


Confidence in Understanding Health Insurance and Challenges Paying Medical Bills Among Men in the United States

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Abstract

Although the number of men with health insurance has increased, men are less likely to utilize health services than females, and experience difficulty in paying medical bills. Understanding the details of health insurance can be challenging and the lack of understanding can have financial consequences. This study, guided by Andersen's model of health-care utilization, assessed the relationship between confidence level in understanding health insurance terms and difficulty in paying medical bills among American men. Data were drawn from the Health Reform Monitoring Survey, 2015–2016. The study included 6,643 men aged between 18 and 64. Descriptive statistics examined participants' difficulty in paying medical bills by predisposing, enabling, and need characteristics, and by confidence in understanding health insurance terms. A modified Poisson regression analysis examined the association between difficulty in paying medical bills, confidence in understanding health insurance terms score, and predisposing, enabling, and need characteristics. An increase in confidence in understanding health insurance terms score was associated with significantly lower reported difficulty in paying medical bills (PR = .98; 95% CI = [.97–.99]; $p = .002$). Participants with a college degree or higher were less likely to report difficulty in paying their medical bills compared to participants with less than a high school degree (PR = .72; 95% CI = [.56–.92]; $p = .009$). A better understanding of health insurance might prevent men from experiencing difficulties in paying medical bills. Additional research should be performed to understand the relationship between the level of confidence in understanding health insurance, knowledge level of health insurance terms, use of health insurance, and their impact on difficulty in paying medical bills.

Keywords

health insurance literacy, health insurance, medical debt, confidence

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Men's health is a relatively new research area; however, substantial strides have been made to advance the science in terms of health behaviors, health status, and interaction with the health-care system (Elder et al., 2015; Gilbert et al., 2015; Griffith, Bergner, et al., 2018; Griffith, Cornish, et al., 2018; Mui et al., 2018; Sohn et al., 2017; Thorpe et al., 2017; Valdez et al., 2019). Overall, the life expectancy for men in the United States has shown positive trends since 1980 increasing by 6 years to 76.4 (National Center for Health Statistics, 2018). Furthermore, fewer men report being in fair or poor health compared to women, and men are more likely to engage in physical activity compared to women (National Center for Health Statistics, 2017a, 2017b). Although substantial progress has been made, research shows men are less likely than

women to utilize preventive services (Raghupathi & Raghupathi, 2018) and have a place to go for care when they are sick or need medical care (Kaiser's Men's Health Survey, 2015). A growing body of literature suggests that

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men's lack of health-care utilization might be attributed to their health insurance status, difficulty in paying medical bills, and health insurance literacy level (Edward et al., 2019; Kaiser's Men's Health Survey, 2015). The literature aligns with Andersen's model of health-care utilization (Andersen, 1995), which suggests that health insurance status, difficulty in paying medical bills, and health insurance literacy level are enabling characteristics that can significantly impact men's behaviors such as the use of health services (Andersen, 1995).

Health insurance is very prominent in the fabric of the United States, with 91% of Americans covered by private (56%) or public health insurance (35%; Kaiser Family Foundation, 2018). The uninsured rate has declined since 2010 for nonelderly women and men from 19% to 24%, respectively; however, the uninsured rate for men (14%) remains higher compared to women (11%) (Kaiser Family Foundation, 2020). This is of some importance as health insurance is a predictor of health status and the health of men tends to be poor (Elder & Griffith, 2016; Elder et al., 2015; Gilbert et al., 2016). Even with the decrease in uninsured rates among men, one in five men aged 18–64 years experience difficulty in paying medical bills (Kaiser's Men's Health Survey, 2015). Addressing difficulties in paying medical bills has significant implications on one's debt status (Wiltshire, Elder, Kiefe, et al., 2016). Specifically, the outcomes of a 2019 study by Himmelstein et al. found medical-related costs were associated with 66.5% of all bankruptcies, even after the passage of the Affordable Care Act (Himmelstein et al., 2014).

