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Access to Health Insurance in Zimbabwe and associated factors: Insights from data from the Zimbabwe Demographic Health survey, 2015

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Abstract

Objective: To determine factors associated with access to health insurance among adults in Zimbabwe.

Methods: We used statistical analysis to determine the association between various variables and access to health insurance using the Zimbabwe Demographic and Health Survey, 2015-16 data.

Results: Overall, only 11% of 7397 females and 12% of 7420 males included in the analysis had access to health insurance. Age, educational level, marital status, religion, area of residence and wealth quintile were associated with access to health insurance for both females and males. For females, HIV status was associated with access to health insurance. Although not statistically significant a smaller proportion of HIV positive males (10%) had access to any medical insurance compared to their HIV negative counterparts (12%), p=0.189.

Conclusion: Our study showed that geospatial distribution of individuals with access to health insurance in Zimbabwe is concentrated around urban areas. Since the bulk of Zimbabweans do not have access to health insurance and mainly use the public health sector for services, there is need for the Ministry of Health to enhance its investment in these facilities so that the bulk of the population can also get quality healthcare.

Introduction

Zimbabwe is enduring a double burden of disease with both communicable and non-communicable diseases (NCDs) [1, 2]. This is compounded by high out-of-pocket (OOP) health expenditure, inadequate human resources for health, limited access to quality healthcare services, imbalanced resource allocation and rising financial burden for health care on households [3, 4]. In 2015, household OOP expenditure accounted for about one quarter of total health expenditure in the country [5]. Additionally, 1.29% of households fell into poverty due to health care–related expenditures [5].

Universal health coverage is regarded as an effective poverty reduction strategy [6]. Health insurance provides financial protection when the need for healthcare arises. According to the World Health Organization (WHO), health insurance addresses equity in two ways. Firstly, the healthy subsidize those who fall ill more frequently. Secondly, effective health insurance will have low prepayments within the reach of the poor [7]. In Zimbabwe, few resources are available for healthcare services, leading to congestion at public health facilities or simply poor quality care [8]. Our analysis sought to determine the level of access to health insurance and associated factors in a nationally representative sample in Zimbabwe.

Methods

Study area and data sources

The ZDHS methodology has been described elsewhere. Briefly, subjects were enrolled in the ZDHS via a two-stage sampling procedure to select households. A total of 400 ZDHS sample locations were selected. The study population was limited to adults aged 15 to 49 years. Anonymous HIV testing was performed with the informed consent of all sampled individuals. HIV serostatus was determined by testing with the enzyme-linked immunosorbent assay (ELISA) Vironostika Uniform 2 Ag/AB. All samples that tested positive and a random sample of 10% of samples that tested negative were retested with a second ELISA, the Enzygnost® HIV Integral II assay (Siemens). Positive samples on both tests were classified as HIV positive. If the first and second tests were discordant, the two ELISAs were repeated; if the results remained discordant, a confirmatory test, the HIV 2.2 western blot (DiaSorin), was administered.

Statistical analysis

STATA Version 16.1, Texas USA, was used to conduct statistical analysis. We used simple proportion to describe the characteristics of the women included in the analysis. Statistical significance cut-off for purposes of describing significant factors with HIV positivity was set at $p < 0.05$.

Ethics approval and consent to participate

Procedures and questionnaires for standard Demographic Health Surveys (DHS) have been reviewed and approved by the ICF International Institutional Review Board (IRB). Additionally, country-specific DHS survey protocols are reviewed by the ICF IRB and typically by an IRB in the host country. The ICF International IRB ensures that the survey complies with the U.S. Department of Health and Human Services regulations for the protection of human subjects, while the host country IRB ensures that the survey complies with laws and norms of the nation. In the original primary data collection for each DHS, informed consent was sought from all participants prior to serological testing for HIV. We sought and were granted permission to use the core dataset for this analysis by MEASURE DHS. Informed consent was sought in writing. For minors, informed consent was obtained from their parents or guardians.

Results

Table 1 shows the demographic characteristics for the ZDHS 2015 females and males used in this analysis. Approximately two-thirds (63% for females and 64% for males) of the population lived in rural areas. Two thirds, (63% for female and 66% for male) respondents had secondary education. The Apostolic Sect was the largest religious group, constituting 43% of female and 30% of male participants. Majority of female respondents were married (72%) and the proportion married was 50% for males.

