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Determinants of health insurance ownership in Jordan: a cross-sectional study of population and family health survey 2017–2018

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ABSTRACT

Objectives With about one-third of the population living below the poverty line, Jordan faces major healthcare, social and national development issues. Low insurance coverage among the poor and high out-of-pocket expenditure worsens the financial insecurity especially for the marginalised population. The Government of Jordan aims to achieve universal coverage of health insurance—a bold plan that requires research evidence for successful implementation. In this study, we aimed to assess the proportion of the population covered by any health insurance, and the determinants owing a health insurance.

Design A population-based prospective cohort study.

Setting Jordan.

Methods Data for this study were derived from the Jordan Population and Family Health Survey, which was implemented by the Department of Statistics from early October 2017 to January 2018. Sample characteristics were described as percentages with 95% CIs. Binary logistic regression models were used to estimate OR of health insurance ownership. Parsimonious model was employed to assess the sex and geographical differences.

Results Data revealed that in 2017–2018, 73.13% of the 12 992 men and women had health insurance. There was no indication of age of sex difference in health insurance ownership; however, marital status and socioeconomic factors such as wealth and education as well as internet access and geographical location appeared to be the important predictors of non-use of health insurance. The associations differed by sex and urbanicity for certain variables. Addressing these inequities may help achieve universal coverage in health insurance ownership in the population.

Conclusions More than one-quarter of the population in Jordan were not insured. Efforts to decrease disparities in insurance coverage should focus on minimising socioeconomic and geographical disparities to promote equity in terms of healthcare services.

Strengths and limitations of this study

► This study of Jordan Population and Family Health Survey (2017–2018) which is nationally representative and cross-sectional in nature.

► We had comprehensive information on potential confounding factors.

► Selection bias cannot completely be excluded as 42.35% were people younger than 20 years old.

BACKGROUND

Jordan is an upper middle-income country in the middle-eastern region and has been experiencing rising life expectancy and improving living standards during last two-three decades. Between 1990 and 2015, the average life expectancy rose from 69.9 to 74.1 years.[1] The country boasts a high-quality healthcare system and is considered one of the major destinations for medical tourism in the Middle East and North Africa (MENA) region.[1] In terms of medical tourism, World Bank ranks Jordan as the leader in the MENA region and fifth in the world, with the sector generating a revenue of over $1.5 billion per year.[2] Irrespective of the relatively better socioeconomic situation than many countries in Asia, poverty and health inequality are not uncommon and are recognised as important challenges to health promotion in the country. In fact, inequal access to care is seen in all countries and is regarded as a core development challenge for the low-middle countries. Healthcare services in Jordan are provided through the public/semi-public and the private sector, and consists of 106 hospitals in total. There is home-based healthcare service that is provided mainly by the private sector which is not covered by health insurance, and therefore remains beyond the affordability of most patients.[1] Direct out-of-pocket (OUP) health expenditure makes up about one-quarter of total healthcare spending, which is considerably high for a middle-income country.[1]

Global health institutions and national governments are striving to address inequality at all aspects of public health through policies

such as universal healthcare coverage (UHC) as a part of the sustainable goals (SDGs).[3][4] UHC is defined as: everyone receiving quality health services that meet their needs without exposing them to financial hardship in paying for them.[5] Achieving UHC is a daunting task due to numerous financial, structural and political barriers, and hence remains an elusive goal particularly in the developing countries. While there is no clear consensus on how UHC can be achieved, experts suggest the financial burden of accessing healthcare for the poor can be mitigated by ensuring removal of user fees through instruments such as strategic insurance schemes.[6–9] Improving health insurance coverage has become a major strategy to improving financial risk protection and access to quality healthcare.[10][11]

Increasing the usage of health insurance in countries with high poverty rates and entrenched inequality is important for several critical reasons. First, people who are unable to afford the cost of care and uninsured are less likely to access the services, and consequently experience poorer health outcomes and are more likely to fall into extreme poverty. In unavoidable circumstances, individuals are forced to spend on healthcare by cutting expenses from other basic needs, which in turn can have potential adverse effects on the health of the family. Jordan has a national health insurance policy and according to some estimates, more than half of the population are insured.[1] Reaching the uninsured population is a complex task especially when they are living or working in informal settings (eg, refugee camps), which systematically excludes them form formal intervention programmes.[12][13] This type of exclusion from the benefits of healthcare system, or loss of medical citizenship can be hard to remedy, and will require identification of the communities who are deprived economically and socio-demographically and geographically.[14–17]