It has been suggested that health insurance literacy level may be a predictor of difficulty in paying medical bills (Tolbert & Young, 2016). Health insurance literacy encompasses consumers' confidence, knowledge, and skills related to the selection and utilization of health insurance (Kim et al., 2013; Paez & Mallery, 2014; Quincy & Child, 2012), and influences the utilization of health care (Tipirneni et al., 2018). Many Americans do not understand health insurance terms, concepts, and costs, including calculating out-of-pocket costs (Loewenstein et al., 2013; Norton et al., 2014). Furthermore, racial/ethnic minorities, lower-income households, and recently uninsured are less likely to understand health insurance terms (Long & Goin, 2014; Norton et al., 2014). This has implications since out-of-network services and out-of-pocket costs could result in being responsible for thousands of dollars (Levitt, 2015). Hamel et al. found 75% of those with health insurance experienced difficulties paying their medical bills due to the inability to afford copays, deductibles, or coinsurance (Hamel et al., 2016). As important, lower health insurance literacy may be associated with more avoidance of needed health care due to cost (Tipirneni et al., 2018).

Men have been found to have lower confidence in using health insurance than women (Edward et al., 2019). However, little is known about men's confidence in understanding health insurance terms.

A more comprehensive assessment of confidence in understanding insurance terms might have implications for their use of health insurance and health-care services. Therefore, the goal of this study, guided by Andersen's model of health-care utilization, was to examine the relationship between confidence level in understanding health insurance terms and difficulty in paying medical bills among men using nationally representative data from the Health Reform Monitoring Survey (HRMS). This is the first study to examine this important topic.

Methodology

Guiding Theoretical Framework

Andersen's model of health-care utilization guided this study's methodological approach. This model delineates predisposing, enabling, and need characteristics as predictors of health-care utilization (Andersen, 1995). Predisposing characteristics are the demographic or biological (e.g., age and gender) factors that indicate the likelihood of needing services. Enabling characteristics are the resources or means (e.g., income and insurance) that must be available in order to use health-care services. Need characteristics are people's perceived and professional evaluated health status and their need for medical care. This theoretical framework has been utilized in previous research to examine health services use among men (Griffin-Tomas et al., 2019; Hammond et al., 2011).

Participants

Data were drawn from the 2015–2016 HRMS to meet the objectives of this cross-sectional study. The HRMS, conducted by the Urban Institute, surveys nonelderly adults (aged 18–64 years) from the KnowledgePanel to gain insights on the impact of the Affordable Care Act, individuals' understanding and use of health insurance and health services, and their health outcomes (Urban Institute, 2019). The KnowledgePanel is a probability-based internet panel consisting of approximately 55,000 individuals from households with and without Internet access. Members of the panel are emailed a link to the survey to participate. Additional details on the operationalization of the HRMS can be found on the Urban Institute's Website (Urban Institute, 2019). In 2015 and 2016, HRMS was collected semiannually (every March and September) (Urban Institute, 2019). To complete the objectives of this study, HRMS data collected during the second data collection time point (every September) for

years 2015 and 2016 were included because questions on variables of interest (e.g., confidence in understanding health insurance terms, availability of medical services, etc.) were included during these survey periods. Female participants were excluded from the analysis, yielding 6,643 participants.

Measures

Dependent Variable. Difficulty in paying medical bills was the dependent variable of interest. Participants provided a yes/no response to this question “*Did you or anyone in your family have problems paying or were unable to pay any medical bills?*”.

Independent Variables. The main independent variable of interest was participants’ score for confidence in understanding health insurance terms. Participants’ responses to their level of confidence (very, somewhat, not too confident, and not at all confident) in understanding seven health insurance terms—premium, deductible, copayments, coinsurance, maximum annual out-of-pocket spending, provider network, and covered services—were reverse-scored and combined to create the row sum of the aforementioned Likert-type response variables. The row sum was calculated to adhere to the literature’s recommendations of not placing undefined number values on Likert-type responses (Sullivan & Artino Jr, 2013). The score ranged from 7 to 28, with a score of 7 meaning *not at all confident* in understanding all seven terms to a score of 28 denoting *very confident* in understanding the seven terms.

Andersen Model Factors

Predisposing. Participants’ age in years (18–29, 30–44, 45–59, or 60+), race/ethnicity (White, Black, Hispanic, two or more races, or Other), and education level (less than high school, high school, some college, or bachelor’s degree or higher) were included. For marital status (married, widowed, divorced, separated, never married, or living with partner), two categories (widowed and separated) were collapsed to “other” to address low responses.

