



# **ACCESS TO HEALTHCARE FOR SELF-EMPLOYED WORKERS IN MADAGASCAR: ANALYSIS OF THE DETERMINANTS AND IMPACT ON HEALTHCARE USE IN THE ANTANANARIVO-RENIVOHitra DISTRICT**

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**RESEARCH ARTICLE**

**ACCESS TO HEALTHCARE FOR SELF-EMPLOYED WORKERS IN MADAGASCAR: ANALYSIS OF THE DETERMINANTS AND IMPACT ON HEALTHCARE USE IN THE ANTANANARIVO-RENIVOHITRA DISTRICT**

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**Abstract:**

The health of the self-employed is a key lever for economic and social development in Madagascar. This study explores disparities in access to healthcare between the self-employed and salaried workers, focusing on factors influencing healthcare-seeking behavior. The analysis is based on a survey of 418 participants, including 316 self-employed and 102 salaried workers in the Antananarivo-Renivohitra district. Statistical analyses reveal that distance from health services and lack of health coverage are major barriers to access to care for self-employed. Additionally, in situations where health coverage is unavailable, self-employed workers tend to rely more heavily on self-medication. The applied Multinomial Logit model confirms that factors such as age, distance, income and perception of illness play a significant role in access to care, with significant implications for health policy. These findings highlight the importance of implementing targeted policy measures to enhance healthcare access for self-employed, notably through the expansion of health coverage and the reduction of geographical barriers. Future research should continue to explore strategies for minimizing inequalities in access to healthcare, taking into account the socio-economic specificities of diverse populations.

**Keywords:-** Self-Employed, Salaried Workers, Healthcare Use, Access To Healthcare, Health Policy

## Introduction:-

Healthy workers are more efficient and contribute more to their country's prosperity. As Grossman's (1972) theoretical model points out, health is perceived as both a consumer good and an investment good. Thus, investing in health improves the physical condition of individuals and prevents the depreciation of health capital over time. It is in this context that the Sustainable Development Goal (SDG), and in particular SDG 3, is part of the international concerns aimed at « ensuring healthy lives and promoting well-being for all at all ages ». Specifically, Target 3.8 of this goal calls for « universal health coverage, including protection from financial risks, access to quality essential health services, and access to safe, effective, quality and affordable medicines and vaccines for all ». Indeed, improving access to care, reducing communicable and non-communicable diseases, and improving health services are crucial elements in achieving this goal. In Africa, health-related challenges are a major obstacle to improving productivity. Despite the breadth of economic policies and programs, several African countries have long had stable or declining levels of labor productivity. According to the International Monetary Fund (2016), this stagnation can be explained by the incoherence of economic policies combined with the enormous burden of underdeveloped health systems.

Madagascar is no exception to this situation. The island, the fifth largest in the world, faces significant socio-economic challenges, which are further exacerbated by chronic political instability and recurrent climate shocks. In Madagascar, about 90% of the jobs created are self-employed, underscoring the importance of self-employed workers in the labour market. In 2018, out of more than 13 million people of working age, more than 10 million were active, demonstrating a strong involvement in the labour market. However, the contribution of labour force to growth has remained relatively constant over time, due to low job quality and population growth. The "stability" of the labour contribution to growth reflects the highly informal nature of the economy, with 68 per cent of jobs in the agricultural sector and 75 per cent of non-farm jobs informal (EPM, 2022). Yet, these groups, who make up a significant proportion of the population in many developing countries, often lack access to adequate health insurance and are therefore financially vulnerable to health shocks. In terms of health, Madagascar has undertaken a significant strategic evolution in its approach to health care over the years, particularly through the Health Sector Development Plan (PDSS). This plan aims to ensure the sustainable availability and optimal management of resources, thereby fostering the efficiency and resilience of the health system. More specifically, Strategic Direction 3.3 of the PDSS focuses on « strengthening the management of financial resources to ensure the provision of quality and equitable health services, while developing the financial protection of the population for access to care ». To achieve these goals, various initiatives have been put in place to improve access to basic health services, with a particular focus on addressing the needs of the most vulnerable groups. These initiatives include the financing of basic health care through the « Non-Stop Essential Medicines Supply Fund » (FANOME) as well as the implementation of a third-party payment system for certain health programs, including family planning and mother-child health through the "VOUCHER" voucher, illustrating the efforts made to make health care more accessible. Despite these initiatives, persistent challenges remain, including low levels of health spending and infrastructure that is often insufficient to meet the growing needs of the population. Madagascar continues to depend largely on external financing, which represents 42.08% of total resources and households contribute 40.81%. However, despite government initiatives, several barriers continue to hinder access to care for a considerable portion of the population, particularly self-employed and households within the informal sector. Self-employed workers have specific characteristics that influence their relationship with health. They are distinguished by their autonomy and flexibility in the organization of their work. Indeed, self-employment is linked to two contrasting mechanisms on health. On the one hand, compared to salaried employment, self-employment offers greater flexibility, enabling individuals to allocate time for health-promoting activities such as regular exercise, timely medical consultations, and adopting healthier lifestyle practices (Yoon, Jangho and Stephanie Lazarus Bernell, 2013). On the other hand, self-employed individuals often face challenges in separating their personal lives from work responsibilities. Being directly accountable for their financial outcomes, making them more likely to be tired and suffer from insomnia. This situation exposes self-employed workers to a high level of vulnerability in terms of health, limiting their use of care and directly impacting their productivity. In this context, it is crucial to explore how working conditions and health policies influence their well-being, and thus, their access to care.