Table 1: Demographic characteristics of females and males from ZDHS 2015-16 data who were included in the analysis

Variable	Female Frequency n (%)	Male frequency n (%)
Age group in years		
15-19	655 (9)	1890 (26)
20-24	1385 (18)	1231 (16)
25-29	1466 (20)	1009 (13)
30-34	1426 (20)	981 (13)
35-39	1074 (15)	799 (11)
40-44	873 (12)	683 (9)
45-49	518 (7)	489 (7)
50-54 (Men only)		338 (4)
Education level		
None	94 (2)	49 (1)
Primary	2002 (28)	1702 (23)
Secondary	4696 (63)	4883 (66)
Higher	605 (7)	786 (10)
Marital status		
Never in union	780 (8)	3256 (44)
Married	5170 (72)	3710 (50)
Living with partner	285 (4)	66 (1)
Widowed	388 (5)	56 (1)
Divorced	444 (6)	147 (2)
Separated	330 (4)	185 (2)
Religion		
Traditional	44 (1)	198 (3)
Roman Catholic	464 (6)	608 (8)
Protestant	1108 (15)	1124 (16)
Pentecostal	1937 (25)	1363 (18)
Apostolic sect	2958 (43)	2178 (30)
Other Christian	456 (5)	549 (6)
Muslim	21 (0)	47 (1)

None	401 (6)	1345 (18)
Other	8 (0)	8 (0)
Area of residence		
Rural	3149 (37)	2896 (36)
Urban	4248 (63)	4524 (64)
Wealth quintile		
Poorest	1222 (18)	1097 (15)
Poorer	1144 (18)	1223 (18)
Middle	1193 (18)	1358 (19)
Richer	1954 (24)	1811 (23)
Richest	1884 (22)	1931 (24)

a) Females

Table 2 presents factors associated with access to health insurance among females. Overall, only 11% of 7397 females have access to any medical insurance. Access to any medical insurance differs by age group with the lowest percentage being among those below the age of 20 years, p = 0.001. Access to any medical insurance increase with increasing education level. Access to health insurance differs by marital status. Access to health insurance also differ by religion. A smaller proportion 4% of females living in rural areas are on any medical insurance compared to 23% among the urban counterparts. As expected, access to any medical insurance increases with increasing wealth quintile, from poorest to richest. A smaller proportion 9% of the HIV positive females are on any medical insurance compared to 11% among the HIV negative, p = 0.015

Table 2: Factors associated with access to health insurance among females and males from ZDHS 2015-16 data

Variable	Females n (%)			Males n (%)		
	Covered by any medical insurance	Not covered by any medical insurance	p-value	Covered by any medical insurance	Not covered by any medical insurance	P value
Age group						
15-19	14 (2)	641 (98)		112 (6)	1778 (94)	
20-24	113 (8)	1272 (93)		118 (9)	1113 (91)	
25-29	164 (10)	1302 (90)		109 (11)	900 (89)	
30-34	211 (14)	1215 (86)		135 (14)	846 (86)	
35-39	155 (13)	919 (87)		144 (17)	655 (83)	
40-44	141 (15)	732 (85)		130 (17)	553 (83)	
45-49	77 (13)	441 (87)	0.001	106 (22)	383 (78)	
50-54	-	-		68 (19)	270 (81)	0.001
Education level						
None	2 (2)	92 (98)		3 (3)	46 (97)	
Primary	21 (1)	1981 (99)		13 (1)	1689 (99)	
Secondary	474 (9)	4222 (91)		469 (9)	4414 (91)	
Higher	378 (66)	227 (34)	0.001	437 (57)	349 (43)	0.001
Marital status						
Never in union	101 (13)	679 (87)		276 (8)	2980 (92)	
Married	671 (12)	4499 (88)		605 (15)	3105 (85)	
Living with partner	15 (3)	270 (97)		3 (2)	63 (98)	
Widowed	34 (8)	354 (92)		8 (11)	48 (89)	
Divorced	30 (6)	414 (94)		21 (15)	126 (85)	
Separated	24 (6)	306 (94)	0.001	9 (5)	176 (95)	0.001
Religion						
	6 (14)	38 (86)		14 (7)	184 (93)	

