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Comparing Indonesian men's health-seeking behavior and likelihood to suffer from illness across sociodemographic factors

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Abstract

Background and objective: This study aims to examine men's health-seeking behavior and likelihood to suffer from acute diseases compared to women.

Material and methods: We used the Indonesian National Health Insurance Agency for the period of 2015 and 2016 to obtain information about transactions in primary health facilities. We analyzed the data using negative binomial regression and logistic regression. The incidence rate ratio of health-seeking frequency and the odds ratio of men (compared to women) suffering from infectious diseases (i.e., acute upper respiratory infection; the number one acute disease in Indonesia), top three diagnoses, and non-communicable disease (i.e., mental illness) were assessed. Other sociodemographic variables i.e., age, marital status, and the source of National Health Insurance funding were also analyzed.

Results: This study found that adolescent males visited primary health facilities the least often compared to all age groups and were among the top three age groups of men who were most likely to suffer from acute and mental illnesses. Low-income and divorced, self-employed and married, and employed and divorced adolescent men were in the high-risk category of suffering from acute illness; on the other hand, adolescent men who were married and poor were in the high-risk category of suffering from mental illness. This study also found that young men were suffering from acute disease and mental illness, which is worrying for a developing country such as Indonesia.

Conclusion: Urgent interventions should be considered moving forward. The findings of this study suggest that men who marry at a young age may experience negative health outcomes.

Keywords

Gender; Sociodemographic; Acute disease; Mental illness; Indonesia

1. Introduction

According to the world health statistics, women generally live longer than men as men are less likely to seek care for health issues [1], and may not actively engage in preventive health care [2]. Furthermore, there is also important biological differences (i.e., anatomy, hormones, chromosome, etc.) [3], behavioral and lifestyle differences, and differences in social roles that make men more vulnerable to certain diseases compared to women [4]. Health-seeking behavior encompasses activities undertaken by an individual who perceives the need for help as he or she attempts to solve a health problem or maintain good health [5, 6]. In Indonesia, people's health-related behavior is complex due to the multicultural, ethnically diverse country with diverse allopathic and naturopathic

health care providers [7]. According to Deeks *et al.* [8], health-seeking behavior is influenced by a number of patient characteristics, such as sociodemographic variables and gender. Gender-related health-seeking behavior has been well researched; for instance, Thomson *et al.* [9] found that men were less likely to seek treatment for mental illness, and Elliott *et al.* [10] showed fewer positive experiences with health care providers for women than men, especially when communicating about medicines, discharge information, and cleanliness.

Recently the Indonesian government reported that more men (58%) were affected by COVID-19 compared to females (42%); more men also died from the COVID-19 than women (66% vs 34%) [11]. Some research indicates that the mortality rate was affected by underlying health problems that are more prevalent in men such as hypertension, diabetes, heart disease and lung disease [11]. Furthermore, [12] stated that there are biological implications of being male that may increase the severity and mortality of a SARS-CoV-2 infection. The differences in health outcomes between genders are driven by the reality that men tend to ignore routine health screenings, pain, and other illness symptoms unless their ability to work is affected, thereby increasing their health risks [13]. Men associate health-promoting behaviors with femininity [13, 14], and the masculinity/femininity label may depend on the social construction of their life circumstances and life course stage [15].

Interestingly, a previous study found that married men may seek health services not because of the severity of the symptoms but because of spousal pressure [16]. Men claimed that marriage life improved their health-seeking behaviors [13]. However, Schlichthorst *et al.* [2] showed reported a reduction in the number of health check-ups when experiencing financial difficulties. The Indonesian government subsidizes the National Health Insurance (NHI) for people with low-income to cover all sectors of society. However, because of their hegemonic masculinity, poor men in Indonesia may be too proud to visit the health facilities even if health care is subsidized [7].