Enabling. Employment status (paid employee, self-employed, temporarily out of work, looking for employment, retired, disabled, or other reasons for not working) was included as an enabling characteristic. Additional characteristics included were insurance status (no insurance, employer-based, marketplace, Medicare, Medicaid, military health care, Indian health services, and other), which was created by combining participants’ responses to questions are you currently covered by insurance: through a current or former employer; purchased from

an insurance company; through Medicare; by any kind of state or government-sponsored assistance plan (e.g., Medicaid); through TRICARE or other military health care; through Indian Health Service; and through any other type of health insurance. Each of the aforementioned questions had the response options of covered, not covered, or not sure. Usual source of care (I have one place, I have multiple places, and I do not have a place), time when survey was conducted (September 2015 and September 2016), and participants’ rating of the availability of places to get medical care in their neighborhood (excellent, very good, good, fair, or poor) were also included.

Need. The perceived health variable was recoded from “excellent, very good, good, fair, or poor” to “excellent, very good, good, fair/poor” to address limited responses across response options.

Statistical Analyses

Descriptive statistics were performed to examine male participants’ difficulty in paying medical bills by predisposing, enabling, and need characteristics. Descriptive statistics also examined confidence in understanding health insurance terms by men’s difficulty to pay medical bills. The data were weighted based upon the HRMS recommendations to obtain national estimates (Holahan & Long, 2016). A modified Poisson regression analysis (Zou, 2004) examined the association between difficulty in paying medical bills, score for confidence in understanding health insurance terms, and predisposing, enabling, and need characteristics. Descriptive statistics were conducted using STATA MP14 (Stata, 2015) and the modified Poisson regression was performed using R 4.0.0 (Fox et al., 2017).

Results

Table 1 summarizes the characteristics of the study sample of men by their difficulty to pay medical bills, with 15.73% reporting difficulty in paying medical bills. The majority of the participants were White (71.58%), married (59.36%), and reported having employer-based insurance (56.04%). In comparing men who reported difficulty in paying medical bills by race/ethnicity, a greater percentage of African American (18.32%) and Hispanic men (19.67%) reported difficulties versus White men (15.16%). These percentages coincide with those reported among their racial/ethnic counterparts who reported no difficulties paying their medical bills (81.68%, 80.33%, and 84.84%, respectively). Similarly, men who reported their health as fair/poor (36.09%) were the largest percentage to report difficulty in paying medical bills. In

Table 1. Unweighted Predisposing, Enabling, and Need Characteristics of Male Participants, by Difficulty in Paying Medical Bills.

Characteristics	Difficulty in Paying Medical Bills		Total
	No	Yes	
	<i>n</i> = 5,598 (84.27) <i>n</i> (%)	<i>n</i> = 1,045 (15.73) <i>n</i> (%)	
Predisposing			
Age in years			
18–29	850 (83.01)	174 (16.99)	1,024
30–44	1,667 (85.01)	294 (14.99)	1,961
45–59	2,222 (83.16)	450 (16.84)	2,672
60+	859 (87.12)	127 (12.88)	986
Race/ethnicity			
White	4,034 (84.84)	721 (15.16)	4,755
African American	419 (81.68)	94 (18.32)	513
Other	244 (92.42)	20 (7.58)	264
Hispanic	739 (80.33)	181 (19.67)	920
2+ races, non-Hispanic	162 (84.82)	29 (15.18)	191
Education level			
Less than high school	373 (75.66)	120 (24.34)	493
High school	1,347 (80.51)	326 (19.49)	1,673
Some college	1,658 (82.12)	361 (17.88)	2,019
Bachelor's degree or	2,220 (90.32)	238 (9.68)	2,458
Marital status			
Married	3,332 (84.5)	611 (15.50)	3,943
Widowed	53 (88.33)	7 (11.67)	60
Divorced	497 (81.61)	112 (18.39)	609
Separated	81 (79.41)	21 (20.59)	102
Never married	1,315 (85.95)	215 (14.05)	1,530
Living with partner	320 (80.20)	79 (19.80)	399
Enabling			
Insurance status			
No insurance	470 (73.78)	167 (26.22)	637
Employer-based	3,295 (88.50)	428 (11.50)	3,723
Marketplace	488 (80.93)	115 (19.07)	603
Medicare	144 (68.25)	67 (31.75)	211
Medicaid	578 (80.50)	140 (19.50)	718
Military health care	309 (88.03)	42 (11.97)	351
Indian health service	25 (89.29)	3 (10.71)	28
Other type of insurance	289 (77.69)	83 (22.31)	372
Employment status			
Paid employee	3,869 (85.79)	641 (14.21)	4,510
Self-employed	487 (85.89)	80 (14.11)	567
Not working	319 (79.35)	83 (20.65)	402
Retired	385 (90.38)	41 (9.62)	426
Disabled	347 (69.12)	155 (30.88)	502
Other reason not working	191 (80.93)	45 (19.07)	236
Need			
Perceived health status			
Excellent	634 (86.73)	97 (13.27)	731
Very good	2,225 (85.68)	372 (14.32)	2,597
Good	1,857 (74.94)	621 (25.06)	2,478
Fair/poor	680 (63.91)	384 (36.09)	1,064