In Jordan, the most commonly encountered health conditions are non-communicable diseases (NCDs),[18] which require life-long care and dependency on medical expenditures. Individuals living with NCDs are thus more vulnerable to catastrophic healthcare spending unless supported by health insurance programmes. Given the increasing burden of NCDs in the country, there is an urgent need to reinforce efforts for promoting UHC and health insurance to safeguard the vulnerable population. In this context, understanding the existing inequalities in the distribution of health insurance users can be a key step to action. Previous studies has demonstrated the role of economic,[19] geographic,[20] racial and ethnic[21] variation in health insurance coverage; however, no such evidence is currently available for Jordan. To this regard, this study was conducted with the aim of assessing the proportion of population possessing any type of health insurance and whether or not there is any significant variation in insurance ownership across the sociodemographic groups. We used data from Jordan Population and Family Health Survey (2017–2018) which is nationally representative and cross-sectional in nature. The study was based on the

hypothesis that health insurance ownership will differ significantly by socioeconomic status.

METHODS
Study population
Survey and data collection
The 2017–2018 Jordan Population and Family Health Survey (JPFHS) was the seventh of this kind to be conducted in the country, and was implemented by the Department of Statistics (DOS) from early October 2017 to January 2018. The funding for the JPFHS was provided by the government of Jordan, the U.S. Agency for International Development (USAID), the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA). Technical assistance for the survey was provided by ICF international through The Demographic and Health Survey (DHS) Programme, a USAID-funded project that provides support and technical assistance in the implementation of population health surveys in about 90 low-middle income countries.

The main objectives of the survey were to collect data on key demographical indicators such as fertility, childhood mortality, maternal and child health status. Data serve the purpose of measuring the progress towards national and international development goals (such as sustainable development goals) and facilitating evidence-based policies. The latest JPFHS survey was nationally representative. It collected data from urban and rural areas separately across all 12 administrative regions. The survey employed a two-stage sampling technique. In the first stage, 970 clusters were selected with probability proportional to cluster size, and in the second stage 20 households per cluster were selected for interview. In total, 19 383 households were selected of which 18 802 finally interviewed (response rate 98.3%). For further reading: Department of Statistics (DOS) and ICF. 2019. Jordan Population and Family and Health Survey 2017–2018. Amman, Jordan and Rockville, Maryland, USA: DOS and ICF.

Main variables
The outcome variable was insurance ownership. This was measured by asking the main respondent about the insurance ownership of household members. Answer to this question was categorised as 'Covered by health insurance' and 'Not covered'. Several enabling and predisposing factors were chosen as the predictor variables based on their theoretical association with insurance ownership: age in years (<20, 20/29, 30/39, 40/49, 50/59, >60), sex (male, female), marital status (never married, married, widowed), residency (urban, rural), region (Amman, Balqa, Zarqua, Madaba, Irbid, Mafraq, Jerash, Aljoun, Karak, Tafilh, Maan, Aquaba), education (no education/preschool, primary, secondary, higher), wealth quintile (poorest, poorer, middle, richer, richest), access to internet (yes, no), access to mobile phone (yes, no).[11][19][22–24]

As explained in previous studies, wealth status is calculated by a score assigned to households based on the possession of durable goods (eg, TV, radio, refrigerator and construction material). Categorisation was performed by dividing the household wealth scores into quintiles. The richest households were those in the highest quintile, and poorest were in the lowest quintile.[25]

Statistical analysis

Data were analysed with Stata V.14. All analyses were adjusted for the cluster design by using the *svy* command.[26] This command uses the information on sampling weight, strata and primary sampling unit provided with the datasets. Sample characteristics were described as percentages with 95% CIs. Following that, binary logistic regression models were used to estimate odds ratio (with 95% CIs) of health insurance ownership. At first, we ran a full-model analysis including all the explanatory variables, followed by a parsimonious model that excluded variables showing no significant bivariate association (X^2 p>0.05) with the outcome. Previous studies have reported that health insurance ownership can vary by sex and residency. Therefore, we further extended the parsimonious model to assess for sex and geographic differences. Variance inflation factor (VIF) command was used to test for multi-collinearity. No multi-collinearity was detected as VIF values were below 10 for all the models. All tests were two-tailed and were considered significant at alpha value of 5%.