Besides the prevalence of infectious disease, Indonesia also faces challenges by the growing incidence of mental health disorders. The Ministry of Health announced a significant increase of mental illness in the past years due to limited health facilities and health care workers who are trained to address and treat mental illnesses. The Basic Health Research conducted by the Ministry of Health in 2018 shows that the prevalence of mental health disorders has significantly increased since the age of adolescence (15–25 years) with a prevalence of 6.2%. Young men in society may view mental health disorders as non-communicable illness [7] that are taboo to mention in public settings, which may ultimately delay care-seeking, making them a vulnerable population of Indonesian society. Thus, this study will analyze the relationship between poor-health-seeking behavior and the prevalence of acute disease and mental illness in Indonesia. Furthermore, this research will identify the sociodemographic factors in men that pose greater risk for acute disease and mental health disorders.

2. Materials and methods

Indonesian National Health Insurance Agency (BPJS-K) has the function of administering national health insurance programs in Indonesia according to Law Number 24 of 2011. BPJS-K obtains health transaction data from health facilities in real time and/or periodically. This study used the sample data obtained from the BPJS-K for the period of 2015 and 2016. This data also contained frequency weights, which allowed the analysis to represent the population (all analysis uses the frequency weights). We have obtained consent from BPJS-K (letter number 6353/I.2/0519, 21 May 2019) to use the data. BPJS-K applied stratified random sampling method to randomly select from each primary care facility in Indonesia (1) at most ten households with the history of accessing hospital care, (2) ten households with the history of accessing primary care, and (3) ten households without the history of accessing health care. If the size of the strata was less than ten households, all the registered households were sampled. Participants' data were obtained by matching data in the BPJS-K membership database with data from the BPJS-K health services database. We matched the BPJS-K membership master data (sociodemographic characteristics and source of NHI funding) and the BPJS-K primary care transaction data (history of patient visits at the health facilities such as the dates of arrival and return visits and the patients' health status). Based on the Minister of Health Regulation Number 71 of 2013, the primary health facilities consist of community health centers, clinics, class D hospitals, and physician practices. The input data for this study were BPJS-K participants' master data (more than 190 million data points) and primary care transactions (more than 35 million data points) which are the representative of the Indonesia population.

We used negative binomial regression to analyze men's health seeking behavior as the number of visits to primary care are count data and is overly dispersed (i.e., the variance (23.890) is much larger than the mean (3.728)). As the negative binomial coefficient's value cannot be interpreted directly, we used the incidence risk ratio, which compares the rate of certain groups across a range of sociodemographic characteristics to baseline. Referring to the age groups used by the Ministry of Health, the NHI participants were divided into adolescent (15–25 years), adult (26–45 years), and elderly (>45 years) groups. In addition, based on the Regulation of BPJS-K Number 6 on the Administration of the Health Insurance Program, participants' health insurance was classified as the Contribution Beneficiaries (Penerima Bantuan Iuran —PBI) and Non-Contribution Beneficiaries (Non-PBI). PBI are people with low-income who cannot afford paying for their NHI; hence, their NHI and their immediate family members' NHI are covered by either the Central or Regional Government budget. Non-PBI consists of salaried workers (Pekerja Penerima Upah —PPU), self-employed people (Pekerja Bukan Penerima Upah —PBPU) and non-workers such as pensioners and disabled people (Bukan Pekerja —BP).

T A B L E 1. Profile of BPJS-K participants who had transactions in primary care.

Demographics	Attribute	Number of NHI participants	% from total participants	Frequency of primary care visits	% from total primary care visits
Gender	Male	98,144,376	51.26	15,434,755	44.05
	Female	93,319,318	48.74	19,603,213	55.95
	Unknown	74	0.00	0	0.00
Marital Status	Single	57,328,634	29.94	9,196,292	26.25
	Married	55,402,399	28.94	12,370,427	35.31
	Divorce	2,605,197	1.36	569,497	1.63
	Unknown	76,127,538	39.76	12,901,752	36.82
Segmentation of participants based on source of NHI funding	Non-Workers	8,082,380	4.22	1,063,301	3.03
	PBI	102,270,981	53.42	15,399,796	43.95
	PBPU	21,803,708	11.39	4,204,272	12.00
	PPU	59,306,699	30.98	14,370,599	41.01

Since there is an inherent bias in the frequency of pensioners and disabled people in seeking for health care; BP were excluded from the analysis. Further, as already mentioned in the background, the results were classified based on the top diagnosis (acute upper respiratory infection, which is the most infectious disease in Indonesia), top three diagnoses (including acute nasopharyngitis and hypertension), and mental illness.