Table 2. Unweighted Confidence in Understanding Health Insurance Terms by Difficulty in Paying Medical Bills.

Confidence in understanding health insurance terms	Difficulty in Paying Medical Bills		Total
	No	Yes	
Premium			
Not at all confident	229 (76.33)	71 (23.67)	300
Not too confident	634 (77.98)	179 (22.02)	813
Somewhat confident	1,700 (83.74)	330 (16.26)	2,030
Very confident	3,035 (86.71)	465 (13.29)	3,500
Deductible			
Not at all confident	217 (75.87)	69 (24.13)	286
Not too confident	602 (78.18)	168 (21.82)	770
Somewhat confident	1,764 (83.52)	348 (16.48)	2,112
Very confident	3,015 (86.76)	460 (13.24)	3,475
Copayments			
Not at all confident	202 (75.94)	64 (24.06)	266
Not too confident	579 (76.79)	175 (23.21)	754
Somewhat confident	1,765 (84.01)	336 (15.99)	2,101
Very confident	3,052 (86.66)	470 (13.34)	3,522
Coinsurance			
Not at all confident	424 (76.26)	132 (23.74)	556
Not too confident	1,397 (80.57)	337 (19.43)	1,734
Somewhat confident	1,921 (86.03)	312 (13.97)	2,233
Very confident	1,856 (87.55)	264 (12.45)	2,120
Maximum annual out-of-pocket spending			
Not at all confident	338 (66.93)	167 (33.07)	505
Not too confident	917 (72.89)	341 (27.11)	1,258
Somewhat confident	1,867 (79.92)	469 (20.08)	2,336
Very confident	2,280 (82.01)	500 (17.99)	2,780
Provider network			
Not at all confident	284 (73.58)	102 (26.42)	386
Not too confident	737 (77.74)	211 (22.26)	948
Somewhat confident	1,896 (84.98)	335 (15.02)	2,231
Very confident	2,681 (87.10)	397 (12.90)	3,078
Covered services			
Not at all confident	272 (71.58)	108 (28.42)	380
Not too confident	776 (76.91)	233 (23.09)	1,009
Somewhat confident	2,033 (85.31)	350 (14.69)	2,383
Very confident	2,517 (87.67)	354 (12.33)	2,871

contrast, men who did not report difficulties paying medical bills were least likely to report a fair/poor health status (63.91%).

Men's confidence level in understanding health terms by difficulty in paying medical bills is depicted in Table 2. Men were more likely to report being very confident in understanding all seven health insurance terms, except for coinsurance, where the largest number of men reported being somewhat confident. Compared to men who self-reported no difficulty in paying medical bills, men who reported difficulty in paying medical bills were more likely to state that they were not at all confident or not too confident in their understanding of the seven health insurance terms.

Table 3 shows the results from the modified Poisson regression model examining participants' reporting difficulty in paying medical bills. An increase in confidence in understanding health insurance terms score (more confidence in understanding health insurance terms) was associated with significantly lower reported difficulty in paying medical bills (PR = .98; 95% CI = [.97-.99]; $p = .002$). Among predisposing characteristics, participants with a college degree or higher were less likely to report difficulty in paying their medical bills compared to participants with less than a high school degree (PR = .72; 95% CI = [.56-.92]; $p = .009$). Compared to participants with no insurance, those with employer-based (PR = .60; 95% CI = [.48-.74]; $p = .000$), Medicaid (PR = .73;

Table 3. Estimated Association Between Difficulty in Paying Medical Bills Confidence Score, Predisposing, Enabling, and Need Characteristics Among Men.

