

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ART AND SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

**IDENTIFYING PULL AND PUSH FACTORS OF HEALTH WORKERS IN RURAL
GHANA**

(A CASE STUDY- MPOHOR WASSA EAST DISTRICT IN THE WESTERN REGION)

A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF
SOCIAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF A MASTER OF ARTS DEGREE IN ECONOMICS

BY

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APRIL, 2011

DECLARATION

I hereby declare that, under supervision I have personally undertaken the study herein submitted.

All references made in the study are duly acknowledged and all aspects of this study have been discussed with and approved by my supervisor, Dr. (Sis) Eugenia Amporfu.

Signature.....

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I declare that I have supervised the student in undertaking the study submitted herein.

The student has been consistent in interaction with me for guidance and direction.

Signature.....

Date.....

DR. (SIS) EUGENIA AMPORFU.

(SUPERVISOR)

DEDICATION

I dedicate this work to my father, Nana Kwadu Kyerefo III

KNUST



ACKNOWLEDGEMENTS

The author would like to express his appreciation to the staff of the Department of Economics, Kwame Nkrumah University of Science and Technology (KNUST) for their help with this project. Specifically, I would like to thank Dr. (Sis) Eugenia Amporfu for her guidance throughout the whole project. Thanks are also due to all fellow master students with whom it has been possible to discuss this work.

He would also want to express his sincere appreciation to my father, Nana Kwadu Kyerefo III for his financial support and fatherly advice throughout my education. It is his support that had brought out the potential in me.

Advice and constructive criticism was received on selected parts of the work from Gyabaa Freeman and Richard Amo-Gyimah; the author appreciated all the comments he received and has made good use of them. I would also like to thank all health care workers at Mpohor Wassa East District for their cooperation.

Finally, thanks are due to my pastors and church members who supported me through encouraging words and prayers. I would like to say that it was through all these support that the project was completed successfully.

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ABSTRACT

Rural areas of Ghana are facing serious health workforce shortage, especially medical doctors. Though several policies and schemes have been implemented to improve recruitment to and retention of the rural health workforce in Ghana, health workers still find it difficult to accept posting to rural communities. This study, therefore examines the factors that mostly pull health care workers to and factors that mostly push them from rural areas of Ghana. The study relied on data gathered from a field survey conducted in Mpohor Wassa East District in Ghana. The data was collected through personal interview with the help of a structured questionnaire.

Binary Logit regressions were estimated to assess the impact of financial, staff accommodation, working conditions, professional advancement and socio-economic infrastructures on willingness to remain in rural health post in Ghana and the characteristics of health care workers who would opt for these retention factors. From the result, financial incentives and Socio-economic infrastructures were significant in influencing the willingness of health workers to remain at rural health post in Ghana, while other explanatory variables (staff accommodation, working conditions and professional advancement) were not significant. The study found that financial hardship and poor socio-economic infrastructures are push factors and reasons for dissatisfaction at the current post for various health professionals in rural Ghana. Moreover, the findings indicate that 61% of the respondents were unsatisfied with current post and the willingness of health workers to remain at their respective health post depends on the level of satisfaction.

The following recommendation were made based on the findings: financial incentives is most important factor the attracts and increases the willingness to stay in rural of Ghana and it should target male health care workers more than female health care workers, Male and married health workers should be given more opportunities to pursue higher professions as a way of motivating them to remain in rural of Ghana, all health workers in rural areas in Ghana should be given befitting staff accommodation, regardless of gender, age, marital status, educational level and health profession type since they are all equally motivated by it, the government should provide more drugs, bed and equipment in all rural health post especially were males and aged dominate and finally government and other stakeholders should embark on rigorous provision of such facilities to help curb migration of health care workers from these rural communities and also to attract more health care workers to rural communities.

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

The provision of adequate, accessible, appropriate and affordable health is one of the fundamental rights, recognized by global leadership under the banner of World Health Assemblies of 1978 and 1998 and to achieve this task, health workers must be an integral part of health systems, because they are critical element in improving health outcomes. The World Health Report (2006) sounded the alarm that, without sufficient numbers of adequately trained

and supported health workers, there is a significant risk of not attaining the health-related Millennium Development Goals (MDGs) (WHO, 2006).

For this reason the Government of Ghana has been adopting and implementing various policies to improve the number of health workers throughout the country and also to attract and retain more health workers in rural areas to ensure improved health status of the people. Ghana Government in the 1970s introduced the Village Volunteer (VV) and Community Clinic Attendant (CCA) system to bring health services closer to the people. This was in response to a review of the health services that showed that over 70% of the health services' resource were used in tertiary institutions in the big towns (Global Health Force Alliance, 2006). In 1980 a community health nurses' was created to provide more professional and potentially more acceptable services than village health workers and over 2000 were trained and deployed by 1990 in Ghana. Moreover, in Ghana the Community Health Program was introduced in 1999 with the aim of improving health care access as it attempts to place mid-level workers in rural areas and deprived communities (Global Health Force Aliance, 2006). The government of Ghana through the Ghana Accreditation Board has also accredited other public medical schools, apart from the premier medical school of the University of Ghana, and other health training institutions throughout the country in the training of health professionals (Dr J. Koku Awoonor-Williams, 2008). These initiatives all go to buttress the commitment of the Government of Ghana to increase the number of and retain health workers in the country, particularly the rural and remote areas to promote better access to health care.

These policies and strategies have resulted in some improvement of health conditions in Ghana. There is decline in infant mortality from 215 per 1000 in 1960 to 157 in 1980 and further to 112

in 2000 (World Bank, 2002). Moreover, overall life expectancy has increased from 45 years in 1960 to 53 years in 1980 and further to 57 years in 2000(World Bank, 2002).

However, the country's doctor-patient ratio is still far below the standard set by the World Health Organization (WHO). Statistics indicate that the doctor-patient ratio in Ghana is 1:13,000, a figure far below the World Health Organization (WHO) global standard pegged at 1:5,000 (Daily Graphic, June 20, 2009). Moreover, these policies have done very little to attract health professionals to deprived areas of the country. The national average hides the deeper disparities in a region by region basis, in Ghana. For example, Upper East Region had a doctor-patient ratio of 1:29,000 as at 2008, the Upper West 1:44,000 in 2008 and the Northern Region 1:93,000 in 2008 (Dr J. Koku Awoonor-Williams, 2008) and these indicate regional disparity. The disparity is more worrisome at community level. Many rural areas in Ghana lack adequate health personnel, such as doctors, nurses, and pharmacists. Health personnel are often unwilling to take up jobs in rural localities; consequently, there are clinics and hospitals without health professionals in certain parts of the country, especially in the rural areas.

With regard to this situation, the factors affecting movements and for that matter location of health workers need to be analyzed and understood. There are several literatures on factors affecting choices of location in rural and remote areas, and they have been summarized in some recent reviews (Dieleman, 2006, Lehmann et al, 2008). These factors have been currently known as 'push' and 'pull' factors, mainly in relation to research on internal and international migration of health workers (Zurn et al, 2004, WHO, 2004). The "Pull" factors attract an individual to a new destination and these may include improved employment opportunities and/or career prospects, higher income, better living conditions or a more stimulating environment: while the 'Push' factors repel the individual from a location. These "push" factors might include loss of

employment opportunity, low wages, poor living conditions, lack of or poor school for children (Lehamnn et al, 2008). Both push and pull factors influence an individual who makes a decision about moving to, leaving or staying in a job in many different ways. Any decision by a health worker will be the result of a complex interplay between these factors.

It is evident in Ghana that rural areas lack sufficient socio- economic infrastructures. Most rural communities in Ghana have poor road network and most roads become deplorable during rainy season, inhibiting free movement of people. Many health facilities in these areas are ill equipped and these coupled with inadequate educational infrastructures with insufficient staffs render most rural areas no go areas by some health workers. The support from government and for that matter Ministry of Health and community supports are very weak thus difficult to attract sufficient number of health workers to rural communities and to well equipped rural health facilities for quality health care delivery in rural Ghana. For this reason many rural communities still have high rate of morbidity and mortality due to lack of access to and poor utilization of health services, poor coverage of child welfare services and lack of technical support for initiating their own health programmes (Obuobi and Ahmad, 1998).

Attracting and retaining health workers in poor communities might involve changing the existing incentive structure for public health workers. Introducing incentives in the public sector is often difficult due to non-flexibility of civil service rules and all mechanisms of incentives for health workers in rural areas have their own risks and none of them is problem free.

