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FACTORS AFFECTING THE ADOPTION OF COMMUNITY BASED HEALTH INSURANCE AMONG HOUSEHOLDS IN ADAMA CITY, ETHIOPIA

BY:

MEAZA MERGA … ID. NO. SGS/0455/2013A

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Addis Ababa, Ethiopia

Institute of Agriculture and Development Studies

Department of Social Work

By:

Meaza Merga … ID. No. SGS/0455/2013A

Factors Affecting the Adoption of Community Based Health Insurance among Households in Adama City, Ethiopia

Advisor:

Dr. Baharu G/Eyesus

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DECLARATION

I Meaza Merga, Registration Number SGS/0455/2013A, do hereby declare that this thesis is my original work and that it had not been submitted partially; or in full, by any other person for an award of degree in any other University.

Submitted by:

Full Name…….. Signature……..…… date……..

Approved by:

This thesis has been submitted for examination with my approval as University supervisor.

Name of Advisor ……...……. Signatures …… date…….

St. Mary's University School of Graduate Studies

Certificate

Submitted by: Meaza Merga … ID. No. SGS/0455/2013A

Approved by Boarder of Examiners:

Name of Head of Department ……Signature ……. date ……

Name of Internal Examiner …… Signature ……. date ...…….

Name of External Examiner…… Signature ……. date ...…….

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LIST OF ACRONYMS

CBHI – Community Based Health Insurance

EHIA – Ethiopian Health Insurance Agency

FDRE – Federal Democratic Republic of Ethiopia

UHC - Universal Health Coverage

UN – United Nations

WHO – World Health Organization

ABSTRACT

Community Based Health insurance is an emerging social security instrument for the poor, for whom chronic health problems, arising due to prevalence of diseases and inaccessibility to an affordable health care system, is a major threat to their income earning capacity which leads all people aspire to receive quality and affordable health care. The main purpose of this study was to identify factors affecting the adoption of community based health insurance among households in Adama City, Ethiopia. The study used a mixed cross sectional survey research design. Structured interview with 353 sample respondents were held, who were selected using probability sampling technique supplemented by key informant interview. Descriptive statistics and binary logistic regression model are used to identify factors that determine the adoption of community based health insurance in the study area. The result show that most of (56.37%) the household heads adopted community based health insurance. The resulting distribution on perception of CBHI further, show that (35.69%) and (41.64%) of the respondents in the study area perceived CBHI as very good and good respectively. On the other hand (21.53%) of the respondents have bad perception on community based health insurance. The rest (1.13%) of the respondents are neutral to respond their perception on community based health insurance. Variables such as income, legal framework, occupation, chronic ill family member and facility preference are significantly and negatively associated with the adoption of community based health insurance in the study area. On the other hand, higher education and drug availability significantly and positively affects the adoption of community based health insurance in the study area. Thus, in the process of implementing community based health insurance, these variables should be considered by the government decision makers, health sector donor agencies at different level and individual household heads. For future studies, considering time serious data is recommended to understand the observed differences.

Key Words: Adama, Adoption, Binary Logit Regression, Community Based Health Insurance

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Health insurance is an emerging social security instrument for the rural poor, for whom chronic health problems, arising due to prevalence of diseases and inaccessibility to an affordable health care system, is a major threat to their income earning capacity which leads all people aspire to receive quality, affordable health care (USAID, 2008). In 2012, the UN General Assembly calls on government to significantly scale-up efforts to accelerate the transition towards universal access to affordable and quality healthcare Service (World Bank, 2013).

According to Solomon et al. (2015), in the last 10 years, Africa has witnessed a renewed interest in community based health insurance schemes as countries leverage communities to expand risk-pooling coverage to informal sectors and the rural population. FDRE Ministry of Health, (2010) in Africa the enrollment in health insurance is less than 10% but, in some countries the involvement has more than this. Specifically, Rwanda (80.9%), Ghana (32%), Kenya (25%), Senegal (18.1%) and Mali (12.1%) were covered.

Ethiopian Health Insurance Agency (2015) as part of its health care financing strategy in general and its health insurance strategy in particular, the Government of Ethiopia endorsed and launched community-based health insurance (CBHI) schemes in 13 pilot woredas in Amhara, Oromia, Southern Nations, Nationalities, and Peoples (SNNP), and Tigray regions in 2010/11 to provide risk protection mechanisms for those employed in the rural and the informal sectors. Three years on, the government has decided to scale up CBHI, with schemes in 161 woredas. This evaluation of the impact of the pilot schemes was intended to inform the scale-up process.

Ethiopia experience CBHI as one of the strategy for universal health coverage through a series of complementary measures including national health financing. So, the government of Ethiopia started CBHI as pilots since 2011 in four regional states (Amhara, Oromiya, SNNP and Tigray) and its overall enrollment rate in the pilot districts reached approximately 52% of the target

population; of which 85% are members that are going with the scheme by paying their premium. Triggered by the pilot's early successes, the government of Ethiopia decided to expand the pilot to 161 woredas in July 2013 (Solomon et al. 2015).

In 2018, the enrolment reached 5.4 million in five regions. At the end of 2021, 834 Woredas in Ethiopia have started community based health insurance scheme and health services using CBHI. In the 834 Woredas where health care service provision with community based health insurance is started (excluding Tigray region), 8,700,359 (61%) of the total eligible households were enrolled into the CBHI program. From the total 8,700,359 household members 7,038,647 (81%) are paying members. Household membership in 2021 has increased from 49% in 2020 to 61% in 2021 (FDRE MoH, 2021). Therefore, this study aims to identify the determinant factors affecting the adoption of community based health insurance among households in Adama City, Ethiopia.

1.2. Statement of the Problem

Insurance is a contract that protects the insured from a loss from risk, incident, illness, sickness and death. It is a promise of reimbursement in the case of loss; paid to people or companies so concerned about hazards that they have made prepayments to an insurance company. Lack of health insurance enhances delay in seeking health care services, affect completion of treatment regimen of the patient and over all have poor health care outcome (Wagner K and Degnan D. (2009). However, there is poor coverage of community based health insurance coverage in Ethiopia in general and the study area in particular.

In developing countries, utilization of modern healthcare services has remained very low. Health insurance is an emerging social security instrument for the rural poor, for whom chronic health problems, arising due to prevalence of diseases and inaccessibility to an affordable health care system, is a major threat to their income earning capacity which leads all people aspire to receive quality, affordable health care (WHO, 2010). In the last decade, Africa has witnessed a renewed interest in community based health insurance schemes as countries leverage communities to expand risk-pooling coverage to informal sectors (Solomon et al. 2015).

People demand high quality health care service, but there is poor utilization of health care services in several countries due to low accessibility and quality of health care service. Thus, community health insurance might improve access to acceptable quality health care (WHO,

2010). Lack of health insurance decrease the health care seeking of the community which contributes to low coverage of health care. Community based health insurance enables the government to focus on secondary and tertiary health care; which means secondary care focus on the curative aspect and tertiary care focus on the preventing of gaining complication due to the disease which was happened. This contributes to increase the accessibility of health care service by enhancing financial capacity and to increase the quality of health care delivery system.

Studies are conducted on community based health insurance. However, there are still gaps which need further investigation. Some of the studies are descriptive studies (Anagaw et al. 2014; Tilahun et al., (2018) without applying econometric models. There is also variable inconsistency among findings of studies. Panda et al (2016) found knowledge of insurance, quality of healthcare, trust in scheme management are enablers of community based health insurance, whereas, inappropriate benefits package, cultural beliefs, affordability, distance to health care facility, lack of adequate legal frameworks are barriers to community based health insurance.

Further, Hassen et al. (2021) found family size; presence of frequently ill individual and presence of chronic illness were positively associated with CBHI, whereas poor quality of care, lack of managerial commitment, trust and transparency, unavailability of basic supplies are barriers of community based health insurance enrolment. The other research gap identified is that, their limitation to apply data analysis model to identify the determinant factors among studies. Finally, there is also no study conducted on the factors affecting the adoption of community based health insurance in Adama City, Ethiopia. Therefore, this study is aimed to identify factors affecting the adoption of community based health insurance in Adama City, Ethiopia.

1.3. Research Questions

- What is the current status of adoption of community based health insurance in the study area?
- What is the level of household perception on the adoption of CBHI in Adama city?
- What are the major factors affecting the adoption of CBHI in the study area?

1.4. Objective of the Study

1.4.1. General Objective

The general objective of this study was to identify factors affecting the adoption of community based health insurance among households in Adama City, Ethiopia

1.4.2. Specific Objectives

The study was guided by the following specific objectives

- To assess the current status of households adoption of community based health insurance in the study area
- To assess households perception towards the adoption of community based health insurance in Adama City.
- To identify factors affecting the adoption of community based health insurance in the study area.

1.5. Significance of the Study

Adoption of community based health insurance is the most useful to access and deliver health care services. This study may serve as the reference of decision making in the area to enrol the community in the health insurance. It can also help to identifying the factors that influence the household to participate in community based health insurance which contributes the government body to stipulate ways of increment the enrolment of the community. The study also shows the ways how to increase the participation of the community in the insurance scheme by showing the most determinant factors for the involvement of community health insurance.

1.6. Scope of the Study

The study was delimited spatially and thematically. Spatially, the study was conducted in Adama City Administration and may not be applied to other rural households because of different socio-economic setup and other limitations. Thematically, the study was delimited to assess the adoption level of community based health insurance, household perception on community based health insurance and to identify factors that affect the adoption of community based health

insurance among households in Adama City Administration, Ethiopia. The study also applies qualitative and quantitative methods in this study.