Appropriate access to care remains essential to minimize work disruptions and avoid prolonged financial losses. The special health and labour situation of self-employed workers requires specific attention. Indeed, it is important to invest in a more microeconomic perspective of health that consists of analyzing access to care while evaluating the factors that determine access to care for self-employed workers. It is in this context that our research is based. It proposes to answer the question: To what extent do socio-economic, professional and individual determinants

influence the use of health care among self-employed workers? In this study, we attempt to confirm the hypothesis that self-employed workers in developing countries such as Madagascar are often financially vulnerable to health shocks due to lack of access to adequate health insurance and the specific reasons of self-employed workers. The impact of self-employed access to care on health outcomes is a topic that has been extensively explored in the literature. For example, studies in Vietnam and Indonesia show that health insurance can increase health care utilization and reduce out-of-pocket expenses (Wagstaff & Pradhan, 2005; Gertler & Gruber, 1997). However, research in Colombia reveals the complexity of insurance demand among the self-employed, with evidence of both positive and negative risk selection (Gallego, 2008). These findings highlight the importance of tailored approaches to extending health coverage to workers in the informal sector, given their unique circumstances and the potential improvements in well-being brought about by public disability insurance or subsidized medical care (Gertler & Gruber, 1997; Bitrán, 2014). For Madagascar, access to healthcare remains a major challenge. Health coverage is limited, and only 10% of the population has health insurance. The studies have mainly focused on rural areas, where access to care is still low. The results showed a strong influence of financial and geographical barriers on access to care (Larossa et al., 2020; Ny Nosy, 2024). In addition, Bustamante et al. (2018) highlighted the main challenges facing the health system in Madagascar, with a particular focus on the Maroantsetra region. Their study identified various barriers to accessing care, including geographical distance, shortage of qualified medical personnel, financial barriers, as well as lack of equipment and medicines. Similarly, Razakamanana (2021) showed that the use of community health services is also influenced by socioeconomic, geographic, and cultural factors, which play a crucial role in the use of care within communities. Despite the importance of this issue for the country's development, few studies have specifically examined the determinants of healthcare use among the self-employed. This gap in the scientific literature limits our understanding of the specific health issues faced by this category of the population. The health of self-employed workers is a key lever for Madagascar's economic and social development, but research on the factors that influence their access to care remains scarce. This lack of specific studies creates a significant gap in understanding the health challenges specific to this category of the workforce. The results of this research will not only help fill a gap in the scientific literature, but also provide valuable information for the development of public policies aimed at improving access to care for this category of workers. Ultimately, this study is part of the broader effort to strengthen human capital in Madagascar, a key element for the country's sustainable economic and social development.