1.1 THE PROBLEM STATEMENT

Getting health workers to and retaining them, particularly in rural areas of Ghana, is high on the national agenda, in order that quality of health care delivery will be achieved in rural areas. However, the basic problem is that health workers are not willing to move and or stay in the rural areas of Ghana, thus creating severe shortage of health workers which severely contribute to health care accessibility problems (Salafsky et al., 2005) hampering the attainment of the Millennium Development Goals (MDGs).

Therefore in order to achieve health related Millennium Development Goal and ensure health care for all in Ghana, policy makers should have a good understanding of push and pull factors determining location of health care workers in Ghana.

1.2 OBJECTIVES OF THE STUDY

The study looks into pull and push factors of health care professional of sample Ghanaian health care workers using primary-gathered data in order to determine actual factors that influence location decision of Ghanaian health care workers. The survey conducted in Mpohor Wassa East District of the Western Region in Ghana was designed to answer the following specific research objectives:

1. To determine the main factors that influence choices of location of health care workers in Ghana. The factors to be considered include:
 - i. Financial factors
 - ii. Staff accommodation
 - iii. Working conditions
 - iv. Professional advancement and
 - v. Socio-economic factors

2. To determine the characteristics of health care workers who would ought for financial, accommodation, working condition, professional advancement and socio-economic factors as retention factors.
3. Policy recommendations to increasing access to health care workers in rural and remote areas in Ghana.

1.3 HYPOTHESES

The following hypotheses were tested.

1. H_0 : Financial consideration does not influence the willingness of health workers to remain in rural areas.
 H_1 : Financial consideration influences the willingness of health workers to remain in rural areas.
2. H_0 : Staff accommodation does not influence the willingness of health workers to remain in rural areas.
 H_1 : Staff accommodation influences the willingness of health workers to remain in rural areas.
3. H_0 : Working condition does not influence the willingness of health workers to remain in rural areas.
 H_1 : Working condition influences the willingness of health workers to remain in rural areas.
4. H_0 : Professional advancement does not influence willingness of health workers to remain in rural areas.
 H_1 : Professional advancement influences willingness of health workers to remain in rural areas.

5. H_0 : Socio-economic infrastructure does not matter to all health workers in rural areas.

H_1 : Socio-economic infrastructure matters to all health workers in rural areas.

1.4 JUSTIFICATION

Currently, there is a lack of specific operational solutions and recommendations that Ghana can adapt to attract more health care workers, particularly doctors to remote and rural communities. This is particularly important, as the topic is of relevance for policy makers and stakeholders since the research aims to provide up-to-date and evidence-based recommendations to them on effective strategies that can be employed to ensure health care workers are where they are most needed in a sustainable manner. The work intends to provide an overview of the issues, challenges and potential solutions to the problem of inequitable access to health care workers in remote and rural areas of Ghana.

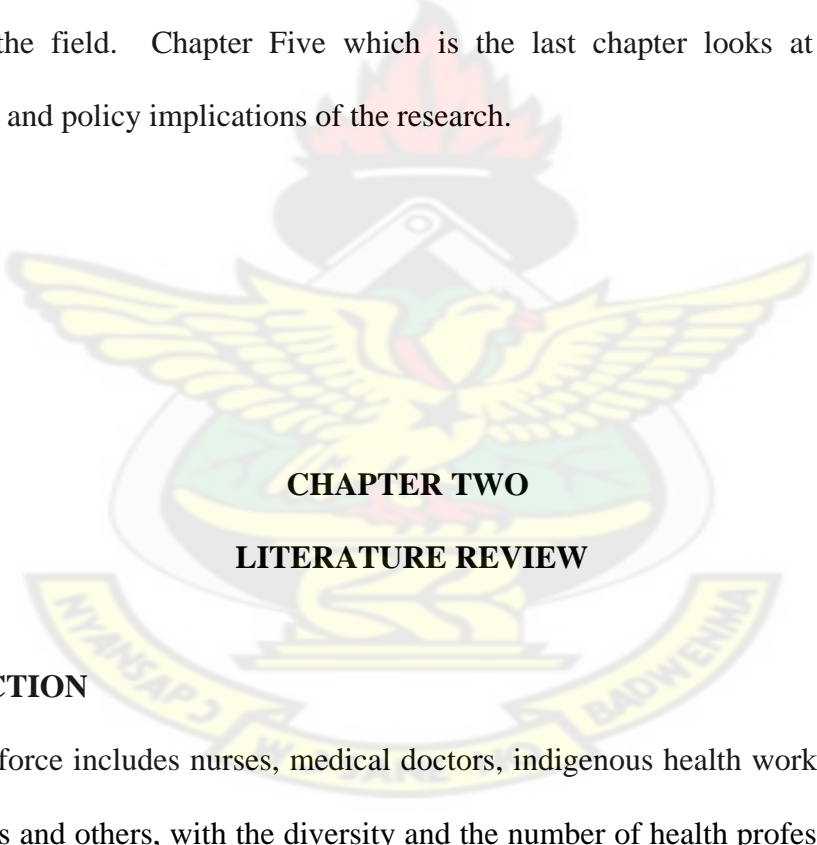
Moreover, development of appropriate strategies first requires an understanding of the factors which influence decisions of health care workers to accept and stay at post in remote and rural areas of Ghana or otherwise. This work therefore adds to our knowledge on the factors affecting the decision of health care workers to accept posting or otherwise to Mpohor Wassa East District in Western Region of Ghana. This study is relevant since it brings out the state of access to health care workers in rural Ghana.

1.5 ORGANIZATION OF THE STUDY

The study is divided into five chapters. Chapter One deals with the introduction, the statement of the problems, and justification of the study, objectives, methodology and organization of the

study. Chapter Two provides an overview of existing literature. This chapter provides a review of already existing literature on this topic.

Moreover, Chapter Three gives the profile of the district chosen. It also describes the data that form the basis for the research that are reported in this paper and provides an overview of methodology that was used in the study. Again, it deals with the theoretical framework and the empirical model that underpin the analysis of the data. Chapter Four reports the results of the empirical analysis. That is, deals with the presentation, analysis and discussion of the data collected from the field. Chapter Five which is the last chapter looks at the conclusion, recommendation and policy implications of the research.

The logo of Kenya National University of Science and Technology (KNUST) is centered in the background. It features a yellow eagle with spread wings, perched on a shield. Above the eagle is a torch. Below the eagle is a banner with the text 'NYANSAPI 2000' and 'BADWENNA'. The text 'KNUST' is written in large, light blue letters across the middle of the logo.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

The health workforce includes nurses, medical doctors, indigenous health workers, allied health staff, pharmacists and others, with the diversity and the number of health professionals inversely related to remoteness (Francis et al., 2002). Staff vacancies are reported for all health professional groups, with the level rising the more rural and remote the setting (AIHW 2003), and this might suggest that people who live in rural and remote areas have less access to health workers. This shortage of health professional in rural areas leads to higher mortality and

morbidity rates for some diseases, higher exposure to injury in the workplace, socioeconomic disadvantage, and inequitable access to health services in comparison with urban counterparts (Simmons & Hsu-Hage in Wilkinson & Blue, 2002; McMurray, 2003).

Best (2000) noted that the shortage of rural doctors has been a concern for governments for many years and strategies such as financial incentives, recruitment of overseas trained doctors and the establishment of Rural Workforce Agencies (RWA) have been implemented to address the rural doctor crisis.

However, research demonstrates that some doctors consider rural communities to be socially and culturally under-resourced and question the financial viability of rural practice. Some doctors also name poor collegiate support, limited access to locum relief and reduced career opportunities as factors that negatively influence their choice to practice in the rural areas (Best, 2000). These factors affecting choices of location of health professional in rural and remote areas have become to be known as 'push' and 'pull' factors, mainly in relation to research on internal and international migration of health workers (Zurn et al, 2004, WHO, 2004).

This section reviews literatures on the main key push and pull factor of health professional and the main policies and strategies adopted worldwide to attract and retain health professional in rural and remote areas.

2. 1 THE THEORETICAL REVIEW

This section reviews factors that affect decision of health workers on whether to accept posting or not to rural areas, proposed by Lehmann et al. (2005) and Dussault & Franceschini (2006) and

other additional factor (environmental factor). Though the factors are grouped under separate headings, it is important to note that they interact with each other.

2.1.1 Work-related factors

This factor involves job satisfaction, health –system related factors and preparation made for employment.