We also used logistic regression to analyze the probability of men suffering from the top three diagnoses, acute upper respiratory infection, and mental illness. We used the odds ratio to interpret the results to measure the effect of an explanatory variable affecting the odds of suffering from the aforementioned diseases. We then added other sociodemographic variables i.e., age, marital status, and employment status (based on the source of NHI funding) sequentially, as independent variables, to identify which group of men have high odds ratio of suffering from acute disease and mental illness.

3. Results

Table 1 summarizes the profile of BPJS-K participants who accessed health care at primary health facilities during the period of 2015 and 2016. Approximately 44% of those who accessed primary health facilities were married women whose NHI was paid by the government. Table 2 shows the top three diagnoses for all data for men and women. The top two diagnoses for men were acute diseases (20.18% of the diagnoses compared to 14.9% of diagnoses for women). Table 3 shows that older men are more likely to visit primary health facilities compared to younger men. This trend is also found in women where older women are more likely to visit primary health facilities compared to younger women. By comparing the coefficients in the same age group (older men versus older women), we also find that women are consistently more likely to visit primary health facilities than men.

Model 1 in Table 4 shows that controlling for the sources of NHI funding, single men were the least likely to seek primary care compared to other groups across gender and marital status (baseline). On the other hand, married men's rate of visiting primary care was 1.17 times higher than single men; divorced men's rate of visiting primary care compared to single men was 1.42 times higher. Women's rate of visiting primary care were also higher by 1.02, 1.28 and 1.71 times for single, married, and divorced women, respectively, compared to single men. Model 2 in Table 4 shows that controlling for marital status, men whose NHI were covered by the government (i.e., low-income men) were least likely to seek primary care (baseline). Men with salaries or who were self-employed were 1.39 times more likely to seek primary care than men with low-income. Compared to men with government NHI, women with government NHI, salaried women, and self-employed women were 1.32, 1.44, and 1.47 times more likely to seek health care at primary health facilities. For the robustness test, a three-way interaction effect was used on gender, marital status, and NHI segment (Appendix Table 6), which confirmed that single men whose NHI was covered by the government were the least likely group to seek health care at primary health facilities.

Next, the likelihood of men suffering from the top three diagnoses, acute upper respiratory infection, and mental illness were analyzed (Appendix Table 7). The findings confirm that men had higher likelihood of suffering from these illnesses compared to women (odds ratio 1.19 for top three diagnoses, 1.23 for acute upper respiratory infection, and 1.49 for mental illness). Age groups were then added into the regression model (see Table 5) to show that the odds ratio of women suffering from top three diagnoses and mental illness increased with age, whereas the odds ratio of women suffering from acute upper respiratory infection decreased with age. In contrast, the odds ratio of men suffering from top three diagnoses, acute upper respiratory infection and mental illness decreased with age. This is surprising as the likelihood of suffering from acute illness is expected to increase with age. To better understand this contrast, demographic variables such as marital status and the source of NHI funding were added into the regression model (Appendix Table 8,9).

We found that the odds ratio of single women to suffer from the top three diagnoses and acute upper respiratory infection were higher than married and divorced women. The odds ratio of suffering from mental illness was the highest for elderly married women, followed by adult single women,

T A B L E 2. Top three diagnoses.

Diagnosis	All data (Men and Women)		Men		Women	
	Freq.	% from All NHI Primary Care Claims	Freq.	% from All NHI Primary Care Claims	Freq.	% from All NHI Primary Care Claims
Acute upper respiratory infection	13,885,504	10.34	6,850,127	12.33	7,035,377	8.94
Acute nasopharyngitis	9,047,858	6.74	4,362,607	7.85	4,685,251	5.96
Hypertension	7,306,089	5.44	2,604,870	4.69	4,701,219	5.98

T A B L E 3. The frequency of primary care visits based on gender and age.