1.7. Limitations of the Study

This study is conducted in Adama city and will not be generalized to other rural districts with different socio-economic setup. Further, the CBHI is new and even has no independent office. So, the researcher faced challenges to get adequate theories and difficulties to get well-organized secondary data in relation to the CBHI in the city administration. However, I try to get the available data from city health office and CBHI team under the mayor office. The researcher also faced limitations during data collection to get some household heads and I face frequent visit of households.

1.8. Organization of the Study

This study has its own chapters and sub sections in each chapter. To see these orderly; the first chapter comprises background of the study, statement of the problem, objectives and scope of the study. Chapter two deals on the literature review part with theoretical, empirical literature review and conceptual frame work sub sections. The third chapter of this research which comprises description of the study area, research design, study population with sampling frame, model specification, and data source with instruments and method of data analysis. The fourth chapter also presents the result, discussion and interpretations of the study. Finally, chapter five contains the concluding remarks and recommendations of the study.

CHAPTER TWO

2. REVIEW OF RELATED LITREATURE

In this chapter the conceptual, theoretical explanations and empirical findings related to the adoption of community based health insurance are assessed with regard to the objectives and variables of this study. The first part deals with concepts of community based health insurance in Ethiopia. The second part of the review finds out empirical works by giving emphasis on previous studies.

2.1. Conceptual and Theoretical Literature Review

2.1.1. Definition of Terms

- Adoption of Community Based Health Insurance: in this study adoption of community based health insurance means enrolling and contributing annual fees consistently by the household head.
- Adopter of Community Based Health Insurance: means a household head that enrolled and contribute its annual community based health insurance consistently.
- Non-adopter of Community Based Health Insurance: means, those household heads who take not to enrol and contribute for community based health insurance.

2.1.2. The Health and CBHI Policy of Ethiopia

Policies are made in the private and in the public sector. In the private sector, multinational conglomerates may establish policies for all their companies around the world, but allow local companies to decide their own policies on conditions of service. Public policy refers to government policy. Dye (2001) says that public policy is whatever governments choose to do or not to do. He argues that failure to decide or act on a particular issue also constitutes policy. For example, the Ethiopian government has chosen to implement the Health Extension Program to increase public access to primary health care services, national health insurance and community health insurance to reach the poor. These may be couched in terms that suggest the accomplishment of HEP to increase public access to primary health care services or to resolve a financial burden brought about by illness (i.e. introduction of community health insurance).

In the last 10 years, Africa has witnessed a renewed interest in CBHI schemes as countries leverage communities to expand risk-pooling coverage to informal sectors and the rural population. CBHI schemes are not-for-profit mechanisms of health financing grounded in principles of solidarity and risk sharing. Among African countries, Ethiopia's experience can provide good lessons around how governments can pursue universal health coverage through a series of complementary measures including strengthening health governance at the facility level and implementing national health financing reform. The Ethiopian approach promises to expand access to health services and improve health outcomes particularly for women and children. Ethiopia is second most populous nation in Africa and the lessons learned from the CBHI pilots can be applied to other countries in the region.

The African countries that have successfully used CBHI schemes include Rwanda and Ghana. Since 1993, Ethiopia's Federal Ministry of Health (FMOH) has pursued an aggressive health policy to mobilize and efficiently use domestic and donor resources, provide quality health services, and ensure access to health care for all segments of the population according to ability to pay (FMOH 2010, Zelelew 2012).

2.1.3. Community Based Healthcare Financing

To address resource constraints, the Council of Ministers approved a comprehensive health care financing strategy in June 1998 to identify financial options to increase resources for the health sector, enhance efficiency in the use of available resources, promote sustainability, improve the quality and coverage of health services, and ensure equitable distribution. This health insurance has its own rules and regulations and applies to public health facilities and in the future it applies in the private health facilities. The amount of money being spent on community based health insurance by the government is not enough. And also the amount of money being spent is not enough to buy medicine on time.

Membership is at the household level and not individuals. Contributions vary by region and range from Birr 10.50 (US$0.56) to Birr 15.00 (US$0.80) per month per household. The federal government provides a 25% general subsidy for all members. Woredas and regions finance a solidarity fund for indigents (an estimated 10% of the population) from their own budgets. The provider payment method is fee-for service. With the exception of some ancillary service to be purchased from private facilities, public facilities are generally designated providers of services

for members. At the all phase while the mechanism on how to accredit and engage providers is being worked out.

2.1.4. CBHI Scheme in Ethiopia

Wagner K and Degnan D. (2009) the term insurance refers to all types of health insurance programs, including private, public, for profit and not for-profit programs and organizations, particularly those which include the poor. Health insurance programs pool risks across populations and pay part of or all health-care expenses for their defined population of members from premiums contributed by individuals, employers, nongovernmental organizations and/or government. The services and goods covered by health insurance programs vary widely. The medicines benefit would be provided in addition to coverage of basic health care services; we are not considering schemes that cover only medicines.

Hounton et.al (2012) examined community-based health Insurance (CBHI) is a type of insurance meant for informal sectors through contributing some amount of money that is owned, designed and managed by the members. The scheme is a not-for-profit type of health insurance that has been used by poor people to protect them against the cost of seeking medical treatment for illness. It is mainly financed by the contributions or premium regularly collected from its members. It is based on the premises of risk-pooling and community solidarity to risks of falling sick and conceptually designed to provide financial protection and reduce out of pocket payment for health care. Providing this financial protection, CBHI schemes could potentially increase access and utilization of health service and thus increase antenatal care and institutional delivery.

Nguhiu P, et al. (2021) in their examination found that only four countries had coverage levels with any type of health insurance of above 20% (Rwanda 78.7%, Ghana 58.2%, Gabon 40.8% and Burundi 22.0%). Overall, health insurance coverage was low (7.9%) and pro-rich; concentration index=0.4 (95% CI 0.3 to 0.4, $p<0.001$). Exposure to media made the greatest contribution to the pro- rich distribution of health insurance coverage (50.3%), followed by socioeconomic status (44.3%) and the level of education (41.6%).

According to the Ethiopian Health Insurance Agency (2015) there is no one size fits all strategy for implementing risk-pooling mechanism. Some countries have used top-down public financing and social health insurance without CBHI, while others have used CBHI as the main model of

reaching the informal sector. As a result of these differences in design, country experiences show huge variation in the breadth, depth, and height of coverage achieved. Successful CBHI models show that there are important conditions for CBHI to grow and develop, including: existence of a minimal level of (perceived) quality of care and gradual improvement of quality at the supply side; instituting adequate organizational practice and design including responsiveness to people's felt needs by the scheme management; government commitment and political will with clear action plans, national scope of implementation, existence of regulatory frameworks, and the unequivocal commitment to subsidize and finance the premium for the poorest in society and the need for CBHI schemes to join forces to expand risk pooling and ensure financial sustainability.

The CBHI is a participatory decision making and management structures; they might be more transparent and accountable and enhance community empowerment as well as the voice of the community. The other controversy in their favor is that they can help built trust and encourage familiarity with the concept of health insurance (WHO, 2010).

2.1.5. CBHI Implementation in Ethiopia

In Ethiopia the CBHI initiative was set up as a community based health project that gathers payments made by members into fund, which covers basis health care costs, thus members are enabled access at local health care centers whenever they are sick. CBHI stems from the Ethiopian Federal Ministry of Health's effort to reach universal health coverage by improving overall financial protection for health care. Again, CBHI in Ethiopia targets the government aim of improving healthcare in the country by implementing a policy that adequately mobilizes domestic resources and improves access to quality healthcare. This was primarily due to high cost of services, especially for families who could not afford to pay these rates at once. Thus, the CBHI initiative was adopted as a means for families to have better financial protection for healthcare and increase the willingness of members of the community to seek modern health facilities more frequently.

Short term policy is insurance for those who do have access to or are not yet eligible for policies that cover a lengthier period or for coverage that is comprehensive. The period covered for this policy is one month to six months, compared to regular insurance, the benefits are limited. Short term health insurance is a type of health plan that can provide you with temporary medical

coverage when you are between health plans, outside enrollment periods and need some coverage in case of emergence.

2.2. Empirical Literature Review

2.2.1. Factors Affecting the Adoption of CBHI

Tilahun et al., (2018) in their study on healthcare utilization among insured households were 50.5%. Whilst among uninsured households, healthcare utilization was 29.3%. The overall healthcare utilization was 39.89%. The increase in patient-attendance given illness among insured households was 25.2% higher compared with uninsured (t =4.94). Education, chronic patient, first choice was health facilities at the point of illness, rich, and insured were independently associated with increased community based health insurance utilization.

Umeh and Feeleya (2017) found that, the rich were more willing to pay for CBHI than the poor and actual enrolment in CBHI was directly associated with socioeconomic status. Enrolment in community based health insurance was price-elastic as premiums decreased, enrolment increased. There were mixed results on the effect of socioeconomic status on use of health care services among those enrolled in CBHI. They found a high drop-out rate from CBHI schemes that was not related to socioeconomic status, although the most common reason for dropping out of CBHI was lack of money to pay the premium.

Adedeji et al (2017) conducted a study and the major findings showed that the level of awareness (13%) concerning community health insurance (CHI) was found to be very low among the respondents. The general principles of CHI were also poorly understood by the respondents. Attitude to the program was positive as many showed interest in participating and enrolling themselves (97.0%), some family members (96.3%) and entire family members (90.3%). Borrowing money to settle medical bills in this study has occurred in 30% of instances. Majority of respondents were willing to pay premiums ranging from N450 (96.6%) to N1200 (72.5%) for simple packages that do not include surgery and hospitalization.