Patient and public involvement

No patient was involved in this study. The data were secondary and were downloaded from DHS website for this research.

RESULTS

Sample population consisted of 12 992 men (n=6446) and women (n=6546) living in urban (n=10 683) and rural areas (n=2309). As shown in table 1, 73.13% (95%CI=60.59 to 66.77) of the participants were covered by health insurance. The percentage of insurance ownership varied significantly (p<0.001) across several sociodemographical factors including marital status, residency, region, educational level and having access to internet.

Table 2 shows the ORs of health insurance ownership for the full and parsimonious models. In the full model, the odds of health insurance ownership were found to be increasing gradually with higher age groups, with the ORs being highest among those in the age groups of >60 years (OR=1.773, 95% CI=1.353 to 2.324). The odds of health insurance ownership were lower among those who never married or widowed compared with those were currently married. The odds or comparatively higher in the urban areas in both of the models. Apart from urbanicity, significant regional differences were observed in health insurance ownership. Regarding education, those who completed primary had comparatively lower, and those who completed higher education had comparatively

higher odds of health insurance ownership. In the full model, wealth status showed a positive association with health insurance ownership, with the odds being higher among those living in the non-poor households (middle, richest). Having access to mobile phone (OR=1.802, 95% I=1.383 to 2.347) and internet (OR=2.381, 95% CI=1.432 to 3.950) also showed significant association with health insurance ownership.

We further subdivided the parsimonious model to assess for sex (table 3) and geographic differences (table 4). Table 3 shows that being widowed was associated with lower odds of health insurance ownership among women (OR=0.740, 95% CI=0.568 to 0.964) but not among men, whereas urban residency increased the odds among both sexes. Regional differences in health insurance ownership were generally similar for both sexes. Regarding education, the negative association for primary level completion and positive association for higher level completion were slightly stronger among men. The association between internet access and health insurance ownership was not statistically significant after stratifying by sex.

Table 4 indicates that being widowed was associated with lower odds of health insurance ownership in the urban areas only (OR=0.718, 95% CI=0.564 to 0.914). Regional patterns in health insurance ownership were generally similar between urban and rural areas. With respect to educational status, the negative association between primary completion and health insurance ownership was significant in urban areas; whereas for higher education, the positive association was observed in both urban and rural areas. However, the effect was comparatively higher in the rural areas (OR 1.324 in the urban vs 3.390 in the rural areas).

DISCUSSION

The present study aimed to assess the prevalence and predictors of health insurance ownership among the mainstream population in Jordan. Data were taken from Jordan Population and Family Health Survey, and the findings suggest that little less than three-quarter of the population had any health insurance. This finding is similar to a report published in 2016, that highlighted that 68% of Jordanians and 55% of the overall population are covered by some type of health insurance.[27] This is indicative of the fact that the proportion of insurance coverage is considerably lower among non-native population. It is also important to note that Jordanian children under 6 years of age are entitled by a Royal decree to free healthcare services, and therefore including the under-six population in the statistics may not represent the accurate picture of voluntary health insurance coverage in the entire population.

Our analysis indicated significant sociodemographic disparities in the prevalence of health insurance ownership. These factors included age, marital status, residency, region, educational status and access to internet. Although the under-six population are automatically

Table 1 Distribution of sample population by insurance ownership status (n=12 992)