Variables	Coef.	Std. Err.
Gender, age (baseline: men, adolescence) men, adult	0.808***	0.004
men, elderly	2.199***	0.005
women, adolescence	0.296***	0.005
women, adult	1.400***	0.004
women, elderly	2.634***	0.004
Constant	2.852***	0.003
F (5,16622371)	93695.75	
Prob >F	0.000	

***: $p < 0.001$.

T A B L E 4. The frequency of primary care visits based on gender, marital status and source of NHI funding.

Model 1				Model 2			
Variables	Coef.	Std. Err.	IRR	Variables	Coef.	Std. Err.	IRR
Gender, marital status (baseline: men, single) men, married	0.160***	0.001	1.174***	Gender, NHI (baseline: men, PBI) men, PPU	0.332***	0.001	1.394***
men, divorced	0.351***	0.003	1.420***	men, PBPU	0.330***	0.001	1.391***
women, single	0.017***	0.001	1.017***	women, PBI	0.124***	0.001	1.132***
women, married	0.247***	0.001	1.280***	women, PPU	0.366***	0.001	1.441***
women, divorced	0.538***	0.002	1.712***	women, PBPU	0.385***	0.001	1.469***
NHI (baseline: PBI)				Marital status (baseline: single)			
PPU	0.276***	0.001	1.318***	married	0.196***	0.000	1.217***
PBPU	0.288***	0.001	1.333***	divorced	0.478***	0.001	1.612***
Constant	1.013***	0.001	2.753***	Constant	0.952***	0.001	2.592***
LR chi^2	535758.11			LR chi^2	531105.75		
Prob >chi^2	0.000			Prob >chi^2	0.000		

***: $p < 0.001$.

T A B L E 5. The odd-ratio of suffering from acute illness and mental illness based on gender and age.

Top 3 diagnoses			Acute respiratory			Mental illness		
Variables	OR	Std. Err.	Variables	OR	Std. Err.	Variables	OR	Std. Err.
(baseline: women, adolescent) women, adult	1.047***	0.002	(baseline: women, adolescent) women, adult	0.955***	0.002	(baseline: women, adolescent) women, adult	1.607***	0.020
women, elderly	1.558***	0.003	women, elderly	0.854***	0.002	women, elderly	2.378***	0.032
men, adolescent	1.314***	0.003	men, adolescent	1.316***	0.003	men, adolescent	1.607***	0.024
men, adult	0.970***	0.003	men, adult	0.988***	0.003	men, adult	1.047***	0.018
men, elderly	0.722***	0.002	men, elderly	0.817***	0.002	men, elderly	0.742***	0.014
Constant	0.429***	0.000	Constant	0.424***	0.000	Constant	0.003***	0.000
LR chi^2	101354.67		LR chi^2	79768.31		LR chi^2	11517.71	
Prob >chi^2	0.0000		Prob >chi^2	0.0000		Prob >chi^2	0.0000	
Pseudo R2	0.0047		Pseudo R2	0.0039		Pseudo R2	0.0087	

***: $p < 0.001$.

and elderly single women. The latter could be because society may pressure single women after they reach a certain age to get married quickly. The tremendous pressure from the society may contribute to mental health issues. For men, the results indicated that the odds ratio of men suffering from acute illness and mental health decreased with age. Moreover, the results show that divorced adolescent men had a high odds ratio of suffering from the top three diagnoses

(5.89) and acute upper respiratory infection (8.34).