Abdilwohab et al (2021) in their study out of 820 households, (33.30%) were enrolled in the community based health insurance scheme. Having good knowledge, having family size of greater than five, presence of frequently ill individual and presence of chronic illness were positively associated with community based health insurance enrolment. In addition, poor quality

of care, lack of managerial commitment, lack of trust and transparency, unavailability of basic logistics and supplies were also barriers for CBHI enrolment.

Mukangendo et al (2018) revealed that there was a significant association between long waiting time to be seen by a medical care provider and between health care service provision and low adherence to the CBHI scheme (P value < 0.019). The estimates showed that premium not aff ordable (P value < 0.050) and inconvenient model of premium payment (P value < 0.001) are significantly associated with low adherence to the CBHI scheme. There was evidence that the socioeconomic status as measured by the category of Ubudehe (P value < 0.005) increases low adherence to the CBHI scheme.

Fufa et al (2021) undertaken a study on CBHI, yielding a response rate of 95% of which, 63.1 % were male, 24.4% of the clients were illiterates and almost 50% were from Kello Dure health centre. Findings of the study showed that the overall client satisfaction level of CBHI with the health services received from the targeted health centres were 63.4%. Clients who aged from 15-24 years. Those who have level of secondary education and above, waiting time at consultation area and drugs availability are among the factors. Clients who were informed about service available at health facilities were less likely unsatisfied with service delivered at health facilities. Qualitative research showed that the most unsatisfactory aspect for the CBHI clients on health service was lack of human power and drugs.

Mark Dror et al (2016) in their analysis suggests that enrolments in CBHI were positively associated with household income, education and age of the household head, household size, and female-headed household, married and chronic illness episodes in the household. The thematic synthesis suggests the following factors as enablers for enrolment knowledge of insurance and CBHI, quality of healthcare, trust in scheme management. Factors found to be barriers to enrolment include inappropriate benefits package, cultural beliefs, affordability, and distance to health care facility, lack of legal frameworks and stringent rules of some CBHI schemes. Other motivators were knowledge and understanding of insurance and CBHI, health care quality, trust in scheme management and receipt of an insurance pay out the previous year.

Jembere (2018) in his study revealed that overall; the favourable attitude of households towards CBHI was (93%) which was significantly high. Further, this study found out that socio-economic conditions such as, large family size, high level of education and proper benefit package from the

scheme had positive impact on the awareness and attitude of respondents towards the scheme. In addition, establishment of strong policy frame work, improving risk pooling and hold back moral hazards on the base of socioeconomic and cultural milieu is fundamental concern for the scheme to work properly and serve its function.

Mekuria and Girma (2010) in their study found that 33% of the study participants had ever joined a community-based health insurance scheme, 22.1% were currently enrolled and 38% had dropped out. The 69% of participants were willing to join a community-based health insurance scheme in the future. The main reason for dropping out was the limited benefits offered by the program. Coverage was positively associated with older age and larger household size and negatively associated with the absence of chronic illness in the household and poor perceived health status of a household member with a chronic illness. Dropping out was negatively associated with the absence of chronic illness in the household.

Bifato B., (2020) conducted a study among 770 sampled households, 762 were interviewed and the response rate was 98.9%. About 20.2% of the respondents were enrolled in the scheme. Covariates such as ages 31-59 years, households who had no formal education, affordability of premium, knowledge on community based health insurance and perceived quality had statistically significantly association with community based health insurance enrolment.

Demssie and Negeri (2020) in their study reveals that community-based health insurance member households were about three times more likely to utilize outpatient care than their non-member counterparts (AOR: 2931; 95% CI (1.039, 7.929); p-value = 0.042).

Atnafu D, Tilahun H, Alemu M., (2017) found that there was a significant difference in the rate of healthcare utilization between insured (50.5%) and uninsured (29.3%) households ($\chi 2 = 27.86$, $p < 0.001$). Significant variations of enrolment status in community based health insurance were observed in the following variables: educational status, family size, occupation, marital status, and travel time to the nearest health institution, perceived quality of care, and first choice of place for treatment during illness and expected healthcare cost of a recent treatment.

2.3. Conceptual Frame-work

From the theoretical and empirical literature discussed in the aforementioned paragraphs, we have seen that adoption of CBHI is influenced by factors that can reasonably grouped into demographic, socio-economic and other factors need to understand. To align the conceptual framework with the research objectives, adoption of CBHI is the dependent variable and the independent variables. The conceptual frame work for this study showed in the following figure.

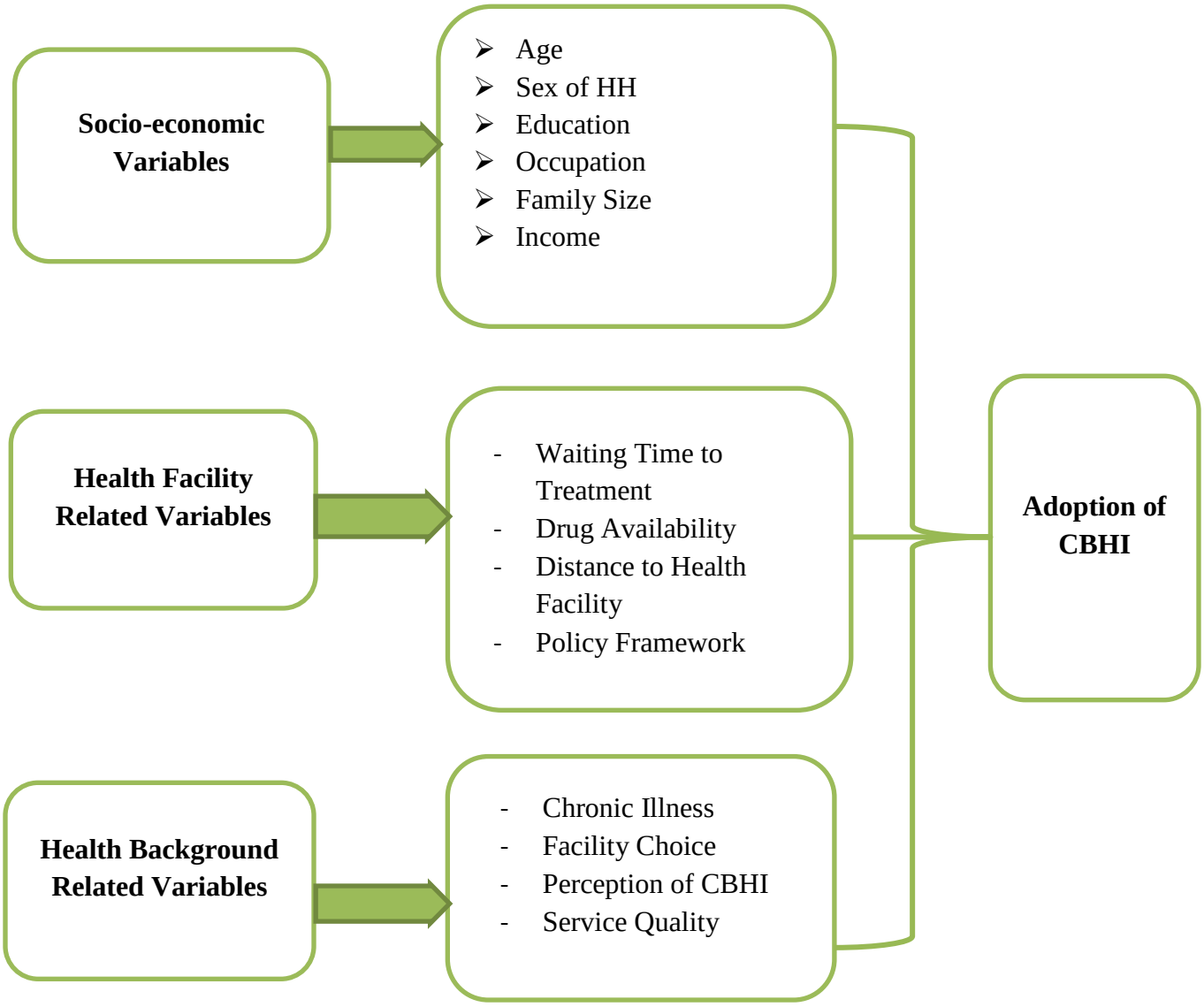

Figure: 2. 1Conceptual Framework Developed by the Researcher, 2022

CHAPTER THREE

3. RESEARCH METHODOLOGY

This section elaborated the study area and methodological approaches that the researcher used to achieve the objectives. Here, the research design as broad blueprint that includes sampling procedure, the data source and instruments used, method of data analysis and interpretation, variables and model specification were presented here under in detail.

3.1. Description of the Study Area

The study was conducted in Adama City, Ethiopia which is situated 99 kilometres South East of Addis Ababa. The town has mean altitude of 1666 meter above sea level. The city is highly populous and main route connecting the country to the outer world. According to CSA (2012) population census report, Adama City has 275,000 residents or 60,100 households. Adama is an epicentre of modern health facilities and also hosts many East-Shoa zonal administrative offices.