### **Conceptual framework**

The behavioural model of access to care, first developed by Ronald Andersen in 1968, is one of the most widely used conceptual frameworks for understanding the determinants of health service use. This model has undergone several evolutions over time, but its core principles remain relevant. Andersen's model proposes that the use of health services is influenced by three categories of factors:

- Predisposing factors: Include socio-demographic characteristics that influence an individual's propensity to use health services, such as age, gender, education level, health beliefs.
- Facilitating factors: Represent resources that facilitate access to care, such as income, insurance coverage, and availability of services.
- Health needs factors: This is the perceived or assessed health condition that motivates the need for care.

This model has been widely used in many studies to identify the determinants of access to care and health inequalities, to guide the design of policies to improve access to care, and to assess equity in the use of health services. Andersen's initial model has been enriched over time to incorporate new dimensions, namely the addition of health system and external environment characteristics, consideration of health behaviours and health outcomes, and the integration of feedback loops to reflect the dynamic nature of health service use.

### **Data and Sample**

The study was mainly based on surveys of self-employed and salaried workers in the district of Antananarivo-Renivohitra during the 12 months preceding the survey. This choice is justified by the diversity of health facilities, health coverage and self-employed activities present in this area. The stratified sampling method was adopted for sampling. This methodological choice makes it possible to analyse the determinants of the use of care by taking into account the diversity of the socio-economic and professional conditions of the respondents.

The sample size will be determined based on logistical and financial constraints, while ensuring sufficient statistical power for our analyses. To calculate the sample size, the following formula was performed:

$$n = \frac{Z^2 * P(1 - P)}{e^2}$$

With:

Z= confidence level (1.96)

P= Estimated proportion of the population sharing the target characteristic (since the proportion is unknown, p=0.5 was considered)

e= margin of error 4.7%

According to the calculation, we found n=418

The stratified sampling made it possible to divide the population into homogeneous sub-groups according to different criteria, namely sector of activity, income level and type of health coverage. Due to the high proportion of self-employed persons without social security coverage, this category constitutes a majority sub-group in the sample.

### Description of variables

To evaluate healthcare access among self-employed individuals compared to salaried employees, several healthcare utilization indices were used as independent variables. These indices encompass four distinct categories:

- Non utilization of healthcare services: complete absence of any form of medical treatment, whether formal or informal.
- Self-medication: use of medications or treatments without prior consultation with a healthcare professional.
- Traditional healers: reliance on traditional healthcare services provided by healers or practitioners who lack formal training in modern medicine.
- Access to formal healthcare services: consultation with healthcare professionals and utilization of medical services within formal healthcare facilities.

Explanatory variables include monthly income and health insurance coverage, while control variables, such as age, gender, educational level, and perceived severity of illness, are also incorporated into the analysis.

### Statistical Analyses

The analyses were conducted in multiple stages. Initially, a descriptive analysis was performed to examine the proportions of the different variables studied and their distribution within the two groups. Subsequently, the Chi-square test (Pearson's Chi-squared test) was employed to assess the relationship between health insurance coverage and types of healthcare utilization. Following this, a comparison of proportions was conducted to determine if health insurance affiliation influenced the various types of healthcare utilization. Finally, a Multinomial Logit model was applied to evaluate the impact of explanatory and control variables on healthcare utilization. The likelihood ratio was used to identify variables with a significant impact on healthcare access. Data were processed and analyzed using SPSS (Statistical Package for the Social Sciences), facilitating an in-depth examination of the relationships between explanatory variables and healthcare-seeking behaviors.

### Econometric Model

We will use a Multinomial Logit model to analyze the impact of various barriers on healthcare utilization among self-employed individuals. This model will enable us to estimate the probability of different types of healthcare utilization (no utilization, self-medication, formal healthcare utilization) based on several explanatory variables.

The model specification is as follows:

$$P(Y_i = j) = \exp(\beta_j' X_i) / \sum_k \exp(\beta_k' X_i)$$

Where:

- $Y_i$  is the dependent variable representing the type of healthcare utilization,
- $X_i$  is a vector of explanatory variables,
- $\beta_j$  are the coefficients to be estimated.