Traditional	96 (20)	368 (80)		125 (20)	483 (80)	
Roman Catholic	262 (22)	846 (78)		246 (20)	878 (80)	
Protestant	345 (17)	1592 (83)		262 (19)	1101 (81)	
Pentecostal	105 (3)	2853 (97)		125 (5)	2053 (95)	
Apostolic sect	49 (12)	407 (88)		72 (11)	477 (89)	
Other Christian	0 (0)	21 (100)		1 (1)	46 (99)	
Muslim	11 (3)	390 (97)		74 (5)	1271 (95)	
None	1 (24)	7 (76)	0.001	3 (54)	5 (46)	0.001
Other						
Area of residence						
Rural	166 (4)	4082 (96)		190 (4)	4334 (96)	
Urban	709 (23)	2440 (77)	0.001	732 (25)	2164 (75)	0.001
Wealth quintile						
Poorest	2 (0)	1220 (100)		2 (0)	1095 (100)	
Poorer	7 (1)	1137 (99)		10 (1)	1213 (99)	
Middle	30 (2)	1163 (98)		38 (2)	1320 (98)	
Richer	192 (10)	1762 (90)		229 (13)	1582 (87)	
Richest	644 (36)	1240 (64)	0.001	643 (34)	1288 (66)	0.001
HIV status						
Negative	748 (11)	5118 (89)		822 (12)	5709 (88)	
Positive	127 (9)	1404 (91)	0.015	100 (10)	789 (90)	0.189

b) Males

Table 2 presents factors associated with access to health insurance among males. Overall, 12% of the 7420 males have access to any medical insurance. Access to any medical insurance differs by age group with the lowest percentage being among those below the age of 20 years, p = 0.001. Access to any medical insurance is highest among those with highest level of education. Access to any medical insurance differ by marital status. Being on any medical insurance cover differs by religion. Similar to the female findings, access of any medical insurance also differs by area of residence with those in rural areas having low proportions. Access to health insurance increases with increasing wealth quintile. Although not statistically significant a smaller proportion of HIV positive males (10%) had access to any medical insurance compared to their HIV negative counterparts (12%), p = 0.189.

Figures 1 and 2 shows the geospatial distribution of individuals with access to health insurance in Zimbabwe. They show that the highest concentrations occur in urban areas.

Discussion

In this cross-sectional study, we analysed access to health insurance in Zimbabwe and some associated factors. Access to health insurance could serve as a proxy to access to quality and timely healthcare [9], which is a basic human need and right. This access is not always possible in settings where there is no comprehensive health insurance and reduced disposable income. Zimbabwe has been battling hyperinflation and high levels of unemployment over the past decade to two. The United Nations' Agenda for sustainable development agenda 2030 places Universal Health Coverage as an integral component for attaining the sustainable development goals, especially number three, by 2030 [6]. Countries that earlier on noticed the need for national health insurance schemes provide better healthcare to their populations. In their report 'Fair society, Healthy lives", Marmot et al described the concept of proportionate universalism, recognising the need for comprehensive approaches that prioritise those at the bottom of the social hierarchy to enable them to access quality services too [10].

The deteriorating health standards in Zimbabwe call for urgent investigation into nonparticipation in health insurance schemes among the Zimbabwean population. The Zimbabwe Demographic Health Survey (ZDHS 2010-11) showed that only 6% of the population was covered by health insurance in Zimbabwe [11]. Our analysis of the 2015–2016 data revealed poor access to health insurance as only 11% of 7397 females and 12% of 7420 males included in the analysis had access. Our findings corroborate various other studies conducted on the subject. For instance, level of education, income and age were factors associated with access to health insurance Gweru, the third largest city in Zimbabwe [4]. Level of education and wealth quintile were also reported as factors associated with access to health insurance in a study conducted in Harare, Zimbabwe's capital city [12]. There is an urgent need to address access to health insurance in Zimbabwe. Other countries within the region have successfully implemented Community Based Health Insurance (CBHI) [13, 14]. Community-based health insurance (CBHI) schemes are voluntary and characterized by community members pooling funds to offset the cost of healthcare [14]. Further research that investigates the feasibility, acceptability and sustainability of CBHI as an alternative to pooling risk and financing social protection in Zimbabwe is warranted [8].