The findings from this study suggest that men's health usually deteriorates with increasing age; however, this study found the opposite (i.e., men's health improves with age). Appendix Table 9 shows men's odds ratio of suffering from acute illness and mental illness based on age, marital status, and source of NHI funding. It seems that low-income and divorced adolescent males had the highest odds ratio of suffering from the top three diagnoses (3.10), followed by self-employed and married adolescent men (1.90), and employed and divorced adolescent men (1.74). The same three categories of men showed the highest risks of suffering from acute upper respiratory infection. Adolescent men who were divorced and employed had the highest odds ratio of suffering from acute upper respiratory infection (2.90), followed by adolescent men who were divorced and poor (1.88), and adolescent men who were married and self-employed (1.78). The findings are different for the prevalence of mental illness. Employed and married adult men had a high odds ratio of suffering from mental illness (127.04), followed by low-income and married adolescent men (24.22) and employed and married elderly men (19.74). These findings highlight that adolescent men, who were the least frequent visitors of primary health facilities, were most likely to suffer from acute and mental illnesses.

4. Discussions

Previous studies showed that married life may improve men's health seeking behaviors [13, 16, 17]. However, this study found that divorced men sought health facilities more often than single and married men. Moreover, this study found that low-income, single men were the least likely group of men to seek health care. In terms of age, this study found that adolescent men were least likely to seek health care. These findings may reflect the hegemonic masculinity of men in Indonesia. As the fourth most populous countries in the world, the current population of Indonesia is more than 270 million; half of the population is male, and the median age is 29.7 years [18]. The demographic bonus in Indonesia should contribute to economic growth. However, to date, about 25 million Indonesians still live below the poverty line and 20.6% of the population is vulnerable of falling into poverty [19]. As a patriarchal society, men are the pillars of the country's economy. However, we found that men were more likely to suffer from acute and mental illnesses than women.

The biological advantage of women appears to be related to their ability to bear children, whereas men's health advantage seems to be due to lower levels of role stress, role conflict, and lower societal demands [20]. In addition, [21] stated that biological determinants of male behavior such as their genetic status and the psycho-social and environmental determinants could influence men's health. In low-resource countries, the issues of clean water, nutrition, infectious diseases, and malaria can determine the health of males [21]. However, men are generally reluctant to consult a doctor until their disease has advanced [14, 16, 22] due to the macho male maxim of "strength in silence" [23]. Indonesian people consider themselves healthy if they can still perform their everyday activities [7]. People tend to believe that health is a gift from God and illness is their fate, sometimes viewed as a punishment from God [7]. In addition, [13, 24] showed that men smoke and drink more than women; thus, making them more vulnerable to disease. According to the Directorate General of Disease Prevention and Control of the Ministry of Health, there were 62 million active smokers in Indonesia. Based on the survey in 2018, more than 60% smokers above 15 years old were men compared to less than 5% who were women [1]. There is a prevalent notion among the adolescent men that smoking makes them a "real man". The link between smoking and machoism among the adolescent men, and the macho male maxim of "strength in silence" needs further research to better explain whether the odds ratio of men suffering from acute illness decreases with age.

A survey of American adults found that married men were healthier than single and divorced men [25]. In addition, Japanese scientists reported that married men were healthier than men who were never married [25]. On the contrary, the present study found that divorced and married adolescent men were less healthy than single adolescent men. Hence, it seems that in developing country such as Indonesia, marriage and divorce at a young age may not be beneficial for men's health. The legal age to get married in Indonesia is 19 years old; but this legal requirement does not prevent people from getting married at younger ages. This is especially the case among poor communities [26]. We further discovered that divorced adolescent men who were poor had the highest odds ratio of suffering from acute illnesses (3.10) and married adolescent men who were poor had the second highest odds ratio of suffering from mental illness (24.22). Clearly, education may be important to prevent or reduce marriage at a very young age. Public campaigns may focus their attention on reducing marriage in young females; however, the findings of this study show benefit in focusing on the young male population as well, since marriage at a young age may have a deleterious impact on their health.

The findings presented here are not without limitations and suggest the need for additional inquiry. As this study conducted an analysis of secondary data, the investigation is limited within the available parameters. Perhaps most notable is the parameter source of NHI funding. Based on the source of NHI funding, we can only differentiate between the poor people, self-employed, and employees. This limited assessment may have prevented the adequate assessment of the economic impact on men's health seeking and likelihood of suffering from acute and mental illnesses. It is also possible that other sociodemographic variables that were not assessed in this study may impact men's health. Nevertheless, by utilizing the official master data of the NHI participants and a two-year data of the transactions in the primary health facilities, this study provided a comprehensive picture about men's health in Indonesia, which can be compared and contrasted with data from other low-resource countries with similar socio-cultural contexts.