### Results:-

#### Descriptive Analysis

Table 1 provides an overview of the characteristics of the studied variables, with a comparison between self-employed individuals and salaried employees. The study sample consists of 418 participants, of whom 316 are self-employed (75.6%) and 102 are salaried employees (24.4%). Sociodemographic characteristics reveal a gender imbalance, with a higher proportion of women among the self-employed (57.3%) compared to 39.2% among salaried employees. Conversely, men are more represented among salaried employees (60.8%).

Regarding educational attainment, self-employed individuals show a higher proportion of respondents with lower levels of education (10.8% have completed primary school only) compared to salaried employees, of whom 50% have completed university studies. Self-employed individuals also have less health insurance coverage (15.3%) compared to salaried employees (86.3%), highlighting a significant disparity in social protection.

In terms of income, a large portion of self-employed individuals (46.5%) earn less than 500,000 Ar per month, while 68.6% of salaried employees report monthly incomes exceeding 1,000,000 Ar. These significant gaps between the two groups are reflected in their access to formal healthcare, with 66.2% of self-employed individuals having access to formal care compared to 82.4% of salaried employees.

**Table 1:-** Description of variables.

	Self-employed		Salaried	
	N	%	N	%
<b>Type of Healthcare Utilization</b>				
No Utilization	20	6,4%	12	11,80%
Self-medication	54	17,2%	6	5,90%
Traditional Healer	32	10,2%	0	0,00%
Access to Formal Healthcare	208	66,2%	84	82,40%
<b>Monthly Income</b>				
Less than 200.000 Ar	56	17,8%	2	2,00%
200.000 Ar to 500.000 Ar	90	28,7%	10	9,80%
500.000 Ar to 1.000.000 Ar	58	18,5%	20	19,60%
More than 1.000.000 Ar	110	35,0%	70	68,60%
<b>Perception of Pain Severity</b>				
Not Painful	20	6,4%	26	25,50%
Mildly Painful	54	17,2%	54	52,90%
Painful	148	47,1%	20	19,60%
Very Painful	92	29,3%	2	2,00%
<b>Health Insurance Coverage</b>				
No	266	84,7%	14	13,70%
Yes	48	15,3%	88	86,30%
<b>Education Level</b>				
Illiterate	6	1,9%	0	0,00%
Primary	34	10,8%	6	5,00%
Middle School	72	22,9%	23	19,17%
High School	82	26,1%	31	25,83%
University	120	38,2%	60	50,00%
<b>Gender</b>				
Female	180	57,3%	40	39,21%
Male	134	42,7%	62	60,78%
<b>Total</b>	<b>316</b>	<b>100%</b>	<b>102</b>	<b>100%</b>

### Chi-square Test

The Chi-square test was used to examine the relationship between individuals' professional status (self-employed or salaried) and types of healthcare utilization. This test assesses whether there is a statistically significant association between these variables. A p-value below 0.05 indicates a significant relationship.

**Table 2:-** Chi-square Test.

	Chi-square	df	p-value
Self-employed	17,093	3	0,001
Salaried	2,271	2	0,321

The test results, presented in Table 2, show a significant relationship for self-employed individuals ( $p = 0.001$ ), suggesting that the type of healthcare utilization is strongly associated with their professional status. This indicates that self-employed individuals exhibit differentiated healthcare-seeking behaviors based on their status, with considerable variability in choosing formal healthcare, self-medication, traditional care, or refraining from care altogether.

In contrast, for salaried employees, the test value ( $p = 0.321$ ) is not significant. This finding implies that, within this category, the type of healthcare utilization is not significantly associated with salaried status. In other words, healthcare-seeking behaviors among salaried employees do not vary notably according to their professional status.

### Comparison of proportions

The comparison of proportions between columns assesses whether health insurance coverage influences healthcare utilization. This test is particularly useful in identifying significant differences in healthcare-seeking behaviors between individuals with and without health insurance coverage.

According to the results in Table 3, notable differences in healthcare utilization types are observed based on insurance affiliation, especially in the case of self-employed individuals. Those who are covered by health insurance are significantly more likely to seek formal healthcare services (denoted by the letter "A" in the "affiliated" column), whereas those without coverage tend to rely more on self-medication (denoted by the letter "B" in the "non-affiliated" column).