There was no statistically significant association between HIV status and access to health insurance in this study. A smaller proportion of HIV positive males (10%) had access to medical insurance compared to their HIV negative counterparts (12%). While it is good that there is equal access to health insurance between HIV positive and negative individuals, the role of OOPs as a barrier for healthcare access and adherence to ART [15], should not be ignored. Zimbabwe has generally seen success in the HIV continuum of care services with 97% of adults living with HIV/AIDS being on antiretroviral therapy [16]. This good ART coverage has significantly improved health and wellbeing of people living with HIV/AIDS (PLHIV). The provision of ART drugs free of charge has increased access to care and treatment for PLHIV. However, other indirect costs related to care (such as transportation, loss of income and food) and cost for care for other non-HIV related services that are not sponsored, and instead are financed by patients through OOPs remain high and represent a financial barrier for health care access [17–19].

A multi-sectoral intersection is required to identify and enhance means of improving health insurance coverage for the generality of Zimbabweans, taking into consideration the prevailing harsh socioeconomic conditions. Universal Health Coverage is essential to significantly improve health outcomes. However, insurance alone without improving the public health sector may not be alone. The public health sector in Zimbabwe has largely been reported as fragile, and unable to cater for the needs of the population in times of distress as was witnessed during the COVID-19 pandemic [20]. The pooling of funds through the National AIDS Levy to cater for some of the needs of PLWHA is evidence that with commitment, schemes can be set up that will enable the population to access quality and timely healthcare [21].

In the current COVID-19 era, provision of essential health services in public health facilities, including HIV and TB care, maternity care and care for patients with other chronic diseases has gone down substantially by an estimated 90% [20, 22–24]. Additionally, public health services which are principally utilized by individuals with no health insurance have over the years suffered from neglect and under investment with a poorly motivated health force [25]. The better equipped and manned private for-profit health facilities are usually patronized by individuals with health insurance. For example, COVID-19 treatment private facilities are turning away individuals with no health insurance whilst the public health facilities which take individuals with no health insurance are full and overwhelmed and unable to take on new patients. Since the majority of Zimbabweans don’t have medical insurance the Zimbabwe Ministry of Health and Child Care must make appropriate steps to increase funding for such facilities so that some of its citizenry do not fall through the cracks as they fail to access health care.

Conclusion

Health insurance for the majority of Zimbabweans is an urgent need. If this cannot be provided for the majority of Zimbabweans who currently don’t have access, there is need for the Ministry of Health and Child Care to improve funding for public health facilities mainly accessed by individuals with no health insurance. Different stakeholders in public health must find ways of ensuring that the population is comprehensively medically insured to reduce inequalities and inequities in healthcare access especially

under the current COVID-19 pandemic difficulties. The social determinants of health can never be adequately addressed without ensuring equitable access to quality healthcare across the socioeconomic gradient with prioritization of those at the bottom of the social hierarchy.

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
CBHI	Community-based health insurance
ELISA	Enzyme Linked Immunosorbent Assay
HIV	Human immunodeficiency virus
IRB	Institutional Review Board
MoHCC	Ministry of Health and Child Care
NCD	Non-communicable Diseases
OOP	Out of Pocket
PLWHA	People Living with HIV and AIDS
STI	Sexually transmitted Infection
ZDHS	Zimbabwe Demographic health Survey
WHO	Word Health Organization

Declarations

Ethics approval and consent to participate

Procedures and questionnaires for standard Demographic Health Surveys (DHS) have been reviewed and approved by the ICF International Institutional Review Board (IRB). Additionally, country-specific DHS survey protocols are reviewed by the ICF IRB and typically by an IRB in the host country. The ICF International IRB ensures that the survey complies with the U.S. Department of Health and Human Services regulations for the protection of human subjects, while the host country IRB ensures that the survey complies with laws and norms of the nation. In the original primary data collection for each DHS, informed consent was sought from all participants prior to serological testing for HIV (http://dhsprogram.com/What-We-Do/Protecting-the-Privacy-of-DHS-Survey-

Respondents.cfm#sthash.0t3N7n5m.dpuf). We sought and were granted permission to use the core dataset for this analysis by MEASURE DHS.

