

Research Article

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Micro Level Analysis on Health Insurance Enrolment among Selected Women in Ghana: Barriers and Predictors

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ABSTRACT

Background: The enrolment onto a health insurance scheme is a viable means of improving access and utilisation of healthcare services which play critical roles in efforts to attain universal health coverage in most countries for which Ghana is inclusive. However, at the micro level, there appears to be inequitable patterns of health insurance enrolment based on gender, and contextual factors. To account for these disparities, the Micro Indicator Cluster Survey (MICS) 2017/2018 was conducted to investigate, inter alia, women enrolment on national health insurance services, and the reasons behind non-enrolment of women in the reproductive ages on health insurance schemes. Thus, this paper explores the barriers and predictors of health insurance enrolment in Ghana using data obtained from a nationality representative micro indicator cluster survey.

Methods: Based on health insurance enrolment trajectories, this paper comprehensively investigates the predictors of health insurance enrolment at the micro level among 9,533 women between the ages of 15 years to 49 years in Ghana using data from MICS 2017/2018 which was made available for public access in 2020. Specific items relating to health insurance enrolment which is the independent variable, and contextual and compositions factors were selected in line with relevant literature as predictors to conduct an ordinal logistic regression analysis.

Findings: The findings revealed that lack of money or funds, perceived irrelevance of the scheme, relative far proximity to registration centres, and lack of confidence in the operation of health insurance services accounted for the major barriers to non-enrolment. In all, the parameters under wealth index quintile were the most significant predictors of health insurance enrolment in this study. The poorest wealth quintile exhibited the highest odd ratio of 4.655 with lower bound value of 3.873 and an upper bound of 5.595 at p value of <0.001. In sum, the higher odd ratios and statistically significant values in wealth quintile index, education, pregnancy status, and regional location demonstrate the spatial-demographic disparities in enrolment among respondents which lead to exclusion of the most vulnerable in health insurance coverage, and thus, limit the realization of its objective to provide pre-payment arrangement to cater for healthcare cost and reduce financial burden among individuals and households.

Conclusion: It is concluded that at the micro level, access to health insurance services is likely to be impeded by system level factors and compositional attributes. There is the need for extensive subscriber segmentation and targeting to help address the challenges of people who are in most need of health insurance services. The national health insurance system should strengthen its pro-poor enrolment incentives and build synergies to derive support from relevant government and non-state actors to improve education and livelihood opportunities for women across the country.

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Received: December 01, 2023; **Accepted:** December 05, 2023; **Published:** January 16, 2024**Abbreviations****MICS:** Micro Indicator Cluster Study**OR:** Odd Ratio**CI:** Confidence Interval**Background**

Globally, several efforts have been made to assess the barriers and facilitators in access and utilization of health services at the system, household, and individual levels. Such efforts have usually considered compositional and contextual attributes of study populations and the basic enumeration units. It has been widely asserted that enrolment onto health insurance schemes is a viable means of improving access and utilization of health services and serves as an accentuating element in national efforts towards the accomplishment of universal health coverage [1-3].

However, at the micro level, there appears to be inequitable patterns in health insurance enrolment based on gender, and contextual factors. It has been asserted that there are inequalities in healthcare services when using health insurance schemes [4-5]. In Ghana, several efforts have been made to expand access to healthcare services through health insurance and these efforts have yielded significant results [6-7]. Further, it has been asserted that the enrolment on health insurance in Ghana protects individuals and households against catastrophic out of pocket expenditure and further serves as a means of poverty reduction [8]. Notwithstanding these assertions, it has been stressed that relatively, women have higher enrolment than men in the national health insurance system in Ghana [9]. However, there appears to be huge disparities in enrolment and renewal of health insurance among women in Ghana. To account for these disparities, the Micro Indicator Cluster

Survey (MICS) 2017/2018 was conducted to investigate, inter alia, women enrolment on national health insurance services, and ascertain the reasons behind the non-enrolment of some women on any of such schemes. Considering existing variations in the trajectories of enrolment and renewal, this paper comprehensively investigates the predictors of health insurance enrolment at the micro level among selected women between the ages of 15 years to 49 years in Ghana who took part in the Micro Indicator Cluster Survey conducted by the Ghana Statistical Service in 2017-2018 for which access to the dataset was granted in 2020. Thus, this paper explores the barriers and predictors of health insurance enrolment in Ghana using data obtained from a nationality representative micro indicator cluster survey.