For salaried employees, while the results do not show such a pronounced relationship, there is a tendency for those without coverage to utilize formal healthcare services less frequently, opting instead for alternative options such as traditional healers, although this relationship is not statistically significant.

These findings suggest that health insurance coverage plays a crucial role in the choice of healthcare type, especially for self-employed individuals. Those without health insurance are more likely to resort to informal care or self-medication, whereas insured individuals tend to have greater access to formal healthcare services.

**Table 3:-** Comparison of proportions.

		Health Insurance Coverage	
		No (A)	Yes (B)
Self-employed	No Utilization	B	A
	Self-medication		
	Traditional Healer		
	Access to Formal Healthcare		
Salaried	No Utilization		
	Self-medication		
	Traditional Healer		
	Access to Formal Healthcare		

### Likelihood Ratio Test

The likelihood ratio test measures the influence of explanatory variables on healthcare access by comparing different models. This test helps determine whether the variables included in the model significantly explain the observed variation in healthcare access. The results are presented in Table 4, showing outcomes for self-employed individuals and salaried employees.

For self-employed individuals, several variables emerge as significantly influencing healthcare access:

- Age shows a significant relationship with healthcare access ( $p = 0.001$ ), indicating that age plays a critical role in the decision to seek medical care.

- Distance between the place of residence and healthcare facilities is a determining factor ( $p = 0.000$ ), emphasizing the importance of geographical proximity in accessing formal care.
- Monthly income has a notable impact ( $p = 0.043$ ), with individuals earning higher incomes being more likely to seek care.
- Perceived severity of illness strongly influences healthcare access ( $p = 0.001$ ), as individuals who perceive their illness as more severe are more likely to consult a healthcare professional.
- Health insurance affiliation appears as a critical factor ( $p = 0.000$ ), reinforcing the notion that social protection facilitates access to formal healthcare services.
- Education level also has a significant effect ( $p = 0.001$ ), indicating that individuals with higher educational attainment more frequently access formal healthcare.

For salaried employees, only a few variables have a significant impact on healthcare access:

- Income plays a key role ( $p = 0.000$ ), confirming that higher-income salaried employees have greater ease in accessing healthcare.
- Perceived severity of illness is also an influential factor ( $p = 0.022$ ), similar to self-employed individuals, demonstrating that perceived severity of illness drives engagement with healthcare.
- Gender significantly affects healthcare access ( $p = 0.032$ ), highlighting differences in healthcare behaviors between men and women.

Other variables, such as age, distance, and education level, do not have a significant effect for salaried employees. This may indicate that, for this population, access to healthcare is primarily determined by economic and personal factors (e.g., illness perception) rather than sociodemographic characteristics.

**Table 4:- Likelihood Ratio Test Results.**

	Self-employed				Salaried			
	-2 Log-likelihood (Reduced Model)	Chi-square	df	p-value	-2 Log-likelihood (Reduced Model)	Chi-square	df	p-value
Constant	385,353	0,000	0		54,64	0,000	0	
Age	401,378	16,025	3	,001	60,409	5,768	2	,056
Distance to Healthcare	434,958	49,605	3	,000	59,052	4,412	2	,110
Monthly Income	402,755	17,402	9	,043	80,937	26,297	6	,000
Perceived Severity of Illness	414,560	29,207	9	,001	69,415	14,775	6	,022
Health Insurance Coverage	408,088	22,735	3	,000	54,995	,355	2	,837
Education Level	418,230	32,877	12	,001	61,769	7,129	4	,129
Gender	387,918	2,565	3	,464	61,496	6,856	2	,032

### Model Fit Criteria

The fit of the Multinomial Logit model for self-employed individuals and salaried employees can be assessed by examining the model fit criteria presented in Table 5. These criteria include the -2 log-likelihood, Chi-square, degrees of freedom (df), and p-value, which together provide an overview of how well the model aligns with the observed data.

For self-employed individuals, the initial model, which includes only the constant, has a -2 log-likelihood of 578.256. This serves as a baseline for evaluating the improvement achieved by the final model, which incorporates all predictive variables. The final model shows a -2 log-likelihood of 385.353, indicating substantial improvement. The reduction in log-likelihood is statistically significant, as evidenced by the Chi-square value of 192.903 with 42 degrees of freedom and a p-value of less than 0.0001. This significant improvement suggests that the included variables are relevant and substantially enhance the model's ability to predict types of healthcare utilization among self-employed individuals.