Informed consent was sought in writing. For minors, consent was obtained from their parents or guardians.

Consent to publish

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

Drs Godfrey Musuka is a member of the Editorial Board of BMC Public Health. All other authors declare that they have no competing interests.

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Authors' contributions

GM, conceived the study. GM & MM carried out the statistical analysis. GM and TD wrote the first draft of the paper. All authors contributed to the writing of the manuscript. All authors read and approved the final manuscript.

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Figures

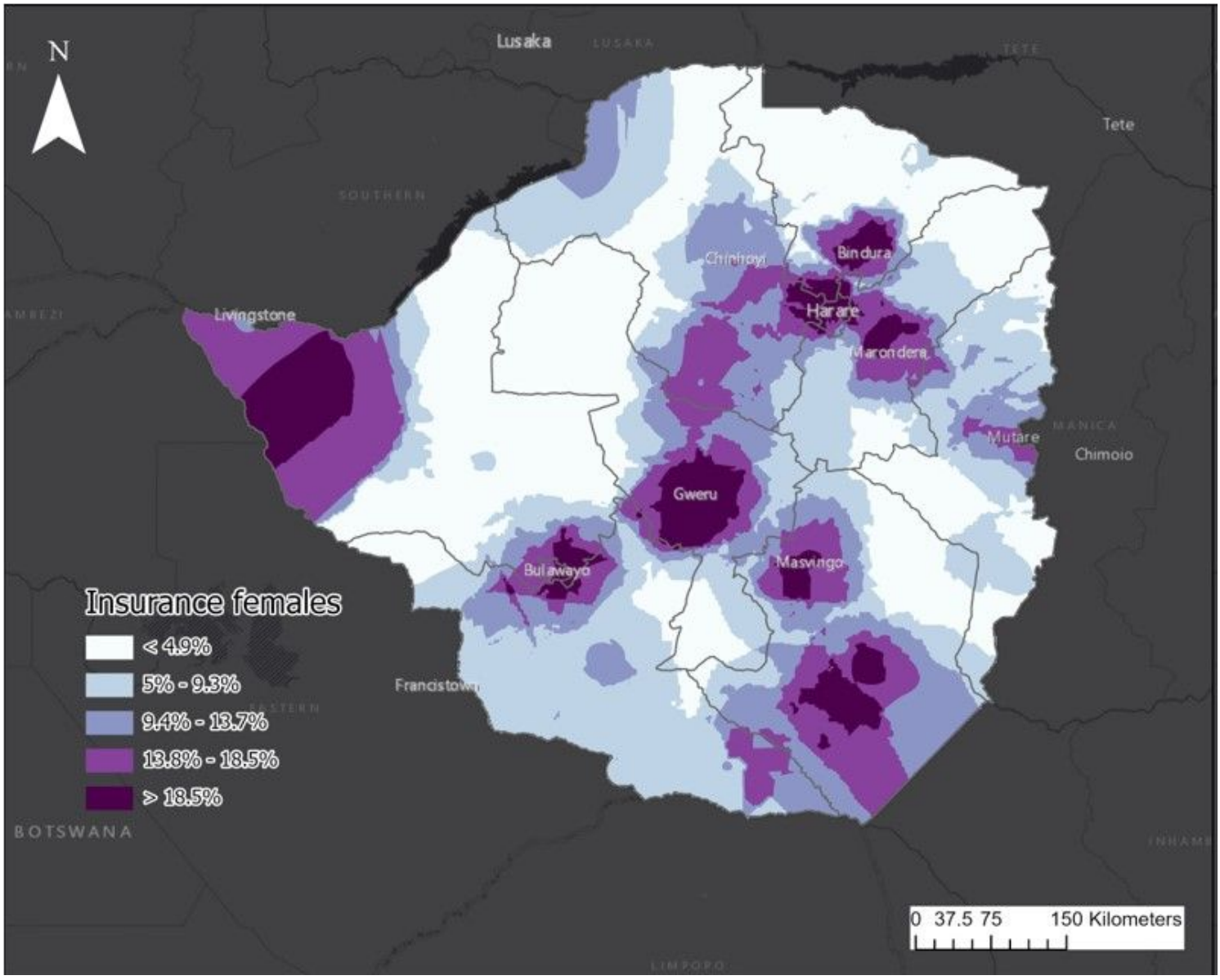

Figure 1

shows the geospatial distribution of individuals with access to health insurance in Zimbabwe. They show that the highest concentrations occur in urban areas. Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its

authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.

