6.7) | 430(39.9) |
| Cause of death*** | | | | |
| HIV disease | 239(54.5) | 186(42.4) | 13(2.9) | 439(40.7) |
| Diseases of circulatory system | 29(49.1) | 28(47.8) | 2(3.2) | 59(5.5) |
| Tuberculosis | 42(49.3) | 42(48.5) | | 86(7.9) |
| Accident & Injuries | 38(31.6) | 40(33.4) | 42(35.0) | 120(11.2) |
| Malaria | 37(53.1) | 28(40.1) | 5(6.8) | 71(6.6) |
| Neoplasms | 22(66.6) | 11(33.4) | | 33(3.1) |
| Pneumonia/ARI | 16(65.9) | 9(34.1) | | 25(2.3) |
| Senility/Old age | | 3(100) | | 3(0.3) |
| Diabetis mellitus | 13(67.8) | 6(32.2) | | 19(1.7) |
| Diarrhoeal diseases | 8(49.8) | 6(38.4) | 2(11.8) | 15(1.4) |
| All other causes | 100(48.0) | 88(42.5) | 20(9.4) | 208(19.3) |
| Total | 545(50.6) | 447(41.5) | 83(7.7) | 1078(100) |

Note: ***Significant at $p < 0.00$; **= $p < 0.05$ and *= $p < 0.10$; Ref = Reference Category

Table 2: Adjusted odds ratios by predictor variables

| Predictor | | Adjusted Odds Ratio | z-value |
|--------------------------------|-----|----------------------------|----------------|
| Residence | | | |
| Rural | Ref | | |
| Urban | | 2.08 | 5.46*** |
| Sex | | | |
| Male | Ref | | |
| Female | | 1.32 | 2.07** |
| Education level | | | |
| None | Ref | | |
| Primary | | 1.56 | 1.81* |
| Secondary | | 2.49 | 3.52*** |
| Higher | | 3.83 | 3.46*** |
| Cause of death | | | |
| HIV disease | Ref | | |
| Diseases of circulatory system | | 0.79 | -0.79 |
| Tuberculosis | | 0.88 | -0.51 |
| Accident & Injuries | | 0.35 | -4.49*** |
| Malaria | | 0.83 | -0.75 |
| Neoplasms | | 1.32 | 0.67 |
| Pneumonia/ARI | | 1.59 | 1.07 |
| Diabetes mellitus | | 1.46 | 0.67 |
| Diarrhoeal diseases | | 0.94 | -0.13 |
| All other causes | | 0.73 | -1.82* |

Note: ***Significant at $p < 0.00$; **= $p < 0.05$ and *= $p < 0.10$; Ref = Reference Category