2.1.1.1 Job satisfaction

To begin a discussion on job satisfaction, one might logically begin with a definition. According to Webster's Dictionary (1986), job satisfaction refers to how well a job provides fulfillment of a need or want, or how well it serves as a source or means of enjoyment. Job satisfaction is defined more specifically in the literature, and several theorists have generated their own workable definitions. Of those researchers, Robert Hoppock (1935) is perhaps the most widely cited, although others have emerged with definitions reflecting more current theoretical underpinnings of job satisfaction. Some of the versions use the terms job attitudes, work satisfaction, and job morale interchangeably, which may explain the lack of a standardized job satisfaction definition. Within the literature, Hoppock offered one of the earliest definitions of job satisfaction when he described the construct as being any number of psychological, physiological, and environmental circumstances which leads a person to express satisfaction with their job (Hoppock, 1935). Smith et. al.(1969) defined job satisfaction as the feeling an individual has about his or her job. Locke (1969) suggested that job satisfaction was a positive or pleasurable reaction resulting from the appraisal of one's job, job achievement, or job experiences. Vroom (1982) defined job satisfaction as workers' emotional orientation toward their current job roles. Similarly, Schultz (1982) stated that job satisfaction is essentially the psychological disposition of people toward

their work. Siegal and Lance (1987) stated simply that job satisfaction is an emotional response defining the degree to which people like their job. Finally, Lofquist and Davis (1991), defined job satisfaction as “an individual’s positive affective reaction of the target environment...as a result of the individual’s appraisal of the extent to which his or her needs are fulfilled by the environment” .

The definition of job satisfaction has visibly evolved through the decades, but most versions share the belief that job satisfaction is a work-related positive affective reaction. There seems to be less consistency when talking about the causes of job satisfaction. Wexley and Yukl (1984) stated that job satisfaction is influenced by many factors, including personal traits and characteristics of the job. To better understand these employee and job characteristics and their relationship to job satisfaction, various theories have emerged and provided the vital framework for future job satisfaction studies. Early traditional theories suggested that a single bipolar continuum, with satisfaction on one end and dissatisfaction on the other, could be used to conceptualize job satisfaction. Later revisions of the theory included a two-continuum model that placed job satisfaction on the first scale, and job dissatisfaction on the second (Brown, 1998). These later theories focused more on the presence or absence of certain intrinsic and extrinsic job factors that could determine one’s satisfaction level. Intrinsic factors are based on personal perceptions and internal feelings, and include factors such as recognition, advancement, and responsibility. These factors have been strongly linked to job satisfaction according to O’Driscoll and Randall (1999). Extrinsic factors are external job related variables that would include salary, supervision, and working conditions. These extrinsic factors have also been found to have a significant influence on job satisfaction levels according to Martin and Schinke (1998).

2.1.1.1.1 Theories of Job Satisfaction

There are numerous theories attempting to explain job satisfaction, but three conceptual frameworks seem to be more prominent in the literature. The first is content theory, which suggests that job satisfaction occurs when one's need for growth and self-actualization are met by the individual's job. The second conceptual framework is often referred to as process theory, which attempts to explain job satisfaction by looking at how well the job meets one's expectations and values. The third conceptual group includes situational theories, which proposes that job satisfaction is a product of how well an individual's personal characteristics interact or mesh with the organizational characteristics. Each of the three theoretical frameworks has been explored and reviewed by countless scholars and researchers, and the purpose of this chapter is not to provide an exhaustive review of job satisfaction theories. Instead, a highlight of the main theories and theorists from each framework will be offered, to provide clarity, relevance and direction to this study of job satisfaction.

i. Content Theories

When discussing human needs, growth, and self-actualization, one cannot look far before finding Abraham Maslow and his "hierarchy of needs". Maslow's (1954) traditionalist views of job satisfaction were based on his five-tier model of human needs. At the lowest tier, basic life sustaining needs such as water, food, and shelter were identified. The next level consisted of physical and financial security, while the third tier included needs of social acceptance, belonging, and love. The fourth tier incorporated self-esteem needs and recognition by one's peers, and at the top of the pyramid was reserved for self-actualization needs such as personal autonomy and self-direction. According to Maslow, the needs of an individual exist in a logical

order and that the basic lower level needs must be satisfied before those at higher levels. Then, once the basic needs are fulfilled, they no longer serve as motivators for the individual. The more a job allows for growth and acquisition of higher level needs, the more likely the individual is to report satisfaction with his or her job. Furthermore, the success of motivating people depends on recognizing the needs that are unsatisfied and helping the individual to meet those needs.

Building on the theories of Maslow, Frederick Herzberg (1974) suggested that the work itself could serve as a principal source of job satisfaction. His approach led to the aforementioned two-continuum model of job satisfaction where job satisfaction was placed on one continuum and job dissatisfaction was placed on a second. Herzberg's theory recognized that work characteristics generated by dissatisfaction were quite different from those created by satisfaction. He identified the factors that contribute to each dimension as "motivators" and "hygienes". The motivators are intrinsic factors that influence satisfaction based on fulfillment of higher level needs such as achievement, recognition, and opportunity for growth. The hygiene factors are extrinsic variables that such as work conditions, pay, and interpersonal relationships that must be met to prevent dissatisfaction. When hygiene factors are poor, work will be dissatisfying. However, simply removing the poor hygienes does not equate to satisfaction.

Similarly, when people are satisfied with their job, motivators are present, but removing the motivators does not automatically lead to dissatisfaction. Essentially, job satisfaction depends on the extrinsic characteristics of the job, in relation to the job's ability to fulfill ones higher level needs of self-actualization. Hence the two continuum model of Herzberg's Motivator-Hygiene theory.

ii. Process Theories

Process theories attempt to explain job satisfaction by looking at expectancies and values (Gruneberg, 1979). This theory of job satisfaction suggests that workers' select their behaviors in order to meet their needs. Within this framework, Adams' (1963) and Vroom (1982) have become the most prominent theorists. J. Stacy Adams' suggested that people perceive their job as a series of inputs and outcomes. Inputs are factors such as experience, ability, and effort, while outcomes include things like salary, recognition, and opportunity. The theory is based on the premise that job satisfaction is a direct result of individuals' perceptions of how fairly they are treated in comparison to others. This "equity theory" proposes that people seek social equity in the rewards they expect for performance. In other words, people feel satisfied at work when the input or contribution to a job and the resulting outcome are commensurate to that of their coworkers.

According to Milkovich and Newman (1990), this social equity is not limited to others within the same workplace, and the equity comparisons often reach into other organizations that are viewed as similar places of employment. Vroom's (1964) theory of job satisfaction was similar in that it looked at the interaction between personal and workplace variables; however, he also incorporated the element of workers' expectations into his theory. The essence of this theory is that if workers put forth more effort and perform better at work, then they will be compensated accordingly. Discrepancies that occur between expected compensation and actual outcome lead to dissatisfaction. If employees receive less than they expect or otherwise feel as if they have been treated unfairly, then dissatisfaction may occur. Conversely, overcompensation may also lead to dissatisfaction and the employee may experience feelings of guilt. The compensation does not have to be monetary, but pay is typically the most visible and most easily modified element of outcome. Salary also has significance beyond monetary value and the potential to

acquire material items, and Gruneberg (1979) notes that it is also an indication of personal achievement, organizational status, and recognition. Vroom's theory also goes one step further to incorporate an individual's personal decision making within the work-place. Vroom (1982) explained that employees would choose to do or not do job tasks based on their perceived ability to carry out the task and earn fair compensation. To illustrate and clarify his ideas, Vroom generated a three-variable equation for scientifically determining job satisfaction. Expectancy is the first variable, and this is the individual's perception of how well he or she can carry out the given task. Instrumentality is the second variable of the equation, and this refers to the individual's confidence that he or she will be compensated fairly for performing the task. Valence is the third variable, which considers the value of the expected reward to the employee. In Vroom's formula each variable is given a probability value, and when all three factors are high, workers will be more satisfied and have more motivation. If any of the factors are low, work performance and employee motivation will decline.

iii. Situational Theories

The situational occurrences theory emerged in 1992, when Quarstein, McAfee, and Glassman stated that job satisfaction is determined by two factors: situational characteristics and situational occurrences. Situational characteristics are things such as pay, supervision, working conditions, promotional opportunities, and company policies that typically are considered by the employee before accepting the job. The situational occurrences are things that occur after taking a job that may be tangible or intangible, positive or negative. Positive occurrences might include extra vacation time, while negative occurrences might entail faulty equipment or strained coworker relationships. Within this theoretical framework, job satisfaction is a product of both situational factors and situational occurrences.