For salaried employees, the constant-only model has a -2 log-likelihood of 114.395. The final model, enriched with explanatory variables, reduces the -2 log-likelihood to 54.640. The difference in log-likelihood between the two models is quantified by a Chi-square value of 59.755 with 24 degrees of freedom, also displaying a p-value of less



than 0.0001. These results indicate that the addition of predictive variables to the model has significantly improved the prediction of healthcare utilization behaviors for salaried employees, confirming the adequacy of the final model.

**Table 5:- Model Fit Criteria.**

	-2 Log-likelihood	Chi-square	df	p-value
<b>Self-employed</b>				
Constant	578,256			
Final	385,353	192,903	42	,000
<b>Salaried</b>				
Constant	114,395			
Final	54,640	59,755	24	,000

### **Results of the Multinomial Logit Model Analysis for Self-employed Workers**

In this Multinomial Logit model analysis applied to self-employed individuals, the study explores how various factors influence the utilization of different types of healthcare services. The model results are presented in the Appendix. This analysis reveals the significance of distance, age, and health insurance coverage as key determinants of healthcare-seeking behaviors.

Regarding the lack of healthcare utilization, the distance between the home and healthcare services emerges as a major barrier. With a coefficient of -3.280 and a significance level of  $p < 0.009$ , it is evident that greater distance significantly reduces the likelihood of self-employed individuals seeking care. Self-medication, in particular, is influenced by age and health insurance coverage. The coefficient of -0.093 for age ( $p < 0.001$ ) indicates a downward trend in self-medication with increasing age, suggesting that older workers may be more aware of the risks associated with self-medication or have better access to formal healthcare.

In addition, the absence of health insurance coverage, with a coefficient of 3.020 ( $p = 0.001$ ), significantly increases the probability of self-medication, highlighting a substitute for care when adequate financial means for formal medical treatment are lacking. Concerning the use of traditional healers, the results highlight similar factors. Distance again plays a deterrent role, with a negative coefficient of -1.356 ( $p = 0.001$ ), confirming that geographic accessibility is a determining factor in the choice of this type of care. Additionally, the duration of employment appears to increase the likelihood of using traditional healers, with a coefficient of 0.013 ( $p = 0.004$ ), which may reflect greater flexibility or increased resources that allow for exploration of alternative care options.

Pain perceptions also influence this choice, with positive coefficients for pain levels classified as “painful” (2.065,  $p = 0.017$ ) and “mildly painful” (1.576,  $p = 0.019$ ). This suggests that individuals experiencing pain are more inclined to turn to traditional care, perhaps perceived as more suitable or accessible.

### **Discussions et Recommendations:-**

The analyses conducted in this study highlight several important aspects of healthcare-seeking behavior among self-employed individuals and salaried employees. The descriptive analysis results show that self-employed individuals are significantly less likely to have health insurance and generally report lower incomes compared to salaried employees. These structural differences may explain why self-employed individuals exhibit distinct healthcare utilization patterns, as indicated by the results of Chi-square tests and proportion comparisons.

It is evident that health insurance coverage has a significant impact on the choice of healthcare type. Self-employed individuals without health insurance tend to resort to self-medication, which may reflect an attempt to manage health issues independently due to financial barriers to formal care. This raises concerns regarding the adequacy and effectiveness of the care received, given that self-medication can lead to risks of misdiagnosis and inappropriate treatment.

The results also underscore the importance of geographic proximity to healthcare services. Increased distance significantly reduces the likelihood of seeking any type of care, aligning with literature indicating that distance is a major determinant of healthcare access. This factor is particularly critical for self-employed individuals, who may have irregular work schedules and less institutional support to take time off for health needs.

The implications of these findings are profound for designing health policies aimed at improving healthcare access for all. First, it is essential to expand and make health insurance programs more accessible to self-employed individuals. Efforts should also be made to reduce geographic barriers by increasing the number of healthcare delivery points or enhancing transport and communication systems that connect patients to needed services.