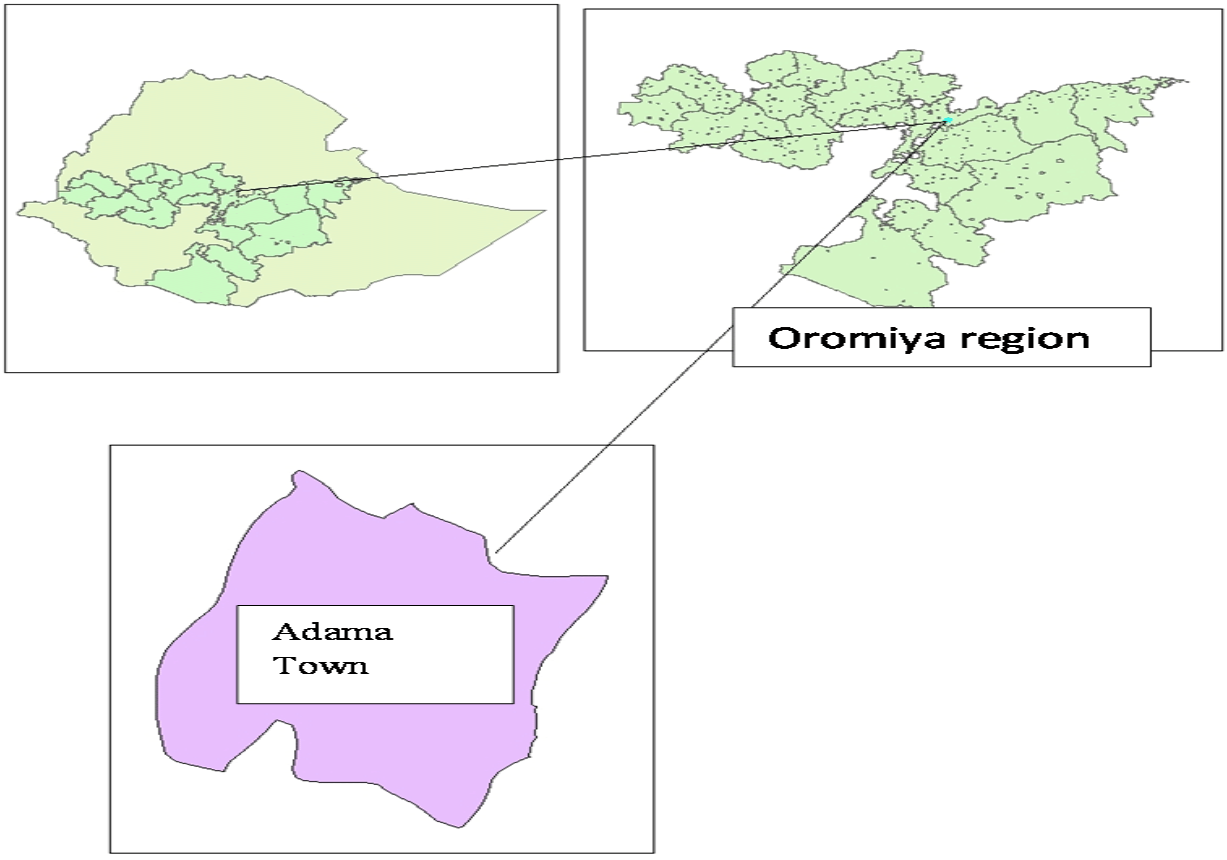

Figure:3. 1Map of the Study Area

The town is situated in the centre of the country, thus most frequently visited by national and international tourists having good infrastructures and facilitate. The annual average minimum and maximum temperature of Adama City is 18 and 32°c respectively.

3.2. Research Design

This study used a cross-sectional research design. Because, cross-sectional study is a type of research design that enables to collect data from different individuals at a single point in time. Thus, in order to assess the status of community based health insurance, household perception about community based health insurance and to identify factors that are affecting the adoption of community based health insurance in Adama City Administration, the researcher applied cross-sectional research design.

3.3. Research Approaches

Since this study was based on both qualitative and quantitative methods, the types of research approach employed in this study was mixed research approach to describe the adoption status, household perception and critically examine the factors affecting the adoption of community based health insurance in the study area.

3.4. Data Source and Types

The study used both primary and secondary data sources using different data collection instruments that enabled to achieve the objectives of the study. The primary data was collected from sample household heads and key informants in the study area of Adama Town Administration. The secondary sources of data were also the other source to collect data from published and unpublished materials. Manuals, journals, sectorial reports, previous researches, websites and regulations in relation with this study were reviewed well

3.5. Sampling Techniques and Sample Size

Both probability and non-probability sampling techniques were used to determine the survey households in this study. The study area, Adama City was selected purposively, because the researcher knows the area well. According to Adama City Finance Office (2020) the city is

divided by six sub-cities which have 60,100 household heads. Household heads are the smallest sampling units for this study & heads of each household was served as a target study population.

Therefore, the study applied multistage sampling technique. Based on this sampling technique, in the first stage Adama city was selected purposively which has six sub cities (Aba geda sub-city, Denbela sub-city, Bole sub-city, Lugo sub-city, Dabe sub-city and Boku sub-city and 60,100 household heads. In the second stage, three sub-cities (Aba geda sub-city, Denbela sub-city and Lugo sub-city were selected randomly to understand the current status, household perception and determinant factors of CBHI in the study area.

In the third stage, since all sub cities and kebeles have almost similar characteristics in socio-economic and cultural practices, three kebeles (Gurmu kebele from Abageda, Degaga kebele from Denbela and Bika kebele from Lugo sub cities) one from each sub-city were selected randomly through lottery system, considering the time and cost limitations of the researcher. Thus, three kebeles were selected randomly with a total of 6,129 household heads formed the base for sampling frame in this study.

From the sampling population of 6,129 households the sample size is determined based on Yamane (1967) simplified formula to calculate sample sizes assuming a 95% confidence interval and p = 0.05 level as shown below.

$$n = \frac{\mathrm{N}}{1+\mathrm{N(e)2}}$$

$$\mathrm{n} = \frac{6{,}129}{1+6129(0.05)2} = \quad 375$$

Where ´n´ is the sample size, ´N´ indicates the size of population, and ´e´ is the level of accuracy.

Since, the target population is less than 10,000 the desired sample size is adjusted using finite population correction formula. Because a given sample size provides proportionately more information for a small population. Thus, the sample size is adjusted as follows

$$fn = \frac{n}{1+\frac{n-1}{N}} \qquad\qquad fn = \frac{375}{1+\frac{375-1}{6129}} = 353$$

Where: N= the target population size, which is 6129

fn = The adjusted sample size

n = the sample size which is 375

Therefore, based on Yamane (1967) simplified sample size determination formula the sample size of the study was made to be 353 household heads. After calculating the sample size n, then the sample size for each kebele using proportional allocation formula was determined as follows.

Table 3. 1: Sampling proportion

No	Kebel	Households	Sample Size Determination by Proportion	Samples Taken
1	Gurmu Kebele	2,285	Gurmu kebele (n_1) = $\frac{n\ N_1}{N} = \frac{353*2285}{6129}$	131.6
2	Degaga Kebele	1,800	Degaga kebele (n_2) = $\frac{n\ N_2}{N} = \frac{353*1800}{6129}$	103.6
3	Bika Kebele	2,043	Bika kebele (n_3) = $\frac{n\ N_3}{N} = \frac{353*2043}{6129}$	117.6
Total		6129		353

Source: Field survey, 2022

As per Bhattacherje (2012) systematic sampling technique involves a random start and then proceeds with the selection of every k^{th} household head from that point onwards (k = N/n), where k is the ratio of sample frame size ´N´ and desired sample size ´n´. Hence, this study will use this method to select every 17^{th} household head from "kebele" name list in three "kebeles" until the total sample size of the study reached.

3.6. Data Collection Methods

The study used data collection instruments such as structured questionnaires and key informant interview guidelines. Structured questionnaire was prepared and translated to Oromifa which is the working language in the study area. This technique was used to collect cross sectional data from primary sources which are administered by university degree graduates in the town who take research course under close supervision of the researcher. The interviewers were well oriented by the researcher and familiarized on the interview process, purpose of the study and how to approach the respondents ethically to generate consistent data.

Key Informant Interview was held with seven key informants from the mayor office, health department coordinators and the heads of the office. Health facility management team members and concerned workers will also be part of the key informant interview.

3.7. Methods of Data Analysis

The collected data were analysed by using both qualitative and quantitative methods. The qualitative data from key informant interview were transcribed and translated systematically analysed using qualitative data analysis techniques to justify and elaborate qualitative data analysis results. This was presented in the form of narrations and statements to support the findings of the study.

The statistical analysis will take a form of descriptive and inferential statistics. The descriptive statistics to measure level of adoption of household perception has been presented as frequency, percept, table, mean and standard deviation to describe the socio-economic and health facility characteristics. The inferential statistics was also used to identify determinants of adoption of community based health insurance in the study area. Binary logistic regression was employed to estimate the level of determination of independent variables on the dependent variable. Then the collected data has been entered, cleaned and analysed using STATA data analysis tool.

3.8. Model Specification

The dependent variable in this study is adoption of community based health insurance which was measured as a binary outcome. Community based health insurance is a binary variable, best measured in terms of adoption of CBHI by the households. In this study to investigate the factors influencing the adoption of CBHI, binary logistic regression was used. This model is a statistical technique for predicting probability of an event, given a set of predictor variables.

Logistic regression was used to predict the propensity of adoption of CBHI on the basis of independent variables and to determine the effect size of the independent variables on the dependent variable and to understand the magnitude of the effect of predictor variables. The effect of predictor variables is usually explained in terms of odds ratio and hence the name logistic regression, also called the log-odds function. This model applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent variable occurs or does not occur). Binary logistic regression is one part of logistic

regression which is predictive model that can be used when the outcome variable is categorical variable with two choices and the independent variables are of any type.