2.1.1.1.2 Determinants of Job Satisfaction

A review of the literature shows that numerous variables have been investigated in their relationship to job satisfaction. These variables include demographic data (e.g. age, gender, and race), intrinsic features of the job (e.g. recognition, advancement, and responsibility), and extrinsic variables (e.g. salary, supervision, and working conditions).

2.1.1.1.2.1 Demographic Variables

i. Age

Research has often focused on age as a factor influencing job satisfaction. Available literature is somewhat inconclusive however, with some studies showing no significant impact (Miller, 1985; Brown, 1998), some showing a gradual linear increase of satisfaction as age increases (Hulin, 1963; Weaver, 1980; Anderson, Hohenshil & Brown, 1984; Sutter, 1994), and some suggesting that satisfaction is curvilinear and changes throughout the lifespan of the employee (Hertzberg et. al., 1957). Generally speaking, job satisfaction tends to increase gradually with age (Spector, 1997). Hertzberg et. al, (1957) attributes this trend to the fact that job expectations tend to become more realistic as employees age and mature. This pattern may change to show a relative decline in satisfaction after age 55 (Jewel, 1990), but this may be linked to the decreased physical energy and enthusiasm that may accompany the aging process. Still, many studies fail to show this late-career job satisfaction drop-off, and Quinn, Staines, and McCullough (1974) reported that older workers remain satisfied because of promotions and acquiring more desirable positions within organizations. Others justify the findings by noting that people change jobs 6-7 times in a lifetime, and as people get older, they become more aware of their needs and make better choices. This incongruence of literature is likely due to situational job variances, and Zeitz

(1990) supported this logic by demonstrating significant differences between satisfaction levels of federal employees based on their positions as elite professionals, non-elite professionals, and non-professionals.

ii. Gender

Gender has also received a great deal of attention in job satisfaction studies, but again the research is inconclusive. In 1997, Thompson and McNamara reviewed all job satisfaction studies published in the *Educational Administration Quarterly* over the past six years and showed no significant difference between male and female satisfaction levels. Other studies that have shown no significant difference between gender and job satisfaction levels include Barbash (1976), D'Arcy, Syrotuik, & Siddique (1984), and Iacqua et. al. (1995). Smith, Smitz, and Hoy, (1998) arrived at similar insignificant findings until they compared the gender of the employee to the gender of the employer. They found that women were more significantly more satisfied than men in small companies with female supervision, while males were significantly more satisfied in larger companies with male supervisors. Studies suggesting that gender does affect job satisfaction are available, and data can be found to suggest that either men are more satisfied (Locke, Fitzpatrick & White, 1983; Black & Holden, 1998, Weaver, 1977) or that women are generally more satisfied (Kramen-Kahn & Hansen, 1998, Chapman & Lower, 1982). The inconsistencies, according to Gruneberg (1979), are closely linked to differences among expectations, respect, promotional prospects, salary, social interactions, and coping strategies of males and females and the jobs they often hold. Others suggest that men are more satisfied with their jobs than women because of unequal treatments in the workplace, and that under equal work conditions, women are more satisfied with their jobs than men.

iii. Race

Race has also been investigated in job satisfaction studies, and once again, data is inconclusive. Brush, Moch, and Pooyan (1987) found no significant racial differences when comparing fifteen job satisfaction studies; however, Weaver (1980) reports that non-whites are consistently less satisfied than Caucasian employees. Some researchers agree that a racial difference does exist, but that whites are more satisfied with their jobs primarily because of unequal treatment in the workplace. Regardless of the specific demographic variable, be it age, gender, or race, Landy and Trumbo (1980) suggest that job satisfaction variances may exist, but they are very small (2-5 percent). Weaver (1978) agrees, and goes on to say that any differences that do exist, seem to disappear when factors such as education, salary, and status are controlled.

2.1.1.1.2.2 Extrinsic factors

i. Salary

Many researchers have identified salary as a fundamental variable in the study of job satisfaction (Miller, 1985; Derlin and Schnieder, 1994; Solly and Hohenshil, 1986) Furthermore, the relationship between salary and job satisfaction has been addressed by virtually all job satisfaction studies in the last 80 years.

Although the earliest research suggested that salary was not a significant predictor of job satisfaction (Hoppock, 1935; Hertzberg, Mausner, Peterson and

Capwell, 1957), later studies began to suggest that salary was a factor up to a certain point in an employee's career (Hertzberg, 1966).

By the 1970's, salary was being viewed as a more significant factor in job satisfaction, and in studies such as the one conducted by Dyer and Theriault (1976) salary was found to be the most significant factor in determining job satisfaction. Other researchers of the 1970's also spoke to the significant relationship between salary and satisfaction, but they argued that although low salary was a cause of dissatisfaction, high salary was not necessarily related to satisfaction (Lawler, 1971).

More recent studies have generally shown a positive relationship between pay and job satisfaction (Lucas et. al, 1990; Lee and Wilbur, 1985; Rhodes, 1983; Kanungo, 1982), but the relationship seems to be linked more to perceptions of equity and fairness than actual dollar amount (Hulin and Smith, 1965; Spector, 1997). Social comparison appears to be a key factor when looking at the relationship between satisfaction and salary, but employee expectations are also fundamental. According to Adams (1965), employees must feel that there is an equitable balance between the amount of work performed and the compensation received. In other words, if a worker feels that the compensation is either too large or too small for the amount of work performed, dissatisfaction may occur.

ii. Incentives

Incentives for health workers is “all the rewards and punishments that providers face as a consequence of the organizations in which they work, the institutions under which they operate, and the specific interventions they provide” (WHO, 2000).

Incentives are generally aimed to encourage providers to furnish specific services, to encourage cost containment, to support staff recruitment and retention, to enhance the productivity and quality of services and also to allow for effective management. Hicks and Adams, 2001 noted that incentives aimed to satisfy health workers to work harder.

Incentives can be financial and nonfinancial and both are mutually reinforcing, and when financial incentives and non financial incentives are well implemented, they are able to attract and retain health worker in the rural and remote areas.

Policy makers are faced with alternatives incentive options to select from and one best way to select the most appropriate incentives option is to assess the cost and the effectiveness of each incentive option.

The effectiveness of incentives to attract and retain health professional in rural areas depends on individual health worker perspective. However, various indicators have been used to assess the effectiveness of the different incentives and these include: the additional number of health workers recruited the degree of job satisfaction, the level of motivation, the number of patients seen and the level of work quality. The effectiveness of incentives presented in table 1 is confirmed, to a large extent, by observing policies implemented in countries that are more successful in recruiting and retaining health care staff (Adams and Hicks 2000).

In addition, one should also account for the cost of each policy, in particular the implementation costs. Measures favoring financial incentives are likely to face different financial and

implementation constraints than non-financial incentives. For instance, the feasibility of increasing nurses' wages should be thoroughly assessed, since wage costs account for between 65% and 80% of the recurrent health system expenditure (Saltman et al. 1995; Kolehamainen-Aiken 1997). Accordingly, increasing nursing wages in the public sector has consequences from a public finance perspective, particularly when the health care workforce is linked to other public sector workers. Where there is little elasticity of funding for the health sector, across-the-board wage rises may be prohibitive; in this case, pay incentives, linked perhaps to workforce deployment (unattractive shifts, work in rural areas) makes better fiscal sense. In contrast, the implementation of non-financial incentives might face fewer financial constraints but the institutional changes required for those incentives might represent big challenges. For instance, introducing incentives such as flexible working hours or increasing work autonomy is likely to meet some resistance and face bureaucratic difficulties in many organizations.

One should be cautious when comparing the cost or effectiveness of various policy options or inferring general conclusions regarding the pertinence of policy options, as measurement units or local context might differ quite significantly.

iii. Interpersonal Factors

Within the context of job satisfaction research, interpersonal relationships are the elements that make up the social and support network of the employee. These elements include the relationship with one's supervisor, the social interaction with co-workers, and even the interactions with clients and/or customers. According to Brown (1998), employee supervision and interaction have been found to be the two most significant interpersonal factors when looking at job satisfaction.

The importance of co-worker social support has been investigated for decades. As far back as the Hawthorne Studies of the 1920's, research has shown that workers who belong to a social group and have friendships on the job tend to be more satisfied (Maynard, 1986). Maynard suggests further that employees who lack social support at work experience more stress, have less coping techniques, and are generally less satisfied. Fellow employees can satisfy many social needs, and sympathetic and supportive co-workers can increase job satisfaction (Green, 2000). Co-workers are also vital for evaluating the equity and fairness of one's pay and work requirements, and social needs studies have shown that co-worker job satisfaction can influence one's own job satisfaction (Brown, 1998).