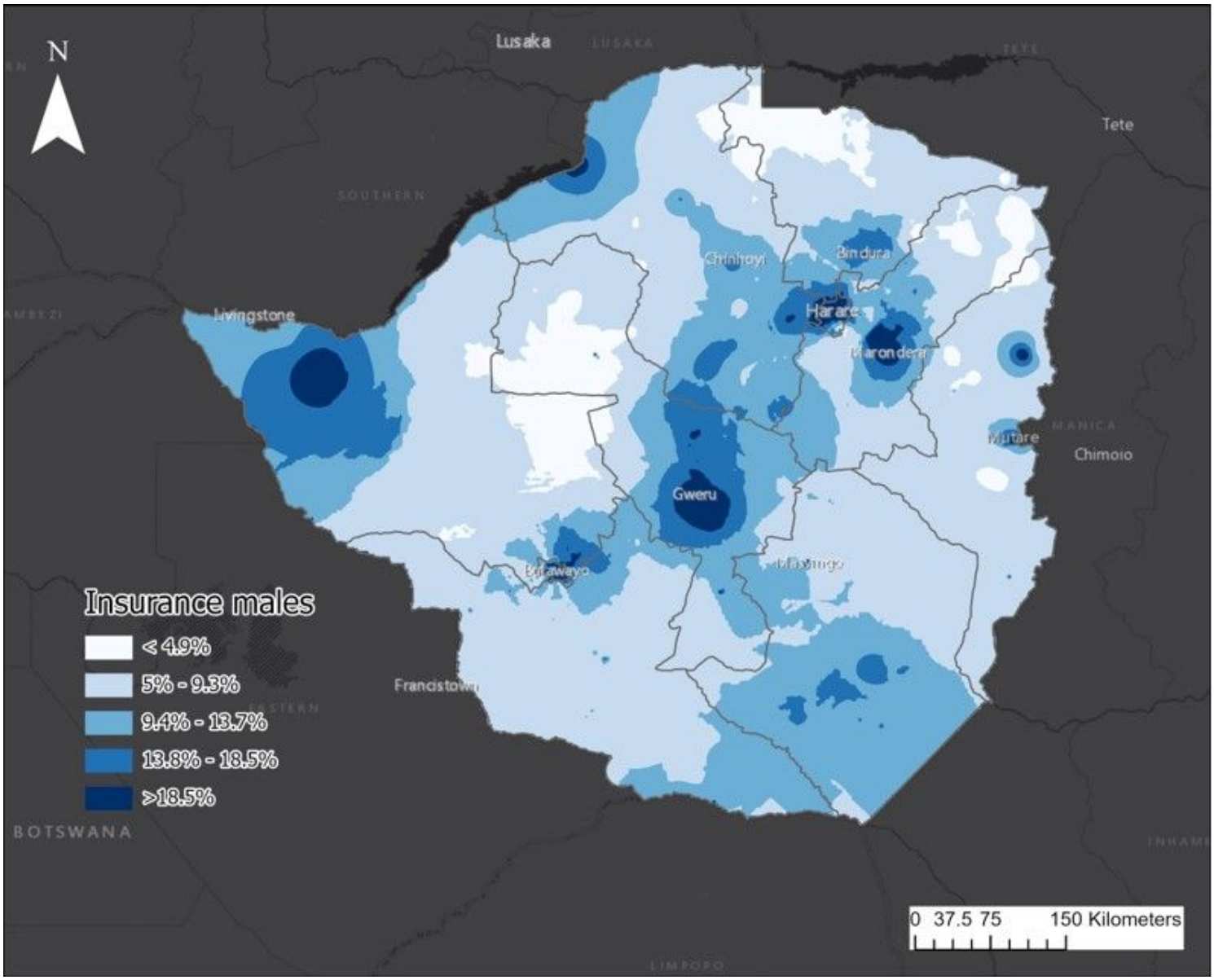

Figure 2

shows the geospatial distribution of individuals with access to health insurance in Zimbabwe. They show that the highest concentrations occur in urban areas. Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.