5. Conclusions

Among the Indonesian men, adolescent men had the highest likelihood of suffering from acute and mental illnesses, yet they were the least frequent visitors of the primary health facilities. Our findings portray a worrying future of the nation as adolescent men are the future of Indonesian society. The government should urgently address the hegemonic masculinity among men, especially adolescent men, so that they do not ignore routine health screenings, pain and other illness symptoms. Moreover, we encourage the government to more strongly enforce the legal marriage age as young marriage and divorce increase men's health risk, especially when living in poverty. Finally, our findings inform future research to examine in detail the common perception about men's poor health-seeking behavior and poor health compare to women.

Author contributions

PWH is responsible to review literature from previous researches related to health seeking behaviours in Indonesia. PWH, FRM and DA designed the research methodology and processed the data. PWH, FRM and DA made critical revisions to the manuscript for important intellectual content. PWH, FRM and DA approved the final version.

Ethics approval and consent to participate

We have obtained consent from BPJS-K (letter number 6353/I.2/0519, 21 May 2019) to use the data and information provided by BPJS-K for this study.

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Conflict of interest

The authors declare no conflict of interest.

Appendix

See Tables 6,7,8,9.

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T A B L E 6. Three-way interaction of gender, marital status and source of NHI funding.

Variables	Coef.	Std. Err.	IRR
Gender, marital status, NHI (baseline: men, single, PBI) men, single, PPU	0.289***	0.002	1.335***
men, single, PBPU	0.342***	0.001	1.408***
men, married, PBI	0.151***	0.002	1.163***
men, married, PPU	0.532***	0.002	1.703***
men, married, PBPU	0.480***	0.001	1.616***
men, divorced, PBI	0.495***	0.010	1.640***
men, divorced, PPU	0.653***	0.005	1.921***
men, divorced, PBPU	0.664***	0.006	1.943***
women, single, PBI	0.050***	0.002	1.052***
women, single, PPU	0.316***	0.002	1.372***
women, single, PBPU	0.352***	0.001	1.422***
women, married, PBI	0.344***	0.002	1.411***
women, married, PPU	0.545***	0.001	1.725***
women, married, PBPU	0.573***	0.001	1.774***
women, divorced, PBI	0.620***	0.004	1.859***
women, divorced, PPU	0.904***	0.002	2.468***
women, divorced, PBPU	0.669***	0.004	1.952***
Constant	0.971***	0.001	2.642***
LR chi^2	551055.53		
Prob >chi^2	0.000		

***: $p < 0.001$.

T A B L E 7. Men's odd-ratio of suffering from acute illness and mental illness.

Top 3 diagnoses			Acute respiratory			Mental illness		
Variables	OR	Std. Err.	Variables	OR	Std. Err.	Variables	OR	Std. Err.
(baseline: women) Men	1.194***	0.001	Men	1.231***	0.001	Men	1.495***	0.009
Constant	0.493***	0.000	Constant	0.398***	0.000	Constant	0.005***	0.000
LR chi^2	29494.49		LR chi^2	37857.01		LR chi^2	4405.01	
Prob >chi^2	0.0000		Prob >chi^2	0.0000		Prob >chi^2	0.0000	
Pseudo R2	0.0014		Pseudo R2	0.0019		Pseudo R2	0.0033	

***: $p < 0.001$.

T A B L E 8. The odd-ratio of suffering from acute illness and mental illness based on gender, age and marital status.