The nature of supervision provided can also have a significant impact on job satisfaction. Studies have shown that employees who have positive interactions with supervisors are generally more satisfied at work (Bruce and Blackburn, 1992; Vroom, 1982). Positive interactions tend to include constructive feedback, effective communication, and a focus on quality rather than quantity (Schroffell, 1999). Positive supervisory relationships are also those that treat the employees with respect, those that promote staff cohesion but allow for individual thinking, and those that fulfill employee's functional and interpersonal needs (Locke, 1970). Supervision is a complex variable however, and it is unrealistic to assume that job satisfaction can be guaranteed as long as supervisors interact positively with their employees. Individual personality characteristics may, for example, affect the employee's needs and management expectations. For example, Schroffell (1999) suggests that employees who have more experience desire less supervision and employees with less experience prefer more supervision. Also, studies have shown that organizational setting can affect the employee's desired supervisory relationship. In chaotic, ambiguous, or otherwise unstructured job settings, employees tend to prefer more

structured supervision. Conversely, in jobs where tasks are clearly defined and workers are well trained, a less structured supervisory style is preferred (House and Mitchell, 1974).

2.1.1.1.2.3 Intrinsic factors

Work is unquestionably an intrinsic part of peoples' lives. "It is often our source of identity and at times our reason for being" (Bruce and Blackburn, 1992, p. 4). Aside from decent pay, economic security, and other extrinsic and tangible rewards of employment, the intrinsic aspects of work are also relevant to the study of job satisfaction. Intrinsic factors are employees' affective reactions to the job, such as their satisfaction with the freedom they have to choose their own methods of working, the recognition that they receive for good work, and the opportunity they have to use their ability. Intrinsic factors may also include perceived respect and responsibility, task variety, and meaningful work. These personally rewarding intrinsic factors have demonstrated a significant impact on job satisfaction in many studies (Hertzberg et. al., 1957; O'Driscoll & Randall, 1999, Locke, 1976, Valentine, Valentine & Dick, 1988). Dodd- McCue and Wright (1996) found that job satisfaction is enhanced by the value placed on one's professional role and identification with that role, but negatively affected by choosing the job because rewards are extrinsic (external to the work itself, such as fellow workers, salary, or promotion opportunities). Martinez-Ponz (1990) found that intrinsic rewards were more effective in increasing job satisfaction and commitment among teachers than were financial incentives. Similarly, Reyes, Madsen, and Taylor (1989) found that intrinsic rewards had more influence on educators than any organizational rewards. Stewart (2000) suggested that helping to make workers feel independent had large positive effects on both performance and satisfaction outcomes. Kirkman and Rosen's (1999) work also spoke to the importance of worker autonomy and it's positive relationship with job satisfaction and performance. Cappelli (2000) highlighted

the importance of intrinsic rewards when participants rated interesting work, open communications, and opportunities for advancement as the top three things they desire in their jobs. Tatsapaugh (1994) suggested that the lack of advancement on the job is a frequent factor influencing resignation. When employee's feel their work is meaningful and that they are responsible for their outcomes, Thomas & Tymon, (1997) state that workers show higher levels of effort and attention to doing tasks well.

2.1.1.2 Health –related system factor

Another important factor of work- related factors is health- related system factor. This factor has an indirect impact on staff retention, as they contribute to staff shortages and increased workload for existing staff. Inappropriate policies and planning at national level lead to delays in recruitment and deployment of health workers , and inadequate health workers deployment policies lead to the bad distribution of staff, leaving rural areas deprived (Dussault & Franceschini, 2006; Buchan, 2002; Hongoro & Normand, 2006). Moreover, inadequate information systems, which lead to ghost workers occupying posts (Dovlo, 2005), and a lack of coordination with the educational sector, leading to a mismatch between numbers produced and numbers required, as well as the trained skills and skills required all create shortage of health workers especially in rural areas (Buchan, 2002) . Lastly, when posts in rural areas are perceived as punishments and rural posts are not made attractive, staff members are likely to ask for transfers or simply to refuse postings in rural areas.

2.1.1.3 Education and pre- service training

Education and pre-service training as prerequisite preparation for employment have been identified as a factor influencing selection of a practice location after graduation. Many medical

schools are urban-based so students often feel more comfortable living in urban areas to practice than in the rural areas. Medical or nursing schools in rural areas are more able to offer rural practice, thus better preparing and possibly motivating students to opt for practice in rural areas upon graduation (Dussault & Franceschini, 2006; Brooks in Lehmann et al., 2005).

2.1.2 Individual and life-style factors

Individual factors may involve factors such as age, gender, marital status, personal background, values and beliefs. Individual factors may vary according to a person's life cycle and career stage, and these changing needs must be taken into consideration when developing retention strategies.

2.1.2.1 Family consideration

Family reasons like children and spouse certainly influence decisions, but more so for women than for men. While the mobility of men is primarily related to economic considerations, the moves of women are closely related to marriage or family consideration. Female professional workers have specific needs to be able to work, particularly due to security at work, their traditional role as family caretaker and their reproductive role (Mumtaz et al., 2003; Standing & Baume, 2003). Because women form a large part of the workforce in most countries, their needs must be understood and translated into workplace policies in order to better address staffing needs in rural areas, particularly in those places where women are not allowed to consult male providers on their health concerns (Dussault & Franceschini, 2006).

2.1.2.2 Personal background

Moreover, decision on location may also be influenced by the kind of living conditions health personnel are used to. The correlation between geographical origin of students and their future choice of practice, that is whether students from under-served areas will return to under-served areas to practice their profession, is much debated in the literature. There is now considerable agreement in research from both high and low-income countries that rural upbringing increases the possibilities of health workers returning to practice in rural communities. Rural background is quite essential when it comes to health workers' being willing to work in rural areas (British Columbia Medical Association in Dussault & Franceschini, 2006; Brooks and others in Lehmann et al., 2005).

2.1.3 The working environment

The general living environments, together with social obligations, are important elements in decisions on where to work. Lack of housing, lack of health care and lack of schools for children are quoted internationally as reasons why staff either do not join or leave health services in remote areas.

In urban areas workers often have more job opportunities, better schools, more public transportation, better salary, higher prestige, and greater opportunities for spousal employment. Perhaps it is these factors that explained Arnold, Seekins, & Nelson's (1997) and Finley's (1991) findings that showed higher levels of job satisfaction in urban educational professionals when compared to those in rural settings. On the other hand, rural settings and smaller communities

can provide family-oriented settings, lower crime rates, recreational access and overall enhanced "quality of life". Two of the most commonly mentioned disadvantages to rural settings have been professional isolation and lack of opportunity for professional development. However, recent advancements in telecommunications and interactive networking through the Internet may decrease feelings of isolation and improve rural job satisfaction levels in the future.

2.2 EMPIRICAL REVIEW

2.2.1 Job satisfaction

Reports in literature differ on the importance of pay to a person's decision to choose a workplace. World health Organization (WHO) (1993) in a study of reasons for staff mobility in six African countries (Cameroon, Ghana, Senegal, South Africa, Uganda and Zimbabwe) found that only 24% of respondents quoted better remuneration as a reason for leaving, thus according to WHO (1993) findings, the decision of most health workers to leave a particular place is not greatly influenced by financial consideration. Also, Vujicic et al (2004), in a recent international study on the role of wages in the migration of health care personnel, found health care workers' willingness to migrate from a low-income to a high-income country "somewhat unresponsive to wage differences between source and destination countries" where the wage difference between source and destination country was between 3 and 15 times.

However, in Thailand salary was positively associated with intention to leave work by nurses. Moreover, In Senegal, low wages and other financial benefit like housing loans are believed to explain poor job satisfaction among nurses (ADIRA Etudes et Conseils 2003). Direct financial incentives to practice in rural areas may encourage rural practice in developed countries, but reports from developing countries are not positive, with the exceptions perhaps of a few

countries, such as Mali, Zambia, and South Africa (Perry, 2006, Souleyman 2008, Coulibaly et al 2008, Reid, 2004, Koot, 2005). These findings exhibit mix impact of salary or pay to attract and retain health workers in remote areas of developing countries. In Angola, in the mid-1990s, for example, doctors could earn the equivalent of their weekly salary in the public sector in one hour of private work. In Ghana also, many health professional, particularly medical doctors own their private clinic which serve as additional source of income. The implications of this are that the factors relating to the primary employment may be overridden by the availability of secondary employment, thus affecting people's choice of post and location.