	Health insurance			
	Total	**Not covered 26.69%**	**Covered 73.13%**	**P value**
Age				
<20 (n=5929) %	42.35 (40.82 to 43.90)	44.41 (41.92 to 46.92)	41.18 (39.43 to 42.96)	0.248
20/29 (n=2279) %	18.22 (17.07 to 19.43)	16.85 (15.18 to 18.67)	19.00 (17.64 to 20.45)	
30/39 (n=1695) %	13.65 (12.75 to 14.60)	13.63 (12.23 to 15.17)	13.66 (12.53 to 14.88)	
40/49 (n=1265) %	10.00 (9.36 to 10.68)	9.95 (8.84 to 11.17)	10.03 (9.21 to 10.92)	
50/59 (n=896) %	7.32 (6.70 to 7.99)	7.03 (6.00 to 8.23)	7.48 (6.69 to 8.35)	
60 (n=928) %	8.46 (7.57 to 9.43)	8.13 (6.67 to 9.88)	8.64 (7.66 to 9.73)	
Sex				
Male (n=6446) %	49.91 (49.02 to 50.80)	50.49 (48.94 to 52.05)	49.58 (48.46 to 50.70)	0.36
Female (n=6546) %	50.09 (49.20 to 50.98)	49.51 (47.95 to 51.06)	50.42 (49.30 to 51.54)	
Marital status				
Never married (n=3217) %	37.62 (35.92 to 39.35)	34.22 (31.52 to 37.03)	39.47 (37.41 to 41.57)	0.007
Married (n=4709) %	55.49 (53.74 to 57.24)	57.31 (54.09 to 60.47)	54.51 (52.51 to 56.49)	
Widowed (n=509) %	6.88 (5.90 to 8.02)	8.47 (6.42 to 11.09)	6.02 (5.09 to 7.12)	
Residency				
Urban (n=10 683) %	89.81 (87.55 to 91.70)	93.43 (90.23 to 95.63)	87.76 (85.38 to 89.80)	<0.001
Rural (n=2309) %	10.19 (8.30 to 12.45)	6.57 (4.37 to 9.77)	12.24 (10.20 to 14.62)	
Region				
Amman (n=1919) %	40.59 (37.28 to 43.98)	52.88 (47.18 to 58.51)	33.59 (29.86 to 37.54)	<0.001
Balqa (n=353) %	1.71 (1.37 to 2.13)	2.20 (1.50 to 3.21)	1.43 (1.07 to 1.91)	
Zarqua (n=1630) %	15.87 (13.76 to 18.24)	20.67 (16.64 to 25.38)	13.14 (11.08 to 15.52)	
Madaba (n=724) %	1.54 (1.30 to 1.82)	1.11 (0.76 to 1.63)	1.78 (1.44 to 2.21)	
Irbid (n=1878) %	23.63 (20.98 to 26.51)	15.28 (11.93 to 19.35)	28.39 (25.13 to 31.89)	
Mafraq (n=2156) %	7.61 (6.74 to 8.58)	4.98 (3.79 to 6.52)	9.10 (7.79 to 10.62)	
Jerash (n=1365) %	3.17 (2.66 to 3.78)	1.03 (0.63 to 1.66)	4.40 (3.62 to 5.32)	
Aljoun (n=1120) %	1.99 (1.67 to 2.36)	0.33 (0.18 to 0.58)	2.93 (2.44 to 3.51)	
Karak (n=476) %	1.60 (1.32 to 1.93)	0.39 (0.21 to 0.74)	2.29 (1.86 to 2.81)	
Tafilh (n=550) %	0.64 (0.53 to 0.76)	0.10 (0.04 to 0.25)	0.94 (0.77 to 1.15)	
Maan (n=493) %	0.88 (0.55 to 1.40)	0.36 (0.17 to 0.77)	1.17 (0.69 to 1.99)	
Aquaba (n=328) %	0.77 (0.58 to 1.03)	0.66 (0.39 to 1.10)	0.83 (0.57 to 1.21)	
Education				
No education, preschool (n=2396) %	16.74 (15.72 to 17.81)	17.21 (15.40 to 19.19)	16.46 (15.26 to 17.75)	<0.001
Primary (n=3245) %	22.96 (21.62 to 24.35)	26.33 (24.03 to 28.77)	21.04 (19.63 to 22.52)	
Secondary (n=5117) %	38.73 (37.13 to 40.35)	38.66 (36.17 to 41.21)	38.77 (36.98 to 40.58)	
Higher (n=2234) %	21.58 (19.77 to 23.50)	17.80 (15.39 to 20.49)	23.73 (21.68 to 25.91)	
Wealth				
Poorest (n=4223) %	21.33 (19.01 to 23.85)	22.16 (18.05 to 26.90)	20.85 (18.26 to 23.70)	0.901
Poorer (n=3199) %	22.22 (19.58 to 25.12)	22.78 (18.82 to 27.30)	21.91 (18.94 to 25.19)	
Middle (n=2152) %	15.75 (13.80 to 17.91)	14.55 (11.63 to 18.06)	16.43 (14.07 to 19.09)	
Richer (n=2042) %	20.71 (18.20 to 23.48)	20.98 (17.07 to 25.51)	20.56 (17.58 to 23.91)	
Richest (n=1376) %	19.99 (16.88 to 23.51)	19.53 (15.36 to 24.50)	20.25 (16.79 to 24.23)	
Has internet access at home				
No (n=7140) %	39.24 (35.67 to 42.93)	33.74 (28.68 to 39.20)	42.37 (37.97 to 46.90)	<0.001
Yes (n=5627) %	60.76 (57.07 to 64.33)	66.26 (60.80 to 71.32)	57.63 (53.10 to 62.03)	
Has mobile telephone				
No (n=250) %	1.32 (0.87 to 2.00)	1.69 (0.82 to 3.44)	1.11 (0.69 to 1.78)	0.343
Yes (n=12 742) %	98.68 (98.00 to 99.13)	98.31 (96.56 to 99.18)	98.89 (98.22 to 99.31)	