Top 3 diagnoses			Acute respiratory			Mental illness		
Variables	OR	Std. Err.	Variables	OR	Std. Err.	Variables	OR	Std. Err.
(baseline: women, adolescent, single) women, adolescent, married	0.738***	0.002	(baseline: women, adolescent, single) women, adolescent, married	0.731***	0.002	(baseline: women, adolescent, single) women, adolescent, married	0.383***	0.012
women, adolescent, divorce	0.722***	0.035	women, adolescent, divorce	0.516***	0.027	women, adolescent, divorce	1.108***	0.032
women, adult, single	0.860***	0.002	women, adult, single	0.785***	0.002	women, adult, single	2.376***	0.041
women, adult, married	1.534***	0.006	women, adult, married	1.546***	0.006	women, adult, married	1.125***	0.040
women, adult, divorce	2.004***	0.099	women, adult, divorce	2.499***	0.135	women, adult, divorce	1.204***	0.057
women, elderly, single	1.333***	0.005	women, elderly, single	0.668***	0.003	women, elderly, single	1.931***	0.047
women, elderly, married	1.456***	0.007	women, elderly, married	1.669***	0.009	women, elderly, married	2.588***	0.104
women, elderly, divorce	1.579***	0.077	women, elderly, divorce	2.009***	0.108	women, elderly, divorce	1	omitted
men, adolescence, single	1.191***	0.002	men, adolescence, single	1.189***	0.002	men, adolescence, single	1.364***	0.022
men, adolescence, married	1.473***	0.007	men, adolescence, married	1.492***	0.008	men, adolescence, married	1.972***	0.089
men, adolescence, divorce	5.890***	0.683	men, adolescence, divorce	8.343***	0.986	men, adolescence, divorce	1.278***	0.059
men, adult, single	0.964***	0.004	men, adult, single	0.994***	0.004	men, adult, single	1.482***	0.033
men, adult, married	0.781***	0.005	men, adult, married	0.761***	0.005	men, adult, married	0.353***	0.017
men, adult, divorce	0.053***	0.006	men, adult, divorce	0.040***	0.004	men, adult, divorce	1.208***	0.090
men, elderly, single	0.797***	0.005	men, elderly, single	0.905***	0.006	men, elderly, single	1.250***	0.040
men, elderly, married	0.683***	0.005	men, elderly, married	0.655***	0.005	men, elderly, married	0.332***	0.018
men, elderly, divorce	0.147***	0.017	men, elderly, divorce	0.106***	0.012	men, elderly, divorce	1	omitted
Constant	0.468***	0.000	Constant	0.463***	0.000	Constant	0.004***	0.000
LR chi^2	124937.49		LR chi^2	105558.35		LR chi^2	26611.59	
Prob >chi^2	0.0000		Prob >chi^2	0.0000		Prob >chi^2	0.0000	
Pseudo R2	0.0058		Pseudo R2	0.0039		Pseudo R2	0.0412	

***: $p < 0.001$.

T A B L E 9. Men's odd-ratio of suffering from acute illness and mental illness based on age, marital status and source of NHI funding.