In Thailand, financial incentive has been able to attract some quite a number of medical doctors to serve in the remote and rural areas. Thailand pays public doctors who work in rural and remote areas significantly more than those working in urban areas and this incentive has persuaded some to move to the rural areas (Wibulpolprasert and Pengpaiboon 2003). The government of Thailand also added nonfinancial incentives, such as changing physicians' employment status from civil servants to contracted public employees, providing housing, and introducing a system of peer review and recognition and these packages have been successful to attract more health workers to rural areas of Thailand. Also in Zambia, incentives package has been successful to attract and retain health professional in rural areas. The introduction of Health worker rural retention scheme. in Zambia in 2003, which sought to recruit and retain doctors in rural areas by providing a financial incentive (hardship allowance), school fees and loans for large purchases like cars or houses was successful in attracting doctors to rural areas (Koot and Martineau, 2005).

However, financial and non financial incentive packages in some countries could not significantly attract health workers especially medical doctors to the remote and rural areas of the countries. In Burkina Faso for example, introduction of a financial allowance scheme under the categories of function, accommodation, extra duty, night shift and risk, with a range from 46 to 245 USD depending on cadre and work circumstances did not reduce flows from rural to urban or from public to private for-profit and international non governmental organizations (NGOs). Workers judged the increased salary as not competitive when compared to levels in the private sector and complained that the risk, night duty and accommodation allowances were inadequate (Bocoum, 2008). Moreover, in South Africa, introduction of compulsory service as well as financial incentives to address inequities in the distribution of health personnel, the rural and scarce skills allowances could not significantly push medical doctors to the rural areas and most hospitals in remote rural areas remain without doctors. Moreover, perceived unfairness of incentives and disparities between what is paid to different professions appear to fuel the migration from the rural areas. For example, Ghana introduced additional duty hours allowance (ADHA), which increased incomes significantly for doctors but less so for nurses and other professionals. Consequently, despite a net increase in incomes, such initiatives have apparently resulted in nurses' increased de-motivation and migration.

In Zimbabwe, health professionals report of lack of basic equipment such as injections and thermometers in the public health institutions (Crush, 2005). The absence of such basic equipment hinders health professionals from providing quality care to their clients, consequently affecting morale. Awases et al (2004) also reported that poor working conditions were cited in six other African countries as a reason for emigrating. Stillwell et al (2004) said Nigerian doctors

migrate in search of better opportunities for professional development in countries with better medical infrastructures.

2.2.2 Recruitment, training for rural practice and compulsory service

A number of strategies that relate to health professionals' training and recruitment have been proposed and implemented in some countries to stem the outflow of health professionals and to mitigate shortages. Some are discussed below.

In Australia, rural recruitment and rural education helped to increase rural health professional in rural communities (Veitch et al., 2006). Moreover, the Government of Thailand has had considerable success in improving equitable access to healthcare throughout the country over the last four decades, and rural recruitment, in combination with rural location of training, has played an important role. In the United States of America also, rural recruitment and rural education have helped to improve upon the number of health workers in the remote end rural areas (Salafsky et al., 2005).

Many medical schools in Africa have adopted innovative student-centred, problem-solving and community-based approaches to health professional education and these schools have been successful in producing professionals with locally relevant skills and a community service orientation. A major obstacle, however, is an unmet need for the re-orientation of medical educators away from existing traditions that emphasized the 'international' standards and methods of medical education (Ndumbe, 2004).

Also, many countries have adopted bonding and compulsory service policy to increase the number of health workers in rural areas. South Africa is a good example of where compulsory

service has been successful to increase the number of health professional especially medical doctors in remote areas (Reid & Conco, 1999).

Furthermore, many countries use ‘assistant medical officers’, ‘surgical technicians’, and other staff-run services in rural hospitals to carry out many of the tasks of doctors. They are country-specific professionals who are not internationally tradeable and are retained especially in rural areas. Pereira et al. (1996) and Vaz et al. (1999) compared the performance of obstetric and surgical technicians respectively to that of physicians in Mozambique and found only minimal differences in the outcomes to clients. In addition, these cadres were well retained within their countries and are considered less expensive to train and remunerate. These have necessitated the need for countries like Malawi and Zambia have ‘clinical officers’ and Mozambique, ‘surgical and medical technicians’ who are permitted to perform major surgery. In Tanzania ‘assistant medical officers’ also perform surgical, obstetric, and orthopedic operations that are usually reserved for physicians.

2.3 SUMMARY

There is a vast literature on factors affecting choices of location in rural and remote areas, and they have been well identified and summarized in some recent reviews (Dieleman, 2006, Lehmann et al, 2008). Though their complexities make their categorization difficult, they are generally discussed as individual, organizational or broader environment factors. They do not influence health workers’ choices and decisions for location or practice in an isolated manner, but rather interact and influence each other. Despite the vast literature on push and pull factors of health care workers, no specific study in this area is done in Mpohor Wassa East District in Western Region of Ghana to specifically identify the factors influencing decision of health

workers to accept posting or otherwise to the area. The district has acute health care workers shortage with only four (4) medical doctors and twenty nine (29) nurses, which result in a doctor/patient ratio of 1:36,053 and a nurse / patient ratio of 1:4,972, a figure far below the national level (Maks Publication and Media Services, 2006). This therefore calls for research into causes of ‘push’ and ‘pull’ factors of health care workers in this district.

Moreover, the various interventions are often times proposed and implemented without a baselines study to understand the factors that influence health workers’ decisions, thus rendering most of the intervention ineffective and unsustainable. Therefore, the challenge for each health system is to identify and implement a package of different types of incentives that will meet its needs (Buchan et al. 2000), and it is unlikely that one package of incentives will be right for all organizations or contexts.

Most research studies on increasing motivation and job satisfaction of health workers have been undertaken in developed countries, where the resources that can be invested in such activities are available (Bennett and Franco 1999). Much of this research focuses on strengthening positive attitudes towards work through intrinsic rewards, such as increased autonomy and developing supportive leadership. Developing teamwork has been acknowledged as important (Sihvonen et al. 1991; Marquis et al. 1992; Kekki 1994; Vinokur-Kaplan et al. 1994). All these activities use models of self-actualization through increasing the meaningfulness of work, strengthening group cohesiveness and increasing the understanding between workers and managers of expectations from work and from colleagues.

However, situations in developing countries are markedly different. In resource scarce countries such as Ghana where salaries are likely to be low, and may not even be at subsistence level; instruments and equipment may be missing or broken; workers in remote areas may be alone for much of the time; and there may be little or no budget for staff development, the interventions adopted in developed countries may not be significantly applicable. Moreover, In health systems policy interventions the context in which a policy is designed and implemented varies from country to country and even –within the same country – from region to region or between different time periods.

In recognition of these, there is the need for specific study in rural Ghana to help identify specific ‘push’ and ‘pull’ factors of health workers and also to specifically come out with workable interventions that would effectively attract more health workers to rural Ghana, specifically Mpohor Wassa East District.

CHAPTER THREE

METHODOLOGY AND CHARACTERISTICS OF STUDY AREA

3.0 CHARACTERISTICS OF THE STUDY AREA

Mpohor Wassa East District is located at the south-eastern end of the Western Region. The district is bounded on the northeast and southeast by the Twifo Hemang Lower Denkyira (THLD) and Komenda Edina Eguafu Abrem Municipal all in the Central Region. It is again bounded on the west by the Wassa Amenfi West District Assembly, and in the south, by the

Sekondi Takoradi Metropolitan. On the east, it shares boundaries with Ahanta West District Assembly (AWDA). The District was carved out from Wassa Fiase Mpohor District in 1988 and occupies an area of 1880 square kilometers (464,553 hectares) of which 344 square km (85,000 hectares) are used as cultivable land (Maks Publication and Media Services, 2006). The District capital is Daboase, which is 6.7 km from the Cape Coast -Takoradi main road.

According to the 2000 population census, the population of the district is 122,595 with an intercensal growth rate of 3.2 percent, which is the same as the regional growth rate. It is however higher than the national growth rate of 2.7 percent. Males form 52.5 % of the total population as against 47.5 % for females. Children under fifteen years (0-14) account for 43.4% of the population compared with the national figure of 41.3 %, the economically active population (15-64 years) accounts for 50.6 % as against the national figure of 53.4 % and the elderly or the aged (65 years and above) accounts for 6 % of the total population compared to 5.3% of the national figure in 2000.