Methods

This paper relies on data obtained from survey conducted by the Ghana Statistical Service with support from UNICEF and which is made available upon request and approval of key stakeholders. The global and country-specific data collection benchmarks established, in the MIC survey, its adherence to ethical principles and its availability for public verification makes it a viable source of data for the conduct of national research activities [10]. In all, individual surveys were held with 14,374 women who were between the ages of 15-49 years across all regions in Ghana. To conduct logistic regression analysis, the individual variables were analyzed to exclude missing cases which would affect the possibility of generating the ordinal logistic regression model. Hence, 9533 respondents surveyed formed the basis analysis in this paper.

For this paper, specific items relating to health insurance enrolment which is the independent variable and measured contextual and compositions factors were selected as the predictors to conduct an ordinal logistic regression analysis. In relation to findings from the existing literature, the selected antecedent constructs include age group, education, marital or union status, and pregnancy situation. Further, habitation with a son or daughter, functional difficulties, wealth index quintile and the ethnicity of household head were considered. Also, contextual variables of rural-urban residence and regional locations were further examined.

The presentation of the findings highlights the descriptive dimension which focuses on the forms of health insurance enrolment, and the perceived reasons or barriers to non-enrolment. The paper delved deeper to present the Wald Odd Ratios and levels of effect exhibited by the measured items under each of the antecedent constructs. Thus, the subsequent sessions will focus on presentation of the results, discussion, and conclusion.

Results

This study focused on the analysis of results on 9533 respondents which constituted 66.3% of the total respondents of 14,374 after missing cases were excluded for the purposes of the logistic regression analysis. Data on the selected variables revealed that a total of 5435 (57%) of respondents have valid health insurance as compared to 4098 which did not have health insurance. The youngest age group of 15 to 25 years were 2075 (21.7%), whereas the ages between 26 to 35 years constituted 3269 (34.3%). The ages between 36 to 45 and the ages between 46 to 49 years constituted 3217 (33.7%) and 975 (33.7%) respectively. In terms of education, 6626 (69.5%) as against 2907 (30.5%) respondents indicated that they have ever been to school.

Table 1: Selected Variables

Variable	Measured item	N = 9533	Percent
Health insurance	With insurance	5435	57.0%
	Without insurance	4098	43.0%
Age group	15 to 25 years	2072	21.7%
	26 to 35 years	3269	34.3%
	36 to 45 years	3217	33.7%
	46 to 49 years	975	10.2%
Ever attended school	Yes	6626	69.5%
	No	2907	30.5%
Marital/Union status of woman	Currently married/in union	7454	78.2%
	Formerly married/in union	1176	12.3%
	Never married/in union	903	9.5%
Currently pregnant	Yes, currently pregnant	708	7.4%
	No	8794	92.2%
	Dk or not sure	31	0.3%
Any sons or daughters not living with you	Yes	4223	44.3%
	No	5310	55.7%
Functional difficulties (age 18-49 years)	Has functional difficulty	964	10.1%
	Has no functional difficulty	8569	89.9%
Wealth index quintile	Poorest	2464	25.8%
	Second	1729	18.1%
	Middle	1781	18.7%
	Fourth	1748	18.3%
	Richest	1811	19.0%
Ethnicity of household head	Akan	3579	37.5%
	Ga/Damgme	713	7.5%
	Ewe	1143	12.0%
	Guan	346	3.6%
	Gruma	382	4.0%
	Mole Dagbani	2204	23.1%
	Grusi	402	4.2%
	Mande	42	0.4%
	Other	717	7.5%
Unknown	5	0.1%	
Area	Urban	4277	44.9%
	Rural	5256	55.1%
Region	Western	914	9.6%
	Central	860	9.0%
	Greater Accra	1034	10.8%
	Volta	895	9.4%
	Eastern	945	9.9%
	Ashanti	1267	13.3%
	Brong Ahafo	883	9.3%
	Northern	1039	10.9%
	Upper East	779	8.2%
Upper West	917	9.6%	

Further, 7454 (78.2%) of the respondents were married whereas 1176 (12.3%) were formally married or in union. However, 903 (9.5%) were never married or in union. The data revealed that 708 (7.4%) of the respondents were pregnant at the time of the survey. The indicator on whether a respondent was not living with a son or daughter indicated that majority of the respondents as signified by 5310 (55.7%) were living with a child as at the time of the survey. It was further ascertained that 964 (10.1%) of the respondents have functional difficulties. In terms of wealth quintile, 2464 (25.8%) were in the poorest quintile. Moreover, 4277 (44.9%) of the respondent resided in urban areas and the respondents were fairly distributed across the administrative regions. Subsequent analysis revealed that among the 5435 respondents who have health insurance, 5412 were on the national health insurance whereas 35 and 20 respondents had employee and private health insurance respectively.