Top 3 diagnoses			Acute respiratory			Mental illness		
Variables	OR	Std. Err.	Variables	OR	Std. Err.	Variables	OR	Std. Err.
(baseline: women, adolescent, single, PBI) (women's results are omitted)			(baseline: women, adolescent, single, PBI) (women's results are omitted)			(baseline: women, adolescent, single, PBI) (women's results are omitted)		
men, adolescence, single, PBI	1.255***	0.008	men, adolescence, single, PBI	0.790***	0.005	men, adolescence, single, PBI	0.689***	0.023
men, adolescence, single, PBPU	0.918***	0.008	men, adolescence, single, PBPU	0.914***	0.008	men, adolescence, single, PBPU	7.550***	0.402
men, adolescence, single, PPU	0.937***	0.007	men, adolescence, single, PPU	0.924***	0.006	men, adolescence, single, PPU	1.664**	0.069
men, adolescence, married, PBI	1.399***	0.023	men, adolescence, married, PBI	1.392***	0.023	men, adolescence, married, PBI	24.220**	7.312
men, adolescence, married, PBPU	1.897***	0.048	men, adolescence, married, PBPU	1.783***	0.046	men, adolescence, married, PBPU	0.305***	0.096
men, adolescence, married, PPU	0.854***	0.015	men, adolescence, married, PPU	0.877***	0.015	men, adolescence, married, PPU	0.029***	0.009
men, adolescence, divorce, PBI	3.097***	0.806171	men, adolescence, divorce, PBI	1.876***	0.490	men, adolescence, divorce, PBI	0.467***	0.061
men, adolescence, divorce, PBPU	1.528***	0.051	men, adolescence, divorce, PBPU	1.713***	0.074	men, adolescence, divorce, PBPU	3.266***	0.489
men, adolescence, divorce, PPU	1.744**	0.059	men, adolescence, divorce, PPU	2.895***	0.124	men, adolescence, divorce, PPU	3.281***	0.520
men, adult, single, PBI	0.853***	0.010	men, adult, single, PBI	0.897***	0.011	men, adult, single, PBI	4.903***	0.230
men, adult, single, PBPU	1.173***	0.019	men, adult, single, PBPU	1.099***	0.018	men, adult, single, PBPU	0.169***	0.011
men, adult, single, PPU	1.067***	0.014	men, adult, single, PPU	1.041***	0.014	men, adult, single, PPU	0.076***	0.004
men, adult, married, PBI	0.743***	0.015	men, adult, married, PBI	0.738***	0.015	men, adult, married, PBI	0.032***	0.010
men, adult, married, PBPU	0.619***	0.018	men, adult, married, PBPU	0.676***	0.020	men, adult, married, PBPU	1.746***	0.560
men, adult, married, PPU	1.317*	0.029	men, adult, married, PPU	1.280***	0.028	men, adult, married, PPU	127.044***	39.963
men, adult, divorce, PBI	0.587***	0.156	men, adult, divorce, PBI	1.418***	0.380	men, adult, divorce, PBI	4.502***	0.804
men, adult, divorce, PBPU	0.051***	0.004	men, adult, divorce, PBPU	0.031***	0.002	men, adult, divorce, PBPU	0.196***	0.041
men, adult, divorce, PPU	0.096***	0.007	men, adult, divorce, PPU	0.038***	0.003	men, adult, divorce, PPU	0.219***	0.054
men, elderly, single, PBI	0.817***	0.009	men, elderly, single, PBI	0.814***	0.011	men, elderly, single, PBI	3.994***	0.239
men, elderly, single, PBPU	0.841***	0.017	men, elderly, single, PBPU	1.185***	.0027	men, elderly, single, PBPU	0.053***	0.004
men, elderly, single, PPU	0.957***	0.014	men, elderly, single, PPU	1.032***	0.017	men, elderly, single, PPU	0.528***	0.044
men, elderly, married, PBI	0.579***	0.011	men, elderly, married, PBI	0.652***	0.014	men, elderly, married, PBI	0.033***	0.010
men, elderly, married, PBPU	0.710***	0.023	men, elderly, married, PBPU	0.542***	0.018	men, elderly, married, PBPU	3.565***	1.165
men, elderly, married, PPU	1.613**	0.0377	men, elderly, married, PPU	1.360***	0.033	men, elderly, married, PPU	19.743*	6.331
men, elderly, divorce, PBI	0.212***	0.055	men, elderly, divorce, PBI	0.246***	0.063	men, elderly, divorce, PBI	1	omitted
men, elderly, divorce, PBPU	1	omitted	men, elderly, divorce, PBPU	1	omitted	men, elderly, divorce, PBPU	1	omitted
men, elderly, divorce, PPU	1	omitted	men, elderly, divorce, PPU	1	omitted	men, elderly, divorce, PPU	1	omitted
Constant	0.384***	0.001	Constant	0.373***	0.001	Constant	0.010***	0.000
LR chi^2	232223.04		LR chi^2	250365.50		LR chi^2	60551.57	
Prob >chi^2	0.0000		Prob >chi^2	0.0000		Prob >chi^2	0.0000	
Pseudo R2	0.0108		Pseudo R2	0.0166		Pseudo R2	0.0785	

***: $p < 0.001$, **: $p < 0.01$, *: $p < 0.05$.