The district is predominantly rural with 88 % of the population living in rural areas as against 12% in the urban areas. Daboase and Mpohor are the only settlements in the district which are urbanised. Settlements such as Ateiku, Adum Bansa, Manso, Atobiase and Akyempim have a high potential of getting urbanised. The population density of the district stands at 53.7 persons per square kilometer while that of the region is 80.5 persons which is higher (Maks Publication and Medis Services, 2006).

On health, there are a total of 19 health facilities in the district with highest health facility or a hospital located in Daboase as shown in the table 3.1 below:

Table 3.1: Health Facilities in Mpohor Wassa East District (MWED)

HEALTH INSTITUTION	CUSTODIAN	LEVEL OF PERSONNEL MANNING
Ahmadiyya Mission Hospital	Mission	Two Medical doctors
Daboase Health Centre	Government	Medical Assistant
Dompim Comm. Clinic	Government	Community Health Nurse
Adansi Comm. Clinic	Government	Enrolled Nurse Midwife
Manso Comm. Clinic	Government	Community Health Nurse Midwife
Mpohor Health Centre	Government	Medical Assistant
Ekutuase Comm. Clinic	Government	Community Health Nurse Midwife
Atobiase Comm. Clinic	Government	Enrolled Nurse Midwife- Resigned
S. Krobo Comm. Clinic	Government	Enrolled Nurse Midwife
Ateiku health Centre	Government	Enrolled Nurse Midwife
Adum-Banso Clinic	Government	Enrolled Nurse Mid-wife
Ayiem CPS zone	Government	Community Health Officer
Nsadweso CHPS zone	Government	Community Health Officer
It is the Lord Clinic	Private	Enrolled Nurse Midwife
Glory of God Clinic	Private	QRN Midwife
Westford Mines Clinic	Company	Medical Doctor/Med. Assistant
BO P.P. Clinic	Company	Medical Assistant
S.I.P.L. Clinic	Company	SRN Midwife
Senchem Clinic	Private	Enrolled nurse

Source: DHMT, 2006

The inhabitants, on the average, travel for about 31 kilometers before they can access a health facility. The problem confronting the health sector in the district is not only inadequate health facilities, but also inadequate personnel who are reluctant to accept postings to the district. The

district has four (4) doctors and twenty nine (29) nurses, which result in a doctor / patient ratio of 1:36,053 and a nurse / patient ratio of 1:4,972 (Maks Publication and Media Services, 2006).

Prevalent diseases in the district include malaria and river blindness due to the existence of mosquitoes and black flies. The table 3.2 below is a summary of the top ten diseases in the district. The 11th disease added because the disease in the 9 position (malaria in pregnancy) may be added to malaria.

Table 3.2: Top Ten Diseases in MWED in 2005

NO.	DISEASES	NO. OF INFECTED PEOPLE
1	Malaria	15,213
2	Acute Respiratory Infection	3,281
3	Skin diseases and ulcers	2,316
4	Diarrhea diseases	1,926
5	Home/Occupational accidents	1,487
6	Rheumatic Pains	1,244
7	Intestinal worms	776
8	Anemia	533
9	Malaria in pregnancy	357
10	Gynecological disorders	323
11	Acute Eye Infections	218

Source: DHMT, 2008

Most of the houses are characterized by poor drains, untidy surroundings, exposed foundations and the absence of basic household facilities like toilet, bathrooms and kitchen. An analysis of the walls of houses in the district reveals that as many as 76.8 % of walls of houses in the district were made from mud while only 13% were made of cement. In the district 79.1 percent of the households own the houses they live in while 2.3% purchased theirs. 11.9 % were living in relative's houses and employees of private companies and the government house 6.1 percent of the people (Maks Publication and Media Services, 2006). More than 70% of the households live in houses that are not mosquito-proof. This has a direct link to the high number of malaria-cases in the district (Maks Publication and Media Services, 2006).

Only 11.5% of the people have access to pipe borne water with as high as 38.3% using streams and rivers. The other water facilities are dugout. The use of contaminated water makes people vulnerable to water related diseases like diarrhoea and intestinal worms (Maks Publication and Media Services, 2006). As many as 44.5% of the people use pit latrines while only 2% use Water Closets. Those who do not have toilet facilities resort to open defecation. The inadequate toilet facilities results in poor hygienic standards, which makes people vulnerable to diseases. Most of the refuse is dumped in nearby bushes, gutters or on the street. In some communities there are refuse dump sites where people dump their garbage. During heavy rain falls, water drains from these mountains of refuse dump into rivers and nearby streams thereby rendering water-bodies unwholesome (Maks Publication and Media Services, 2006).

There are 103 pre-schools, 123 primary schools, 57 Junior Secondary Schools (JSS) and 2 Senior Secondary Schools (SSS). These comprise both public and private institutions. There are a total of 845 teachers in pre-school, primary school and JSS. Among these teachers 51 % is trained,

while 49 % is untrained. Of the trained teachers almost 80% are males. In total 68 % of the teachers are males, while 32 % are females. The preschools have more girls than boys but the trend changes as they go higher. An analysis of the number of pupils and teachers in the district shows a pupil / teacher ratio of 1:38.6 for KG, 1: 51.1 for primary school and 1:20 for JSS. The pupil teacher ratio at all levels in 2005 is 1:42.3. The situation for pre-school and JSS is satisfactory, but for primary school the ratio is rather high and exceeds the standard of 35 pupils to a teacher. The dropout rates in the KG and primary schools are 2% and 10.4 % respectively. That for JSS is as high as 41.9 %, in the year 2005. The average dropout rate at all levels is 14.5% (Maks Publication and Media Services, 2006).

The employment levels and occupations in the district are very typical of a rural district. A total of 8.1% of the labour force is unemployed. Those employed are engaged in diverse activities. Subsistence and large-scale agriculture employs 71.5% of the workforce according to the 2000 population and housing census. The major staple food crops produced in the district include cassava, plantain, maize, cocoyam and vegetables.

3.1 DATA SOURCES

Mpohor Wassa East District (MWED) was selected for this study based on the socio-economic conditions (Gross Domestic Product (GDP), population, health indicators and health facilities and scarcity of health workers) which make the district rural district. Primary data was collected for the study. A field survey in Mpohor Wassa East District was conducted within the period of February, 2010 and March, 2010.

3.1.1 Primary Data (Field Survey)

The field study was organized at the district levels in order to obtain the relevant data for the study. A district based cross-sectional survey of health workers was conducted to collect the data. Data was collected by face-to-face field interviews, based on structured questionnaires, conducted in the hospitals/ clinics / health centre in the district. The survey instrument was evaluated for face validity and pilot tested before use.

Moreover, a multi-stage sampling was used. The first stage was the choosing of the districts. The District was chosen on the basis of socio-economic conditions (Gross Domestic Product (GDP), population, health indicators and health facilities and availability of health workers) which make the district rural district.

In the second stage, the respondents who were health care workers (doctors, medical assistants, nurses, midwives, ward assistant, community nurses, dispensers, health extension workers etc.) were selected from the district to help gather accurate and relevant information on the issue. Respondents were drawn from all hospitals, clinics and health centers.

Moreover, perceptions, feelings, value judgments, and attitudes of respondents about the dynamic process of push and pull factors of health workers were explored. This was carried out through extensive and intensive interview through questionnaire administration. It must be stated that accessibility to these respondents was very difficult since they were preoccupied with duty. They were informed by official letter seeking permission for access of investigators for interview. Then date and time of interview were fixed. Most of the respondents cooperated and were assured strict confidentiality.

3.1.1.2 Sample size

For sample size to be calculated, a statistical formula was employed (see appendix 4). Based on the formula, the sample size is 110 (see appendix 4).

3.1.1.3 The Research Instrument

Two sets of self-administered questionnaires were conducted by using both close and open-ended questions. The first set of questionnaire was administered to health care workers in the district and the other set was for health administrators at the facility level. The questionnaire administered to health care workers was divided into four parts as follows:

1. Socio-demographic factors. This consisted of age, gender, marital status and education, etc.
2. Job characteristics: this included the professional post and department of working in.
3. Feeling of Satisfaction: This gathers information on the level of feeling of satisfaction with current post.
4. Retention factor. This seeks to obtain information on retention factor(s) that are important to health care workers in the district.

The questionnaire administered to health administrators was divided into three as follows:

1. Socio-demographic factors. This consisted of age, gender, marital status and education, etc.
2. Job characteristics: this included the professional post and department of working in.

Push factors: this gathers information on factors the push health care workers away from the district.