Table 2 Factors associated with of health insurance ownership

	Full model	Parsimonious model
Age (<20 years)	1	
20/29	1.156 (0.970 to 1.378)	
30/39	1.280* (1.036 to 1.580)	
40/49	1.388** (1.105 to 1.745)	
50/59	1.456** (1.133 to 1.871)	
>60	1.773*** (1.353 to 2.324)	
Sex (male)	1	
Female	0.972 (0.873 to 1.084)	
Marital status (married)	1	1
Never married	0.797** (0.682 to 0.931)	0.791** (0.678 to 0.922)
Widowed	0.602*** (0.462 to 0.786)	0.591*** (0.458 to 0.763)
Residency (rural)	1	1
Urban	1.430*** (1.203 to 1.700)	1.432*** (1.207 to 1.699)
Region (Amman)	1	1
Balqa	1.237 (0.925 to 1.655)	1.303 (0.979 to 1.735)
Zarqua	1.246* (1.050 to 1.479)	1.231* (1.039 to 1.460)
Madaba	2.296*** (1.810 to 2.911)	2.324*** (1.837 to 2.941)
Irbid	2.875*** (2.399 to 3.445)	2.868*** (2.405 to 3.420)
Mafraq	3.997*** (3.250 to 4.916)	3.983*** (3.276 to 4.843)
Jerash	5.245*** (4.116 to 6.685)	5.117*** (4.080 to 6.418)
Aljoun	14.31*** (10.15 to 20.17)	14.23*** (10.22 to 19.81)
Karak	6.469*** (4.452 to 9.400)	6.630*** (4.566 to 9.628)
Tafilh	20.53*** (11.90 to 35.41)	17.26*** (10.40 to 28.64)
Maan	6.291*** (4.422 to 8.949)	5.988*** (4.253 to 8.431)
Aquaba	1.923*** (1.386 to 2.668)	1.868*** (1.358 to 2.568)
Education (no education, preschool)	1	1
Primary	0.755* (0.585 to 0.975)	0.762* (0.594 to 0.978)
Secondary	1.104 (0.870 to 1.400)	1.127 (0.895 to 1.419)
Higher	1.612*** (1.243 to 2.089)	1.624*** (1.259 to 2.093)
Wealth quintile (poorest)	1	
Poorer	1.099 (0.942 to 1.281)	
Middle	1.553*** (1.302 to 1.853)	
Richer	1.165 (0.980 to 1.385)	
Richest	1.411** (1.145 to 1.737)	
Internet access (no)	1	1
Yes	1.802*** (1.383 to 2.347)	3.304** (1.371 to 7.973)
Mobile phone access (no)	1	
Yes	2.381*** (1.432 to 3.950)	

Exponentiated coefficients; 95% CIs in brackets.
*p<0.05, **p<0.01, ***p<0.001.