Binary logistic regression has other application of combining the dependent variables to estimate the probability that particular event will occur, that is a subject which will be a member of one of the groups defined by the dichotomous dependent variable. Due to the above-mentioned issues, binary logistic model of adoption of CBHI in this study is specified as:

$$P_i = \frac{e^{\beta_o+\beta_1 X_1+\cdots+\beta_k X_k}}{1+e^{\beta_o+\beta_1 X_1+\cdots+\beta_k X_k}} = \frac{e^{X'\beta}}{1+e^{X'\beta}}$$

Where, P_i = is the probability of adoption

Hence, the logit transformation of P_i given as follows:

$$logit(P_i) = log\left(\frac{P_i}{1-P_i}\right) = \beta_o + \beta_1 X_1 + \cdots + \beta_k X_k$$

Where

P_i: Is the probability of adoption

β_0: *Is the intercept term*

β_i: *The coefficient of xi*

X_i: *Are the explanatory variables*

A logistic regression model used to determine the relationship between a binary outcome dependent variable and a group of predictor variables. More formally, let **y** be the binary outcome variable indicating adopter/non adopter with 1/0 and p be the probability of y to be 1,

$$P = prob\ (y = 1).$$

Let x1... x10 be a set of predictor variables. Then the logistic regression of y on x1... x14 estimates parameter values for β0, β1. . . β14 via maximum likelihood method of the following equation.

$$logit(p) = \log(p/(1-p)) = B_{0+}\ B_1 * X_1\ + \cdots + B_{10} * X_{10}$$

Given the above stated model of binary logistics regression, the likelihood of the farmers to adopt CBHI is given by the expression $p_i = \frac{1}{1-e^{-z_i}}$ where $z_i = \beta_1 + \beta_2 X_i$ while the probability of not adopting CBHI is given as $1 - p_i = \frac{1}{1+e^{z_i}}$. Hence, the log of the odds ratio is the natural log of the two probabilities i.e. $(\frac{p_i}{1-p_i})$ (Gujarati, 2004).

Table 3. 2 Variable Definitions, Measurement and Expected Signs

Variable	Definition of variables	Measurement	Expect sign
Dependent Variable			
Adoption of CBHI	Adoption of CBHI among Households (1 if adopter, 0 otherwise)	Binary	
Independent Variable			
Age	Age of the Household Head in Years	Continuous	+
Gender	Gender of the Household Head; 0=Male 1=Female	Categorical	-
Educational level	Educational Status of the Household Head	Categorical	+
Family size	Number of Family Members in the House	Continuous	+
Occupation	Types of Works which did by Household Head	Categorical	+
Income	Per capita Income per Month in ETB for the Household	Continuous	+
Chronic Illness	Being Long-lasting and Characterized by Long Suffering	Categorical	+
Waiting time to service	Adopters Waiting Time to Treatment in Health Facility/minutes	Continuous	-
Drug Availability	Availability of Essential Drugs in Health Facility (1 if fully available, 0 otherwise)	Binary	+
Distance to Health Facility	Distance to CBHI Identified Health Facilities in Minutes	Continuous	-
Policy Framework	Households knowledge of CBHI Policy Frameworks (1 if you know policy framework, 0 otherwise)	Binary	+
Perception on CBHI	Household Heads Perception about CBHI	Categorical	+
Service Quality	Health Service Quality at CBHI Health Facilities	Categorical	+
Facility Choice	Households Preference to get Service Other Than CBHI Facility (1 if you need other health facilities, 0 otherwise)	Binary	-

Source: Literature Review, 2022

3.9. Reliability and Validity of Instruments

The reliability of the questionnaires to be used in the study was assured through critical review of the instrument for data collection. On the other hand, to assure validity, questionnaires was designed on the basis of previous studies' questionnaires and review of related literatures and objective realities of the study area to make the instruments more suited to the households in the study area. In addition, a pilot test was conducted by some sample questioners to refine the methodology before administering the final data collection.

3.10. Ethical Considerations

The study tried to keep the data collection effort in line with ethically acceptable guideline. First, the researcher got a written consent of the concerned office in Adama City Administration from St. Mary University. Added to this, all participants included in the study were duly informed about the purpose of the study and their willingness was asked before filling up the questionnaire and conducting key informant interview. The study has also maintained the confidentiality of the identity of each participant.

CHAPTER FOUR

4 RESULT AND DISCUSSION

This chapter deals with results and discussions of the data collected through questionnaire, key informant interview as well as secondary data. To collect the data through questionnaire, 353 questionnaires were distributed to household heads in Adama City and all of the questionnaires were returned back with completely filled, representing 100% response rate. In addition to questionnaires, key informant interview were conducted with seven key informants.

The first section deals with summary statistics of main variables using descriptive statistics. The second part of this chapter presents the appropriateness test of the model and the results from estimation of the econometrics model where significant predictors of adoption of CBHI are identified and discussed coherently with relevant findings of previous studies.

4.1. Results of Descriptive Statistics

4.1.1. Socio-Economic and Demographic Characteristics

The study surveyed 353 sample respondents through survey questionnaires which makes the response rate 100% without default from the expected sample size. The results presented in this study are based on this number of sample respondents from the study area. Looking first to the age of respondents, Table 4.1 shows that, the average age was 41.03 years with standard deviation of 10.29 from the mean age of the respondents. The result indicated that most of the respondents were adults given the mean value of age with its average variation. When the age variation is considered the respondents have a huge difference in age where the minimum age was 20 years while the maximum age was 70 years. The wide gap in age between sampled respondents enables to better understand the adoption of CBHI among households.

The result also indicates that, the average family size of respondents was nearly 4 members with standard deviation of 1.31 from the mean family size of the respondents. The result indicated that most of the respondents of the study have nuclear family given the mean value of family size with its average variation. When the family size variation is considered the respondents have a reasonable difference in their family size where the minimum family size was two members

while the maximum respondent family size has six members. This implies that that the demand for health service in the family could increase.

Table 4. 1 Respondents Age, Family Size and Income Distribution

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	353	41.03683	10.29349	20	70
Family Size	353	3.926346	1.310019	2	6
Income	353	4,951.501	993.3366	3600	8500

Source: Survey, 2022

The result from descriptive statistics indicates that, the average monthly income of respondents was 4,951.50 birr with standard deviation of 993.33 from the mean monthly income of respondents. The result indicated that most of the respondents have low income given the mean value of monthly income with its average variation. When the income variation is considered the respondents have a reasonable difference in their income where the minimum monthly income was 3,600 birr while the respondent's maximum monthly income was 8,500 birr. This implies that, the respondents have a reasonable and fertile income ground to adopt community based health insurance.

Table 4. 2: Distribution of Respondents by Sex, Education and Occupation Characteristics

Variables	Freq.	Percent
Sex		
Female	178	50.42
Male	175	49.58
Education		
primary and below	29	8.22
Secondary	27	7.65
Diploma	128	36.26
Degree	119	33.71
Masters and above	50	14.16
Occupation		
Civil servant	95	26.91
Private business	169	47.88
Others	89	25.21
Total	353	100

Source: Survey, 2022

The descriptive statistics result on Table 4.2 indicates that the female respondents contributed (50.42%) of the total sample, while male respondents are about (49.58%) from the total. The resulting data from respondents also gives a clue that nearly equal participation on community based health insurance in the study area. Thus, the result indicates that there is no sex variation in participating to community based health insurance.

Regarding the educational qualification of respondents of the study, shows that majority of the study participants (36.26%) have college diploma, followed by first degree holders contributing about (33.71%) of the respondents. The result also indicated that (14.16%) of the respondents have attended post graduate level of education. The rest (7.65%) and (8.22%) of the respondents are completion of secondary and primary school education respectively. Thus, most of the respondents are educated in the study area.

Furthermore, the result on occupation of respondents in Table 4.2 shows that majority of the respondents (47.88%) are private business operators. The result also indicated that (26.91%) of the respondents are civil servants. The rest (25.21%) of the respondents are engaged in other activities. This implies that, most of the respondents have regular income from their occupations.

4.1.2. Health Facility and Service Delivery Characteristics

According to the result in table 4.3 the average waiting time to treatment in health facility is 18.45 minutes with a standard deviation of 9.03 from the mean. The variation is considered the community based health insurance adopted by the respondents have a reasonable difference in their waiting time to treatment where the minimum waiting time was 3 minutes while the maximum was 50 minutes. The wider gap in waiting time between sampled respondents enables to better understand the adoption of community based health insurance among households.

Table 4. 3 : Respondents Waiting Time and Distance Distribution

Variable	Obs	Mean	Std. Dev.	Min	Max
Waiting time	353	18.45892	9.033972	3	50
Distance	353	20.26062	7.215046	5	36

Source: Survey, 2022

Furthermore, the result shows that, the average distance from health facility is 20.26 minutes with a standard deviation of 7.21 from the mean distance. The minimum distance from health facility was 5 minutes while the maximum distance was 36 minutes. The gap in distance between sampled respondents enables to understand the adoption of community based health insurance.

The descriptive result on knowing the availability of community based health insurance legal framework of the respondents, as presented in table 4.4 shows that most of the respondents know the availability of community based health insurance legal framework, contributing about (52.69%), while the rest (47.31%) of respondents have no information about the legal framework of community based health insurance in the study area. This indicates that awareness creation on community based health insurance is poor among respondents.