Although this study provides valuable insights, it has certain limitations that should be acknowledged. The specific economic and health contexts may influence the generalizability of the results to other regions or populations. Future research could explore the long-term effects of improving health insurance coverage or examine in greater depth the impact of introducing mobile healthcare services or telemedicine, which could mitigate the effect of distance on healthcare access.

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**Appendix:-** Multinomial Logistic Model Results for Self-employed Workers.

Type of Healthcare Utilization		B	Standard Error	Wald	df	p-value
Aucun	Constant	-10,860	1919,079	,000	1	,995
	Age	-,092	,091	1,029	1	,310
	Distance	-3,280	1,260	6,773	1	,009
	Employment Duration	-,003	,035	,007	1	,936
	Income					
	Q1	-16,955	2006,284	,000	1	,993
	Q2	-,932	1,194	,609	1	,435
	Q3	-17,068	2799,028	,000	1	,995
	Q4	0 <sup>d</sup>			0	
	Pain Perception					
	Not Painful	-,405	1,904	,045	1	,831
	MildlyPainful	1,327	1,464	,823	1	,364
	Painful	-17,975	1366,091	,000	1	,990
	Not Painful	0 <sup>d</sup>			0	
	Health Insurance					
	no	18,796	1919,077	,000	1	,992
	yes	0 <sup>d</sup>			0	
	Education Level					
	Illiterate	-3,631	0,000		1	
	Primary	-17,622	2298,370	,000	1	,994
Self-medication	Middle School	3,028	1,746	3,007	1	,083
	High School	-1,625	1,393	1,360	1	,243
	University	0 <sup>d</sup>			0	
	Gender					
	Female	-2,585	1,280	4,076	1	,043
	Male	0 <sup>d</sup>			0	
	Constant	1,752	1,360	1,658	1	,198
	Age	-,093	,025	13,264	1	,000
	Distance	-1,798	,349	26,500	1	,000
	Employment Duration	,006	,004	2,619	1	,106
	Income					
	Q1	-,071	,582	,015	1	,903
	Q2	-,639	,565	1,280	1	,258
	Q3	-,834	,622	1,796	1	,180
	Q4	0 <sup>d</sup>			0	
	Pain Perception					
	Not Painful	,777	,980	,628	1	,428
	MildlyPainful	1,450	,661	4,818	1	,028
	Painful	1,250	,530	5,557	1	,018
	Not Painful	0 <sup>d</sup>			0	
	Health Insurance					
	no	3,020	,894	11,403	1	,001
	yes	0 <sup>d</sup>			0	
	Education Level					
	Illiterate	-17,271	6112,828	,000	1	,998
	Primary	-,019	,817	,001	1	,981
	Middle School	,482	,576	,700	1	,403

Traditional Healer	Gender	High School	-,079	,465	,029	1	,866
		University	0 <sup>d</sup>			0	
	Gender	Female	,071	,439	,026	1	,872
		Male	0 <sup>d</sup>			0	
	Income	Constant	-19,079	1784,037	,000	1	,991
		Age	,008	,025	,101	1	,751
		Distance	-1,356	,396	11,754	1	,001
		Employment	,013	,005	8,225	1	,004
		Duration					
	Income	Q1	,163	,770	,045	1	,833
		Q2	-1,039	,821	1,600	1	,206
		Q3	-,837	,857	,955	1	,328
		Q4	0 <sup>d</sup>			0	
	Pain Perception	Not Painful	-,032	1,202	,001	1	,979
		MildlyPainful	2,065	,865	5,693	1	,017
		Painful	1,576	,671	5,519	1	,019
		Not Painful	0 <sup>d</sup>			0	
	Health Insurance	no	17,905	1784,036	,000	1	,992
		yes	0 <sup>d</sup>			0	
	Education Level	Illiterate	2,143	1,252	2,930	1	,087
		Primary	1,878	,873	4,626	1	,031
		Middle	2,468	,788	9,801	1	,002
		School					
		High School	-16,137	1549,874	,000	1	,992
	Gender	University	0 <sup>d</sup>			0	
		Female	-,759	,597	1,620	1	,203
	Gender	Male	0 <sup>d</sup>			0	

R2 =0,534