Barriers to Health Insurance Enrolment

The barriers to enrolment were elicited from a proxy indicator on the reason for non-enrolment. It was observed that issues relating no money or funds, perceived irrelevance of the scheme, relative far proximity to registration centres, and lack of confidence in the operation of health insurance services accounted for the major barriers to non-enrolment.

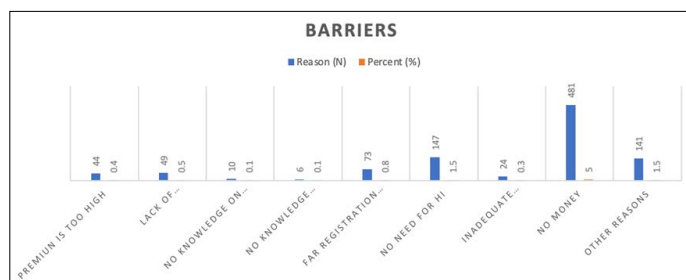


Figure 1: Perceived Barriers to Enrolment

After the barriers identified, the study sought to establish the predictive ability of the independent variables using an ordinal logistic regression model.

Logistic Regression Analysis

Preliminary analysis was conducted to support the conduct of ordinal logistic regression where health insurance enrolment constituted the dependent variable, and the compositional and contextual variables formed the threshold of independent variables in the model. The analysis on goodness of fit revealed a deviance value/df of 1.288 and chi-square value/df of 1.040. The omnibus test value shows a significant value of $p < 0.001$. The suitability of the values obtained allowed for the conduct of ordinal logistic regression analysis to estimate the Wald chi-square values and odd ratios that permitted in the identification of drivers of health insurance enrolment in this study. In the generalized model, except for age, functional difficulty, and area, all the other variables had significant effect.

The detailed results from the regression analysis revealed that age is not a significant predictor of health insurance enrolment among women between 15 to 49 years as exhibited as in by an insignificant statistical values and odd ratios ranging from 0.742, 0.881 and 0.916 across respectively parameters. However, the odd ratio of 0.846 within a Wald interval of 0.755 to 0.949 and p -value < 0.005 showed that education was a significant predictor of health insurance enrolment among women in this study. Further observance of odd ratios of 0.896 and 1.129 at p values of 0.175

and 0.217 shows that marital union is not a significant predictor of health insurance enrolment among women in the defined reproductive age group. On the contrary, with an odd ratio of 0.229 and $p < 0.001$, pregnancy is a significant predictor of health insurance under the parameters established in this study. The logistic regression analysis vividly depicts that living with a child is a significant predictor of health insurance enrolment among women as shown by an odd ratio of 1.186 with lower bound of 1.075 and an upper bound of 1.309 at $p < 0.001$. It was further observed that functional difficulty is not a significant predictor despite the odd ratio of 1.033. More importantly, progressively all parameters under wealth index quintile were the most significant predictors of health insurance enrolment in this study. Specifically, the poorest quintile exhibited the highest odd ratio of 4.655 with lower bound of 3.873 and an upper bound of 5.595 at a p value of < 0.001 .

Table 2: Ordinal Logistic Regression Analysis

Variables	Exp(B)	95% Wald Confidence Interval for Exp(B)		
		Lower	Upper	p value
Age Group				
15 to 25 years	.893	.742	1.075	.232
26 to 35 years	1.036	.881	1.219	.667
36 to 45 years	1.068	.916	1.244	.402
46 to 49 years	1	.	.	.
Ever attended school				
Yes	.846	.755	.949	.004
No	1	.	.	.
Marital/Union status of woman				
Currently married/in union	.896	.765	1.050	.175
Formerly married/in union	1.129	.931	1.368	.217
Never married/in union	1	.	.	.
Currently pregnant				
Yes, currently pregnant	.229	.107	.493	.000
No	.676	.321	1.424	.303
Dk or not sure	1	.	.	.
Any sons or daughters not living with you				
Yes	1.186	1.075	1.309	.001
No	1	.	.	.
Functional difficulties (age 18-49 years)				
Has functional difficulty	1.033	.896	1.192	.655
Has no functional difficulty	1	.	.	.
Wealth index quintile				
Poorest	4.655	3.873	5.595	.000
Second	3.436	2.892	4.084	.000
Middle	2.537	2.165	2.972	.000
Fourth	2.028	1.747	2.355	.000
Richest	1	.	.	.