Table 4. 4 : Respondents Legal Framework, Drug Availability Cronic Illness and Facility Preference

Variables	Freq.	Percent
Policy Framework		
No	167	47.31%
Yes	186	52.69%
Drug Availability		
No	165	46.74%
Yes	188	53.26%
Chronic Ill Family		
No	203	57.51%
Yes	150	42.49%
Facility Preference		
No	189	53.54%
Yes	164	46.46%
Total	353	100%

Source: Survey, 2022

Further, the descriptive result on drug availability in the community Based Health Insurance contracted health facilities, as presented in table 4.4 shows that most (53.26%) of the respondents agree on the availability of drugs within the health facility pharmacy. On the other hand, the least majority (46.74%) of respondents do not agree on the availability of drugs within the community

based health insurance contracted health facility pharmacy. The result indicates that the availability of drugs is essential to adopt community based health insurance.

The result on health and service quality characteristics of the respondents, as presented in table 4.5 indicated that, a smaller amount of respondents have family member with chronic illness contributing about (42.49%) of the total sampled respondents while the majority of the proportion belongs to non-chronic ill family member, contributing (57.51%). This indicates that most of the respondents have no family member with chronic illness in the study area.

The descriptive statistics result on other health facility preference of the respondents, shows that (53.54%) of the respondents have no preference to other health facilities, while (46.46%) of the respondents have preference to get service from other health facilities.

Further, the result in Figure 4.1 shows the service quality perception distribution of respondents.

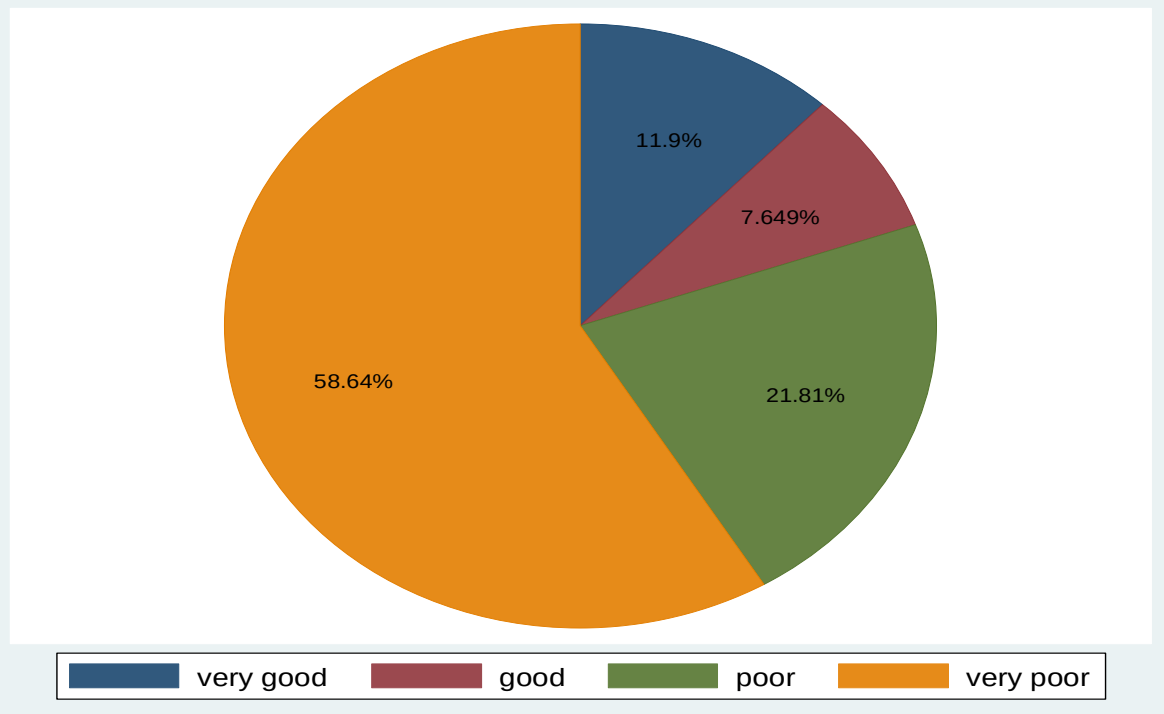

Figure 4. 1 Health Service Quality Category of Participants Computed from STATA

Figure 4.1 shows the health service quality perception of respondents, accordingly most of the respondents contributing (58.64%) and (21.81%) have very poor and poor perception on the health service quality given by CBHI contracted health facilities respectively. While the rest (7.64%) and (11.9%) of the respondents have good and very good perception on the health

service quality given by CBHI contracted health facilities in the study area. From this it can be inferred that more than (80%) of the survey respondents blamed that the CBHI service centers service quality is poor and it may affect the adoption of community-based health insurance in the study area.

4.1.3. The Adoption Status of CBHI in the Study Area

The result from descriptive statistics on the adoption status of community based health insurance distribution of respondents in the study area is presented in table 4.6. The descriptive result in Table 4.6 on the adoption status of community based health insurance indicates that, most of the respondents contributing about (56.37%) adopted community based health insurance in the study area. On the other hand (43.63%) of the respondents are not adopters of the community based health insurance. The resulting data from key informant interview supports this finding of progressive adoption of community based health insurance in the study area.

Table 4. 5 : The adoption status of community based health insurance

Variables	Freq.	Percent
CBHI Adoption		
No	154	43.63%
Yes	199	56.37%
Total	353	100%

Source: Survey, 2022

Key informants confirm that, poor awareness about the community based health insurance, shortage of medical and pharmaceutical supplies within the health facility are hindering the adoption of community based health insurance. There is also lack of follow up and monitoring the implementation process on the side of health insurance agency and city health bureau. Thus, these stakeholders are poorly monitoring and supporting CBHI customers at health facility.

4.1.4. Household Perception of Community Based Health Insurance

Moreover, the descriptive statistics result, on the community based health insurance perception of respondents in the study area, Table 4.7 shows that the majority of respondents, which

accounts (41.64%) and (35.69%) perceived community based health insurance as a good and very good opportunity to improve their health condition.

Table 4. 6 : Respondents perception distribution on community based health insurance

Perception on CBHI	Frequency	Percent
Very Good	126	35.69%
Good	147	41.64%
Neutral	4	1.43%
Bad	76	21.53%
Total	353	100%

Source: Survey, 2022

On the other hand the descriptive statistics result show that, about (1.43%) and (21.53%) of the respondents perceived neutral and bad on community based health insurance in the study area. This finding was also supported by key informants; they believed that the community perception is improving through time to time.

4.2. Results of Inferential Statistics

4.2.1. Assessment of Goodness Fit of Binary Logistic Regression Model

The goodness fit of a model measures how well the model describes the response variable. Assessing goodness of fit involves investigating how close values predicted by the model are to the observed values. The appropriateness of the fitted logistic regression model needs to be examined before it is accepted for use as in the case of all regression models.

The validity of inferences drawn from modern statistical modeling techniques depends on the assumptions of the statistical model being satisfied. In order for the analysis to be valid, our model has to satisfy the assumptions of logistic regression, such as: Logistic regression requires the dependent variable to be dichotomous. The dependent variable is binary outcome taking 1 for adoption of CBHI and 0 for not adopted. Larger samples are (50 cases per predictor) needed than for those in linear regression analysis. Here in this study 353 samples are involved. There should be no high multi co linearity among the predictor variables. We do not have one unique method

of detecting it or measuring its strength, but there are some rules of thumb. For instance variance inflation factor (VIF) test used to check the existence of the problem and it is 9.44, it is under 10 and indicates no multimolinearity.

4.2.2. Determinants of the Adoption of CBHI in the Study Area

Logistic regression is used to analyze relationships between a dichotomous dependent variable and independent variables. Logistic regression combines the independent variables to estimate the probability that a particular event will occur. In this study, logistic regression was performed to assess the impact of independent variables on the adoption of CBHI of households. The result of the binary logistic regression obtained from the STATA output is given in Table 4.8 which displays the coefficient, standard error, significance level and confidence interval.

Therefore, this study used a binary logistic regression model to estimate factors determining the adoption of CBHI. The estimated model coefficients cannot be interpreted directly but they tell us much about the direction and significance of the predictor variables. Hence, in this study the determinants are identified by using the coefficients, while the magnitude of influence is expressed using the odds ratio in the next section of this study.

Thus, looking first to the variable education, the regression result affects the adoption of community based health insurance in a positive direction. When the households getting higher education increases, the likelihood of adopting community based health insurance increases among respondents, which is significant at 95% confidence interval.

The estimated logistic regression result coefficient also indicates that monthly income determines the adoption of CBHI among households in a negative direction. When the household income increases, their likelihood of adopting community based health insurance decreases among respondents which is significant at 95% confidence interval. The negative direction may be because of the household perception to get health service anywhere they want and like.

Further, the estimated logistic regression result coefficient indicates that a policy framework significantly determines the adoption of community based health insurance among respondents in a negative direction. When households know about community based health insurance legal frameworks, the likelihood of adopting CBHI increases among respondents which is significant at 99% confidence interval. The negative direction may be because of the household's

knowledge of CBHI legal framework does not cover costs like chronic illness, dental treatment and other beauty medical treatment costs. Unfortunately, now a day's medical treatment for these services is increasing rapidly.

Further, the estimated regression result coefficient indicate that, taking civil servant as a base category occupational category of being in other occupations significantly determines the adoption of CBHI among households in a negative direction. When respondents are going from civil servant to other works, the likelihood of adopting CBHI decreases among respondents, which is significant at 99% confidence interval. The negative direction may be because of the sense of job losing and lack of confidence to pay for community based health insurance.