Characteristics	Prevalence Ratio	95% Confidence Interval	<i>p</i>
Confidence understanding health insurance terms	0.98	[0.97–0.99]	.03
Predisposing			
Age			
18–29 (reference)			
30–44	0.79	[0.65–0.95]	.01
45–59	0.76	[0.63–0.93]	.01
60+	0.60	[0.47–0.78]	.00
Race/ethnicity			
White (reference)			
Black, non-Hispanic	1.06	[0.86–1.31]	.60
Other, non-Hispanic	0.51	[0.33–0.80]	.00
Hispanic	1.00	[0.84–1.19]	.99
2+ races, non-Hispanic	0.91	[0.63–1.33]	.63
Education level			
Less than high school (reference)			
High school	1.09	[0.88–1.34]	.43
Some college	1.06	[0.86–1.32]	.57
Bachelor's degree or higher	0.72	[0.56–0.92]	.01
Marital status			
Married (reference)			
Widowed	0.74	[0.37–1.48]	.40
Divorced	0.92	[0.75–1.12]	.41
Separated	0.96	[0.64–1.45]	.85
Never married	0.64	[0.53–0.77]	.00
Living with partner	0.81	[0.64–1.02]	.07
Enabling			
Insurance status			
No insurance (reference)			
Employer-based	0.60	[0.48–0.74]	.00
Marketplace	1.04	[0.81–1.33]	.77
Medicare	1.13	[0.83–1.53]	.43
Medicaid	0.73	[0.57–0.93]	.01
Military health care	0.50	[0.35–0.71]	.00
Indian health service	0.53	[0.17–1.66]	.27
Other type of insurance	1.02	[0.78–1.33]	.90
Employment status			
Paid employee (reference)			
Self-employed	0.79	[0.62–1.02]	.07
Not working	0.99	[0.78–1.26]	.93
Retired	0.70	[0.51–0.96]	.03
Disabled	1.18	[0.93–1.51]	.17
Other reason not working	1.15	[0.85–1.56]	.35
Usual source of care			
I have one place (reference)			
I have multiple places	1.15	[0.99–1.35]	.07
I do not have a place	0.87	[0.75–1.02]	.08
Time			
September 2015 (reference)			
September 2016	0.96	[0.85–1.08]	.50

(continued)

Table 3. (continued)

Characteristics	Prevalence Ratio	95% Confidence Interval	<i>p</i>
Rating of availability of medical care			
Excellent (reference)			
Very good	0.95	[0.79–1.16]	.62
Good	1.13	[0.93–1.36]	.23
Fair	1.26	[1.01–1.57]	.05
Poor	1.77	[1.36–2.29]	.00
Need			
Perceived health status			
Excellent (reference)			
Very good	1.03	[0.79–1.34]	.82
Good	1.43	[1.11–1.86]	.01
Fair/poor	2.10	[1.60–2.76]	.00

95% CI = [.57–.93]; $p = .01$) and military health-care insurance (PR = .50; 95% CI = [.35–.71]; $p = .000$) were less likely to report difficulty in paying their medical bills.

Perceived health status was significantly associated with difficulty in paying medical bills, with men who reported their health status as fair/poor (PR = 1.77; 95% CI = [1.36–2.29]; $p = .000$) more likely to report difficulty in paying medical bills.

Discussion

The major finding of this study was men with higher confidence in understanding health insurance terms were significantly less likely to report difficulty in paying their medical bills. This finding suggests men's understanding of health insurance terms might be important in understanding the financial consequences of the health-care encounter. Even though this is the first study to find this, it closely aligns with the literature on health literacy, health insurance literacy, having unpaid medical bills, and financial literacy (Mattina, 2017; National Academies of Sciences, Engineering, and Medicine, 2017). Previous research shows individuals have some knowledge of health insurance terms, but experience difficulties performing cost-sharing calculations (Levitt, 2015; National Academies of Sciences, Engineering, and Medicine, 2017; Paez & Mallery, 2014), which can result in unexpected medical costs that they are unable to pay. The health-care encounter can have financial ramifications that lead to medical debt and hardship (Dickman et al., 2017; Wiltshire, Elder & Allison, 2016; Wiltshire et al., 2016; Yabroff et al., 2019), which continues to burden Americans (Ekwueme et al., 2019; Kaiser's Men's Health Survey, 2015). More than 130 million reported financial hardship in the previous year, according to a study by Yabroff et al. (2019). Increasing awareness of health insurance concepts has been strongly recommended to

combat medical debt (Mattina, 2017). The outcomes of this study illustrate the potential benefits of targeting men when promoting awareness of health insurance terms.