Ethnicity of household head				
Akan	1.984	.324	12.144	.458
Ga/Damgme	2.487	.405	15.281	.325
Ewe	2.443	.397	15.021	.335
Guan	1.377	.222	8.543	.731
Gruma	2.128	.343	13.184	.417
Mole Dagbani	1.862	.304	11.415	.502
Grusi	1.783	.288	11.036	.534
Mande	3.849	.565	26.228	.169
Other	1.569	.255	9.645	.627
Unknown	1	.	.	.
Area				
Urban	.948	.848	1.060	.346
Rural	1	.	.	.
Region				
Western	1.508	1.189	1.912	.001
Central	2.180	1.705	2.789	.000
Greater Accra	2.631	2.055	3.368	.000
Volta	.936	.715	1.225	.630
Eastern	1.546	1.218	1.962	.000
Ashanti	1.383	1.107	1.727	.004
Brong Ahafo	.590	.467	.745	.000
Northern	1.262	1.038	1.534	.020
Upper East	.736	.602	.901	.003
Upper West	1	.	.	.

OR=Odd Ratio, CI=95% Wald Confidence Interval for Exp (B), 1 = Set to zero because this parameter is redundant.

The parameters under ethnicity and urban/rural residence did not have significant effect in this study. However, the odd ratios observed under majority of the regional location parameters had higher odd ratios and significant p values as shown in the case of Greater Accra with an odd ratio of 2.631 and $p < 0.001$. Thus, the model presents the predictive abilities of the compositional and attribute factors on health insurance through the established odd ratios, Wald confidence interval of 95% and p values, while setting redundant parameters to zero.

Discussion

This study was set out to ascertain the barriers and predictors of health insurance enrolment among women in a defined active age group using data collected in a Micro Indicator Cluster Survey. Guided by existing literature and globally accepted benchmarks on the efforts towards the accomplishment of universal health coverage through health insurance, specific compositional and contextual variables were selected for this study. Relatively, health insurance enrolment among the respondents in this study was higher as signified by 57% and this conforms with the findings of scholars who opined that health insurance enrolment in Ghana is slightly higher among women than men [9]. However, the 43% non-enrolled respondents substantiate the arguments on inequities in enrolment among women in Ghana and the developing world, and hence, their consequent exposure to catastrophic expenditure and impoverishment due to healthcare cost.

The trickle-down effect of such burden can be seen in the major attribution of non-enrolment to lack of money or funds, as accounting for the major barrier in this study. Significant barriers also exist in the proximity to first-time health insurance service registration centers, and low level of awareness on relevance of the scheme and the associated lack of confidence in the operation of the scheme as indicated by some respondents. Some of these barriers aligns with some general findings on health insurance in Ghana [11-13]. These barriers require urgent attention from policymakers and managers of existing health insurance schemes as they seek to widen coverage for people in a social and economic safety net.

Further, the observance of higher odd ratios and statistically significant values in wealth quintile index, education, pregnancy status, and regional location demonstrate the spatial-demographic disparities in enrolment among respondents which lead to exclusion of the most vulnerable in health insurance coverage, and thus, limit the realization of the objective of the health insurance system to provide pre-payment arrangement to cater for healthcare cost and reduce financial burden among individuals and households. These findings reflect the trends in general health insurance situation in Ghana [14-15]. Hence, effective mechanisms should be put in place to enhance the agency and livelihood of women to improve access and utilization of health services through health insurance enrolment.

Conclusion

In conclusion, the finding depicts that at the micro level, access to health insurance services is likely to be impeded by system level factors and compositional attributes. Thus, there is the need for extensive subscriber segmentation and targeting to help address the challenges of people who are in most needs of health insurance services. The national health insurance system should strengthen its pro-poor enrolment incentives and build synergies with relevant government and non-state actors to improve education and livelihood opportunities for women across the country.

Declarations

Ethical approval and informed consent

The United Nation International Children Emergency Fund (UNICEF) and the Ghana Statistical Service obtained informed consent for each respondent participating. The right to use the data was granted to the Author by the Ghana Statistical Service after approval of the data request protocols. The standard guideline can be found at <http://mics.unicef.org/tools#data-processing>.

Consent for publication

The author consent to the publication of this paper.

Availability of Data and Materials

The data is available upon request

Competing Interest

The author declares that there is no competing interest

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Author's Contribution

RB wrote the entire paper.

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