Table 3 Sex differences in the factors associated with of health insurance ownership in Jordan

	Men	Women
Marital status (married)	1	1
Never married	0.959 (0.820 to 1.122)	0.962 (0.817 to 1.132)
Widowed	1.031 (0.563 to 1.890)	0.740* (0.568 to 0.964)
Residence (rural)	1	1
Urban	1.423** (1.117 to 1.813)	1.496*** (1.187 to 1.884)
Region (Amman)	1	1
Balqa	1.036 (0.684 to 1.571)	1.365 (0.914 to 2.038)
Zarqua	1.104 (0.868 to 1.404)	1.290* (1.023 to 1.626)
Madaba	1.984*** (1.422 to 2.768)	2.379*** (1.714 to 3.302)
Irbid	2.280*** (1.782 to 2.915)	3.043*** (2.384 to 3.885)
Mafraq	3.574*** (2.711 to 4.710)	3.032*** (2.354 to 3.905)
Jerash	4.616*** (3.318 to 6.423)	4.663*** (3.393 to 6.409)
Aljoun	15.00*** (8.970 to 25.07)	11.24*** (7.251 to 17.41)
Karak	6.731*** (3.886 to 11.66)	5.735*** (3.466 to 9.490)
Tafilh	15.33*** (7.351 to 31.98)	20.48*** (9.427 to 44.50)
Maan	6.310*** (3.727 to 10.69)	5.251*** (3.312 to 8.326)
Aquaba	1.796* (1.145 to 2.816)	1.795* (1.130 to 2.852)
Education (none)	1	1
Primary	0.615* (0.398 to 0.952)	0.715* (0.524 to 0.975)
Secondary	0.976 (0.653 to 1.459)	0.927 (0.715 to 1.202)
Higher	1.630* (1.065 to 2.496)	1.401* (1.052 to 1.865)
Internet access (no)	1	1
Yes	1.012 (0.853 to 1.201)	1.036 (0.880 to 1.219)

Exponentiated coefficients; 95% CIs in brackets.
*p<0.05, **p<0.01, ***p<0.001.

covered by free healthcare services, the likelihood of insurance ownership was relatively lower in the age group of <20 years, indicating that the insurance coverage among the adolescent population can be comparatively lower than other age groups. Interestingly, marital status showed a significant association with health insurance ownership.[22 28] People who were currently married were more likely to report having insurance than those who never married/widowed. This might be due the age structure and level of financial solvency among married people. People who are too young, and elderly, may not be as self-efficient about health status as those who fall in between.[29 30] Significant differences in insurance ownership were also observed by region and urbanicity with urban population showing relatively higher likelihood of the health insurance ownership. The urban-rural disparity in insurance ownership, as well as overall healthcare service utilisation has been documented in prior studies, highlighting a growing trend in geographic inequality in healthcare.[24 31 32]

Educational status also showed significant association with health insurance ownership, such as that those who completed primary had comparatively lower, and those who completed higher education had comparatively higher odds of health insurance ownership. The negative association for primary level education is a surprising

Table 4 Urban–rural differences in the factors associated with of health insurance ownership in Jordan

	Urban	Rural
Marital status (married)	1	1
Never married	0.940 (0.834 to 1.059)	1.150 (0.813 to 1.626)
Widowed	0.718** (0.564 to 0.914)	1.431 (0.671 to 3.052)
Region (Amman)	1	1
Balqa	1.157 (0.861 to 1.553)	1.576 (0.410 to 6.059)
Zarqua	1.121 (0.946 to 1.328)	1.431* (1.039 to 1.860)
Madaba	2.123*** (1.647 to 2.736)	3.216*** (1.709 to 6.052)
Irbid	2.475*** (2.068 to 2.963)	7.117*** (3.619 to 14.00)
Mafraq	3.229*** (2.630 to 3.963)	5.991*** (3.504 to 10.24)
Jerash	3.569*** (2.823 to 4.513)	1.104 (0.870 to 1.400)
Aljoun	10.35*** (7.348 to 14.59)	109.9*** (24.83 to 486.3)
Karak	5.837*** (3.634 to 9.377)	10.38*** (5.279 to 20.42)
Tafilh	12.70*** (7.407 to 21.76)	0.927 (0.715 to 1.202)
Maan	7.616*** (4.655 to 12.46)	8.356*** (4.477 to 15.60)
Aquaba	1.833*** (1.289 to 2.607)	2.576* (1.106 to 5.997)
Education (none)	1	1
Primary	0.641** (0.489 to 0.840)	0.760 (0.408 to 1.416)
Secondary	0.876 (0.690 to 1.112)	1.646 (0.967 to 2.804)
Higher	1.324* (1.024 to 1.712)	3.390*** (1.784 to 6.440)
Internet access (no)	1	1
Yes	1.075 (0.949 to 1.219)	0.621* (0.425 to 0.907)