Among predisposing characteristics, a significant relationship was identified between age and difficulty in paying medical bills. Men aged 30–44, 45–59, and 60 years and older were less likely to report challenges paying medical bills compared to those aged 18–29 years. This finding aligns with those reported by Batty and Colleagues in a 2018 study on the number of Americans whose medical bills were sent to a collections agency (Batty et al., 2018). This cross-sectional study showed medical bill collections decreased with age, and that most medical debt collections occur among those 27 years of age (Batty et al., 2018). Additionally, men with a bachelor's degree or higher were less likely to report difficulty in paying their medical bills compared to men with less than a high school diploma, which is in line with previous research (Yabroff et al., 2019). Using secondary data from the National Health Interview Survey, Yabroff et al.'s findings show lower educational attainment as a robust predictor of medical financial hardship (Yabroff et al., 2019).

Per enabling characteristics, men with employer-based, Medicaid, and military health care were less likely to report difficulty in paying medical bills, which is consistent with the literature that the uninsured experience challenges paying their medical bills/debt compared to the insured (Hamel et al., 2016; Rustgi et al., 2008; Yabroff et al., 2019).

Although previous research has not been performed on the association between difficulty in paying medical bills and perceived availability of medical services in a neighborhood, the literature indicates a higher percentage of low socioeconomic status individuals reside in neighborhoods with limited resources (Khullar & Chokshi, 2018; Robinette et al., 2017). Further research should be performed to examine the relationship between

an individual's medical bill status, their neighborhood's socioeconomic status, and access to medical services.

This study has some limitations. The main outcome variable, difficulty in paying medical bills, was self-reported and recall bias must be considered. Additionally, the survey asked if men or their immediate family members experienced difficulties paying medical bills; therefore, difficulty reported may not be direct bills of male participants. Nonetheless, the literature shows men and women experience difficulty in paying medical bills at a similar rate (Cha & Cohen, 2020), so awareness by men of this issue might be robust. Furthermore, the survey inquires about the difficulty experienced by the immediate family members, which narrows the scope of awareness of difficulty in paying medical bills the men need to recall. Variables of interests were asked during the second data collection time point; therefore, this surveyal point for 2015 and 2016 was included, which limits the sample size of this study. The confidence in understanding health insurance terms score was constructed from these data and has not been used previously. Two advantages of composite scores are the questions are related, and it aids in simplifying the information (Agency for Healthcare Research and Quality, 2019; Carman, 2006). Lastly, this is a cross-sectional study, which cannot assess causality.

This study also has several strengths. No previous estimates have been derived on the relationship between confidence in understanding health insurance terms and difficulty in paying medical bills among a nationally representative sample of American men. Moreover, the inclusion of seven health insurance terms provides a comprehensive perspective on their confidence in their understanding of health insurance. Finally, the results of this study are consistent with previous research on health insurance literacy and medical debt (Mattina, 2017).

Conclusion

The findings of this study highlight that men who experience difficulty in paying their medical bills had lower confidence in their understanding of health insurance. Their lower confidence may negatively impact their use of health insurance and health-care services. Previous research has discussed how low health insurance literacy influences the use of health insurance (Grob et al., 2014; Long et al., 2014). Moreover, the inability to accurately calculate cost-sharing (e.g., calculate deductible and copay for services; Levitt, 2015; Paez & Mallery, 2014) may result in unexpected and unaffordable medical bills that may impact confidence in understanding health insurance terms. Further research should be performed to understand the relationship between confidence in understanding health insurance, knowledge level of health

insurance terms, use of health insurance, and their impact on difficulty in paying medical bills. The outcomes of this study also highlight predisposing, enabling, and need factors that should be taken into consideration in efforts to aid men in paying their medical bills.

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