On the other hand the estimated logistic regression result coefficient shows that drug availability in the health facility significantly affects the adoption of CBHI among respondents in a positive direction. As the availability of essential drugs in the health facility increases the likelihood of adopting CBHI increases among respondents which is significant at 95% confidence interval. The positive direction may be because of the availability of drugs within the facility decreases their time and cash wastages.

Furthermore, the estimated binary logistic regression result coefficient indicates that, the availability of chronically ill family member significantly determines the adoption of CBHI among respondents in a negative direction. When the respondents have a family member with chronic illness, the likelihood of adopting CBHI decreases among respondents which is significant at 99% confidence interval. The negative direction may be because of the CBHI agreement is not covering the cost of chronically ill patients. The finding was also supported by the findings from key informant interview, that CBHI has limitations in covering the cost of chronic patients.

Finally, the regression result coefficient show that, the respondent's preference to get treatment in other health facilities significantly affects the adoption of community based health insurance among respondents in a negative direction. As the respondents have interest to get treatment in other health facilities, the likelihood of adopting CBHI decreases among respondents which is significant at 99% confidence interval. The negative direction may be because of the respondent's fear of restrictions to get health service from other health facilities.

Table 4. 7 : Coefficients of the Binary Logistic Regression Model

Logistic Regression			Number of obs	=	353
			Wald chi2(19)	=	110.86
			Prob > chi2	=	0.000
Log Pseudo likelihood	=	-48.659885	Pseudo R2	=	0.7988

			Robust		
CBHI Adopter	Odds Ratio	Coef.	Std. Err.	z	P>z
Age	0.9771507	-0.0231144	0.0289343	-0.8	0.424
Gender	0.3994545	-0.9176553	0.681155	-1.35	0.178
Education					
Secondary	1.008867	0.0088275	1.174197	0.01	0.994
Diploma	2.161995	0.7710316	0.8953404	0.86	0.389
Degree	6.64301	1.893565	0.9531738	1.99	0.047
Graduate and above	10.83637	2.382908	1.484491	1.61	0.108
Income	0.9991533	-0.0008471	0.0003207	-2.64	0.008
Family Size	1.013488	0.0133975	0.2143065	0.06	0.950
Legal frame	0.0025311	-5.979108	1.355138	-4.41	0.000
Occupation					
Private Business	2.27147	0.8204271	0.791258	1.04	0.300
Others	0.1408836	-1.959821	0.5561779	-3.52	0.000
Waiting Time	0.9569139	-0.0440418	0.0451858	-0.97	0.330
Drug Availability	18.41238	2.913023	0.9094667	3.2	0.001
Distance	0.9332238	-0.0691102	0.0455971	-1.52	0.130
Chronic Illness	0.0808688	-2.514927	0.5376295	-4.68	0.000
Service Quality					
Good	0.2796682	-1.274152	1.346446	-0.95	0.344
Poor	0.2361325	-1.443362	1.117834	-1.29	0.197
Very Poor	6.659928	1.896109	0.7506441	2.53	0.012
Facility Preference	0.0296387	-3.518673	0.9069648	-3.88	0.000
_cons	1.140007	16.24588	4.804076	3.38	0.001

Source: Survey, 2022

The odds ratio was computed to be used in order to show the magnitude of determination of independent variables on the dependent variable the adoption of community based health insurance. The binary logistic regression result displayed the proportional odds ratio. We can interpret odds ratio in terms of the change in odds. If the value exceed one, then the odds of success (being adopter) is increases, if the value is less than one, any increase in the predictor variables leads to a minimize in the odds of adoption. The odds ratio gives the relative amount by which the odds of the outcome increase (if odds ratio >1) or decrease (if odds ratio <1) when the value of predictor is increased by one unit.

The predicted result of the binary logistic regression indicted that holding other factors constant, going from primary school to degree level of education increases the odds of adopting community based health insurance by 6.64 times, compared to those who have primary school level of education. This might be explained by the fact that the higher education has found to increase the household probability to adopt community based health insurance. Higher education is said to provide respondents with greater capacity to learn and absorb new information about the CBHI. The result is in line with the findings of Jembere, (2018), Mark Dror et al, (2016), found that higher educational status has a positive influence on the adoption of community based health insurance among households.

The regression result revealed that assuming all other factors remains constant, a unit increase in monthly income of the respondents decreases the adoption of community based health insurance by 0.99 times. This may be because of the respondent's capacity to pay that, they may need freedom to go anywhere and get medical treatment with better quality including medical treatments abroad. This result is in line with the finding of (Mukangendo et al, 2018); (Mark Dror et al, 2016) which indicates income significantly affects the adoption of community based health insurance.

The regression result further revealed that taking all other variables remains constant, a unit increase in knowing CBHI policy framework among the respondents decreases the adoption of community based health insurance by 0.0025 times. This may be because of the respondent's knowledge that, they become clear on what health costs are covered by the CBHI and which health is not covered by community based health insurance. Thus, they may retreat to adopt community based health insurance in the study area. This result is in line with the finding by

(Mark Dror et al, 2016) he argues that legal framework significantly affects the adoption of community based health insurance.

The result also indicate that assuming all other factors remains constant, household occupational engagement other than civil servant, decreases the odds of adopting community based health insurance by 0.14 times compared to those who are civil servants. This may be because of frustration to get regular salary and inability to pay for community based health insurance. This result is in line with the findings of Atinafu, Tilahun and Alemu (2017) they found that occupation has significant effect on the adoption of community based health insurance.

Further, the binary logistic regression result show that, all other variables remains constant, a unit increase in the availability of drugs within the health facility increases the adoption of community based health insurance by 18.41 times among respondents. This may be because of drug availability avoid time and resource wastage for respondents and easy access to medicines. This result is in line with the finding by Fufa et al, (2021) which indicates drug availability significantly affects the adoption of community based health insurance.

Furthermore, the regression result indicates that, other variables remains constant, a unit increase in the presence of chronically ill family member decreases the probability of adoption of community based health insurance by 0.08 times among the respondents. This may be because of the community based health insurance guideline limitation to include chronically ill patients in the CBHI system decreases the respondent's probability to adopt the insurance. This result is in line with the finding by Abdilwohab et al, (2021) and Mark Dror et al (2016) arguing that the availability of chronically ill family member significantly affects the adoption of community based health insurance.

Finally, the estimated regression result indicates that, all other variables remains constant, a unit increase in the preference to get medical treatment in other health facilities decreases the probability of adoption of the community based health insurance by 0.029 times among the respondents. This might be because of the respondent's preference to get medical treatment to anywhere they want and to escape restrictions in health service providing facility decreases the adoption of community based health insurance. This finding is in line with the finding of Atinafu, Tilahun and Alemu (2017) they found that preference to get health treatment in other health facility significantly affects the adoption of community based health insurance.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

Based on the findings of the study, influencing factors are identified as responsible for hindering the adoption of community based health insurance in Adama City. Thus, in this section the summary of major findings, concluding remarks and the recommendations are given based on the study findings.

5.1. Summary of Major Findings

The study found that that most of (56.37%) the household heads adopted community based health insurance. Further, the resulting distribution on perception of CBHI, show that (35.69%) and (41.64%) of the respondents in the study area perceived CBHI as very good and good respectively. On the other hand (21.53%) of the respondents have bad perception on community based health insurance. The rest (1.13%) of the respondents are neutral to respond their perception on community based health insurance. Variables such as income, legal framework, occupation, chronic ill family member and facility preference are significantly and negatively associated with the adoption of community based health insurance in the study area. On the other hand, higher education and drug availability significantly and positively affects the adoption of community based health insurance in the study area.

5.2. Conclusion

Based on the findings of the study, influencing factors are identified as responsible for hindering the adoption of community based health insurance in Adama City. To give conclusions about factors determining the adoption of community based health insurance, the researcher combined both descriptive and inferential analysis results together. The researcher also focused on mean value of variables and percentage of the categorical response as well as to identify the major factors constraining the adoption of community based health insurance.

In the descriptive part of the study the result showed that (56.37%) of the respondents adopted community based health insurance. The result indicate the household perception on community based health insurance and (35.69%) and (41.64%) of the respondents have very good and good

perception. On the other hand (21.53%) of the respondents have bad perception on community based health insurance. The rest of (1.13%) of the respondents has neutral to perception.

From the result the study can conclude that, average family size was 3.92, which is optimum compared with the Ethiopian average family size. Most of the household heads are educated, where (34.17%) of the respondents are degree holders followed by (40.42%) diploma holders. From the result the study can conclude that (49.58%) of respondents are engaged in private business sector as a livelihood. From key informants the study can conclude that there is poor follow up and monitoring of CBHI service at health facility level.

From the binary logistic regressions, the study can conclude that higher education and drug availability has a significant and positive effect on the adoption of community based health insurance. In other words the increase in this variable results in increases the likelihood of adopting community based health insurance.

On the other hand income, legal framework, occupation, chronically ill family member and other facility preference have a significant and negative effect on the dependent variable adoption of community based health insurance. The increase in these independent variables underestimated the likelihood of adoption of community based health insurance among household heads. Considering the results of odds ratio, the increase in these independent variables, the likelihood of households to adopt community based health insurance decreases.

5.3. Recommendations

Based on the conclusion reached above, this study suggests the following recommendations as per the cross sectional study findings. Thus, the following actions are suggested to improve the adoption status of community based health insurance.