Exponentiated coefficients; 95% CIs in brackets.
*p<0.05, **p<0.01, ***p<0.001.

one, and needs further investigation. In general, higher educational status is regarded as a key determinant of health literacy and self-efficacy, which in turn can result in better adherence to health promoting behaviour and activities for example, subscribing for health insurance.[33] In addition, education in general is also positively correlated with better financial standing, which thereby allows individuals to be more health conscious and investing more resources to preventive measures. As such, individuals and families with better socioeconomic standing are more capable of affording health-promoting services, to which insurance ownership is a prominent example. Therefore, it is advisable that policy makers pay greater attention to the socioeconomically vulnerable population in order to promote health insurance ownership and universal health coverage.

Participants wealth status also showed a positive association with health insurance ownership as the odds were generally higher among those living in the non-poor households. This finding emphasises the need for paying special attention to individuals with financial constraints that can pose barrier to accessing healthcare,

and can have repercussions on health and socioeconomic mobility.[34] As expected, having access to mobile phone and internet also showed significant association with health insurance ownership. Given the increasing population and demand for insurance and inadequate institutional facility, the ministry of health encourages applying for insurance through their online portal.[35] Thus, people with access to these technologies are more likely to be able to apply for insurance compared with those deprived of these facilities. In countries with persistent healthcare disparities, mobile phone and internet-based innovations are gaining popularity due to their capacity for bridging the healthcare gaps.[36–39] Focusing on these technologies may also prove beneficial for promoting health insurance in Jordan.

OUP health expenditure is a key driver of poverty especially among the marginalised population. Families living on a constrained budget may find it hard to afford a paid insurance scheme, and thus share a heightened risk of having to pay for medical care. In Jordan, OUP spending constitute about a quarter of the total healthcare spending.[40] Increasing the coverage and ownership of health insurance is therefore an important strategy to safeguard the vulnerable population from the consequences of unexpected health expenditure. Although Jordan has the reputation of having one of the best healthcare systems in the region, the situation appears to be far more challenging than it seems given the large influx of refugees from certain neighbouring countries.[41] As the population continues to increase, with the marginalised population comprising a comparatively larger segment, the prevalence of people with unmet need for healthcare is expected to rise significantly.

With the demographical shift occurring against the backdrop of decreasing national budget for healthcare,[42] the importance of promoting healthcare insurance in Jordan cannot be overrated. Insurance ownership can be influenced by various geographic, socioeconomic and cultural factors, having a good understanding of which can help develop sound policies for addressing the inequalities. The present study was conducted based on secondary data, which means that the methodological design was dependent on the variables available for analysis. While this can be seen an important limitation, the findings nonetheless provide interesting insights regarding the existing inequalities in healthcare ownership in the country. Recent publications have highlighted the challenges associated with accessing healthcare among refugee population Jordan,[43–46] however, this was not possible to assess in this study since this was not the focus of the survey. Further studies should be conducted by including the minority groups (eg, refugees) and assessing the healthcare related drivers of health insurance ownership in Jordan.

This study has several strengths and limitations to report. First, the sample population was relatively large and data were nationally representative. The strength of the survey was that the results have good external validity.

Despite the data limitations, the analysis was carried out in a way to provide a clearer picture of the disparities across the subpopulation for example, sex and residency. Existing evidence supports the fact that men and women differ significantly in terms of using healthcare services, so the current findings regarding the sex difference in health insurance ownership is an important contribution to the literature. There are several limitations to report as well. First, the data were cross-sectional, and therefore we cannot confirm any directionality or causality of the associations. As reported earlier, the data were secondary and therefore the selection of study variable was a major constraint. Insurance coverage can be determined to a large extent by the supply side factors, but there were no data covering such topics. Last but not least, the data were self-reported and remain to subject to reporting bias.

CONCLUSION

We found that findings suggest that little more than one-quarter of the sample population did not have any health insurance. Several sociodemographic factors, including marital status, household wealth, educational level, access to internet and geographic location were significantly associated with non-ownership of health insurance. The study concludes that efforts to decrease disparities in insurance coverage should focus on minimising socioeconomic and geographic disparities.

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