Integrated effort is needed among the governmental and nongovernmental organizations with full involvement of the households to enhance the adoption level of community based health insurance and fully benefit the community from community based health insurance service.

Higher education should be strengthened and enhanced to cultivate its opportunity in raising the level of awareness about the benefits of community based health insurance. Further, the study recommends that, drug availability within the health facility should be strengthened that increases the level of reliance of households and to raise their likelihood of adoption of

community based health insurance. Therefore, the Ethiopian health insurance agency in collaboration with Ethiopian pharmaceutical supply agency could avail all the necessary drugs in health facilities to retain CBHI customers.

Extensive awareness creation system should be created and strengthened to break the perception of high income households not to go to community based health insurance. Likewise, community based health insurance education system should be established to inform legal frameworks on community based health insurance. Based on the findings, the study recommends that the community based health insurance guideline should be revised to include some chronic diseases medications to CBHI service list and cover the cost. Community based health insurance health facilities must be inclusive and competitive in service quality and supplies to satisfy their customers and retain them. The community based health insurance service needs strong follow up and monitoring to solve facility level problems and sustain the service.

Recommendation for further research: the community based health insurance service is not a one-time process to happen. Hence, it is better to consider time serious data in the subject matter in future studies.

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Annex

St. Mary's University

Department of Social Work

Appendix 1: Structured Questionnaire

Dear/Sir/Madam

This is a structured questionnaire prepared to undertake a study entitled "Factors Affecting Adoption of Community Based Health Insurance among Households in Adama City, Ethiopia"

Dear respondent, I am a post graduate student in St. Mary's University. Currently, I am planning to undertake a research in order to complete the requirements for Master Arts Degree in Social Work (MSW). The research is conducted purely for academic purpose and all the information given are treated as confidential and will not be used for other purposes.

I also assure you that no personal identity will be disclosed to third parties. I am so grateful to you by giving reliable and appropriate data and information.

Thank you for your time

1. Socio-Economic Characteristics

1.1.What is the age of the household head? ----------

1.2. What is the gender of the household head? Male ☐ Female ☐

1.3.What is your level of education?

Primary School and Below ☐ Secondary School ☐ Diploma ☐

First Degree ☐ Post Graduate Degree and Above ☐

1.4.What is your family size? ----------

1.5.What is the occupation of the household head?

Civil Servant ☐ Private Business ☐ Others ☐

1.6.What is your monthly income? ----------

1.7. Very Good ☐

Good ☐

Neutral ☐

Bad ☐

Very bad ☐

2. Community Based Health Insurance Adoption and Perception Characteristics

2.1. Do you adopt community based health insurance? Yes No

2.2. How do you rate your perception on community based health insurance?

3. Health Facility and Service Delivery Characteristics

3.1. What is the waiting time to get medical treatment in the health facility in minutes? ------

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3.2. Do you think that essential drugs are available in the health facility working with health insurance agency? Yes ☐ No ☐

3.3. How many minutes do you take to reach to the nearest health facility in minutes? -------

---

3.4. Do you know any policy framework on Community Based Health Insurance in Ethiopia?

Yes ☐ No ☐

3.5. Do you have a family member with chronic illness? Yes ☐ No ☐

3.6. How do you rate the health service quality in health facilities working with health insurance agency? Very good ☐ Good ☐ Poor ☐ Very Poor ☐

3.7. Do you have interest to get service from health facilities other than community based health insurance centers? Yes ☐ No ☐

Thank you in advance for your time!

Appendix 2

Key Informant Interview Guidelines

Code ----------

Date of Interview ----------

1. What problems are facing in adoption process of community based health insurance?
2. What are the problems in providing health service at health facility level?
3. What sort of support would you expect to implement community based health insurance?
4. Is there any motivation mechanism which is set to initiate the community to adopt community based health insurance?
5. How the CBHI system is working to fulfill medical and pharmaceutical supplies to satisfy beneficiaries?

Thank you for your time and cooperation!

```
. sum Age familySize Income
```

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	353	41.03683	10.29349	20	70
familySize	353	3.926346	1.310019	2	6
Income	353	4951.501	993.3366	3600	8500

```
. tab sex
```

Sex of respondent Household Head	Freq.	Percent	Cum.
female	178	50.42	50.42
male	175	49.58	100.00
Total	353	100.00	

```
. tab education
```

Educational Status of the respondent	Freq.	Percent	Cum.
primary and below	29	8.22	8.22
secondary	27	7.65	15.86
diploma	128	36.26	52.12
degree	119	33.71	85.84
post graduate and above	50	14.16	100.00
Total	353	100.00	

```
. tab occupation
```

occupation of the HH	Freq.	Percent	Cum.
civil servant	95	26.91	26.91
private business	169	47.88	74.79
others	89	25.21	100.00
Total	353	100.00	

```
. sum waiting_time distance
```

Variable	Obs	Mean	Std. Dev.	Min	Max
waiting_time	353	18.45892	9.033972	3	50
distance	353	20.26062	7.215046	5	36

```
. tab Lframe
```

legal framework	Freq.	Percent	Cum.
No	167	47.31	47.31
Yes	186	52.69	100.00
Total	353	100.00	

```
. tab drug_availability
```

drug availabilit y	Freq.	Percent	Cum.
No	165	46.74	46.74
Yes	188	53.26	100.00
Total	353	100.00	

. tab CBHI_Adopter

CBHI adopter	Freq.	Percent	Cum.
No	154	43.63	43.63
Yes	199	56.37	100.00
Total	353	100.00	

. tab HH_Perception

HH Perception on CBHI	Freq.	Percent	Cum.
very good	126	35.69	35.69
good	147	41.64	77.34
neutral	4	1.13	78.47
bad	76	21.53	100.00
Total	353	100.00	

Logistic regression — Number of obs = 353
Wald chi2(19) = 110.86
Prob > chi2 = 0.0000
Log pseudolikelihood = -48.659885 — Pseudo R2 = 0.7988

CBHI_Adopter	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	-.0231144	.0289343	-0.80	0.424	-.0798245	.0335957
sex	-.9176553	.681155	-1.35	0.178	-2.252695	.417384
education						
secondary	.0088275	1.174197	0.01	0.994	-2.292556	2.310211
diploma	.7710316	.8953404	0.86	0.389	-.9838033	2.525867
degree	1.893565	.9531738	1.99	0.047	.0253789	3.761752
post graduate and above	2.382908	1.484491	1.61	0.108	-.5266404	5.292456
Income	-.0008471	.0003207	-2.64	0.008	-.0014757	-.0002184
familySize	.0133975	.2143065	0.06	0.950	-.4066354	.4334305
Lframe	-5.979108	1.355138	-4.41	0.000	-8.635129	-3.323087
occupation						
private business	.8204271	.791258	1.04	0.300	-.7304102	2.371264
others	-1.959821	.5561779	-3.52	0.000	-3.04991	-.8697323
waiting_time	-.0440418	.0451858	-0.97	0.330	-.1326044	.0445207
drug_availability	2.913023	.9094667	3.20	0.001	1.130501	4.695545
distance	-.0691102	.0455971	-1.52	0.130	-.1584789	.0202585
chronic_illness	-2.514927	.5376295	-4.68	0.000	-3.568661	-1.461192
service_quality						
good	-1.274152	1.346446	-0.95	0.344	-3.913137	1.364834
poor	-1.443362	1.117834	-1.29	0.197	-3.634276	.7475524
very poor	1.896109	.7506441	2.53	0.012	.4248733	3.367344
facility_preference	-3.518673	.9069648	-3.88	0.000	-5.296291	-1.741055
_cons	16.24588	4.804076	3.38	0.001	6.830066	25.6617

Logistic regression — Number of obs = 353
Wald chi2(19) = 110.86
Prob > chi2 = 0.0000
Log pseudolikelihood = -48.659885 — Pseudo R2 = 0.7988

CBHI_Adopter	Odds Ratio	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Age	.9771507	.0282731	-0.80	0.424	.9232783	1.034166
sex	.3994545	.2720905	-1.35	0.178	.1051156	1.517985
education						
secondary	1.008867	1.184608	0.01	0.994	.1010079	10.07655
diploma	2.161995	1.935722	0.86	0.389	.3738864	12.50172
degree	6.64301	6.331943	1.99	0.047	1.025704	43.02372
post graduate and above	10.83637	16.08648	1.61	0.108	.5905858	198.8311
Income	.9991533	.0003205	-2.64	0.008	.9985254	.9997816
familySize	1.013488	.217197	0.06	0.950	.6658869	1.54254
Lframe	.0025311	.00343	-4.41	0.000	.0001778	.0360414
occupation						
private business	2.27147	1.797319	1.04	0.300	.4817114	10.71093
others	.1408836	.0783564	-3.52	0.000	.0473632	.4190637
waiting_time	.9569139	.0432389	-0.97	0.330	.8758115	1.045527
drug_availability	18.41238	16.74545	3.20	0.001	3.097209	109.4585
distance	.9332238	.0425523	-1.52	0.130	.8534409	1.020465
chronic_illness	.0808688	.0434775	-4.68	0.000	.0281936	.2319596
service_quality						
good	.2796682	.3765581	-0.95	0.344	.0199777	3.915074
poor	.2361325	.263957	-1.29	0.197	.026403	2.111825
very poor	6.659928	4.999236	2.53	0.012	1.529397	29.0014
facility_preference	.0296387	.0268813	-3.88	0.000	.0050101	.1753354
_cons	1.14e+07	5.46e+07	3.38	0.001	925.2521	1.40e+11