3.2 CONCEPTUAL FRAMEWORK

The framework consistent with health care workers retention and mobility used in this study is the combination of factors developed by Lehmann et al. (2005) and Dussault & Franceschini (2006). The combination of factors developed by Lehmann et al. (2005) and Dussault & Franceschini (2006) give more comprehensive factors than either one considered alone. According to this framework, health workers leave the rural communities or are not willing to accept posting to rural communities for many reasons and that financial reasons are often neither the only, nor the main, reason. The combination of factors according to Lehmann et al. (2005) and Dussault & Franceschini (2006) that influenced health care workers retention and mobility are personal and lifestyle- related factors and work- related factors.

Personal and lifestyle-related factors, including living circumstances, e.g. living in conflict areas, areas with a poor infrastructure or with high AIDS levels. Work-related factors are grouped under preparation for work during pre-service education, to health systems, and Job satisfaction.

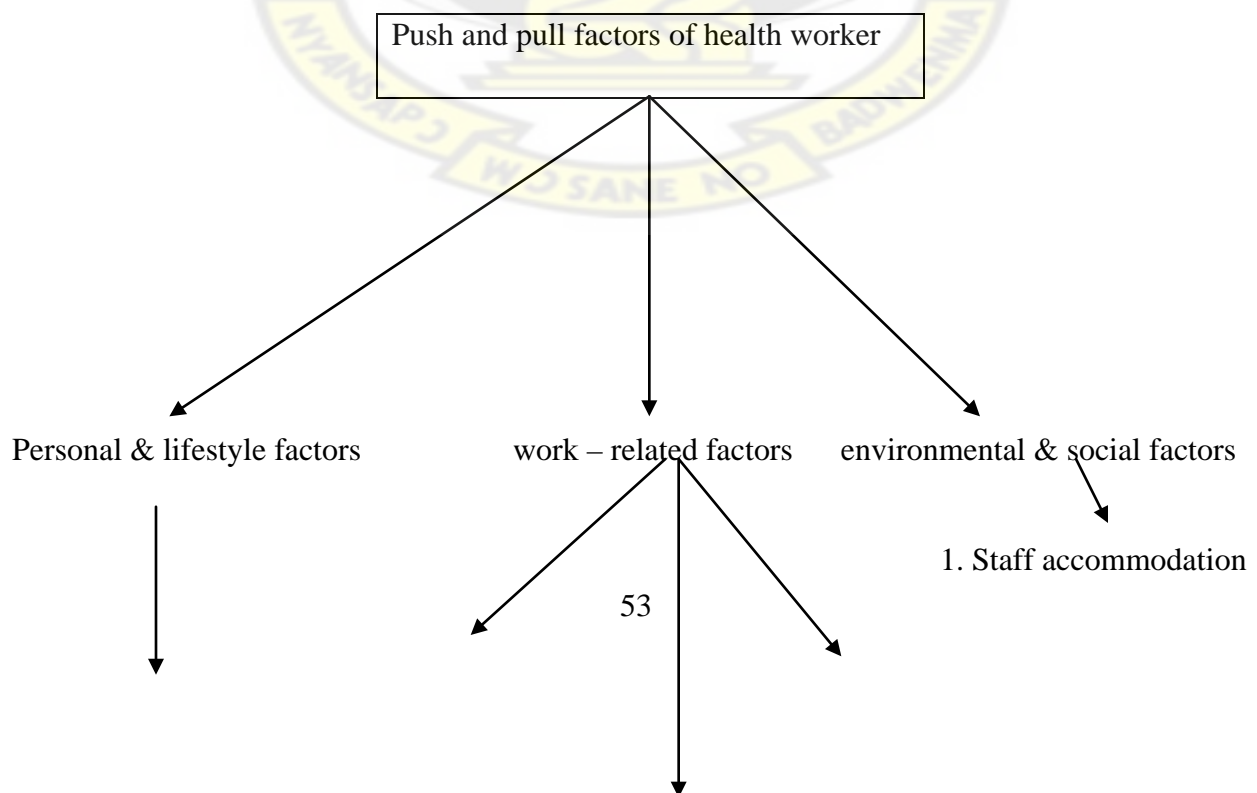
1. Factors relating to preparation for work during pre-service education include, medical education for rural areas;
2. Factors relating to health systems are human resources policy and planning;
3. Job satisfaction, influenced by health facility factors, are financial considerations, working Conditions, management capacity and styles, professional advancement and safety at work.

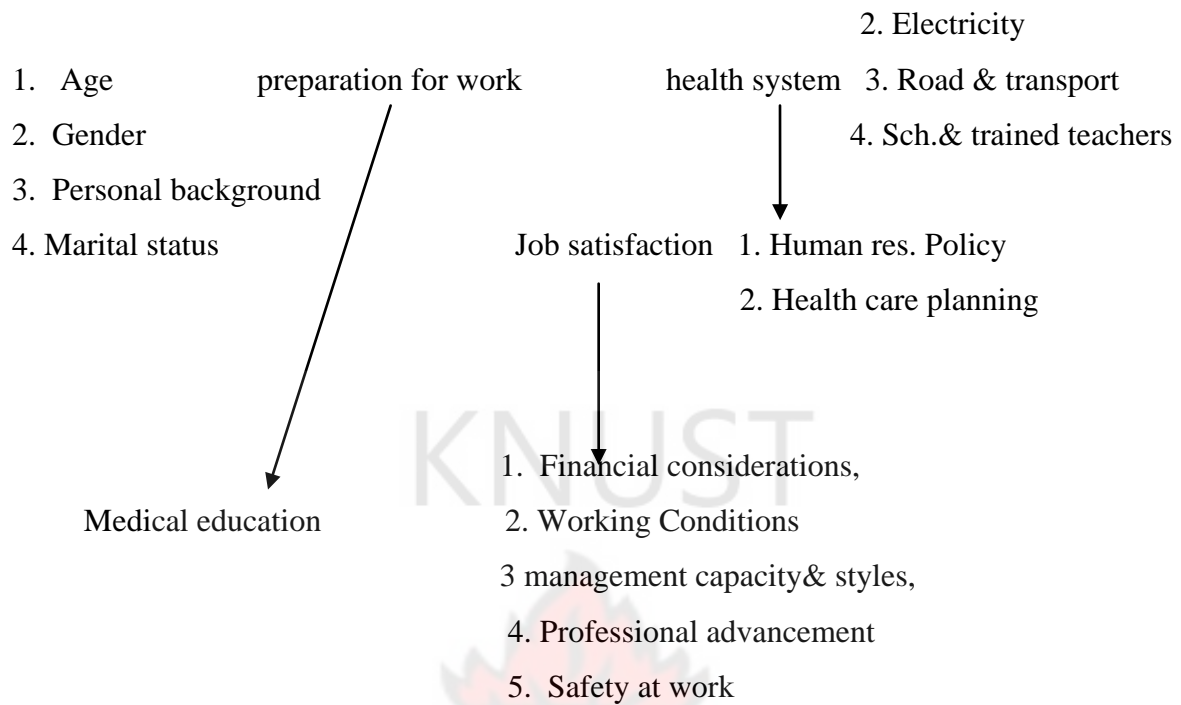
The above factors are also likely to be interrelated. For instance, poor and remote areas often lack infrastructures such as roads, schools and electricity, which have an impact on personal decisions to leave such locations, whereas health care facilities in these areas often are poorly

managed and lack equipment and supplies, which then has an impact on work-related factors for departure.

In the present study, I modified Lehmann et al. (2005) and Dussault & Franceschini (2006) and included environmental and social factors. Environment together with social obligations, are important elements in decisions on where to work. Environmental and social factors would be inculcated into the framework. This is because the importance of general living conditions, including schools and qualified teachers, good drinking water, electricity, roads and transport, also feature very prominently in much research work done on retention of health workers in rural areas. The framework is illustrated in figure 1 below.

Figure 1





Source: the author

The conceptual framework above was designed to help identify push and retention factors of health care workers in rural Ghana. On retention factors, I defined a set of independent variables that may influence the willingness of health care workers to remain at post in the rural and remote areas of Ghana and these are financial consideration/ incentives, good working conditions and professional advancement, staff accommodation and infrastructure. Finally, the dependent variable was the willingness to remain at post in the rural areas in Ghana.

Moreover, a set of variables may influence health care workers' decision to opt for particular retention factors. These variables considered in the survey are socio-demographic and job characteristics of health care workers and these are age, gender, marital status, educational level and professional post. The five socio-demographic and job characteristics independent variables were regressed on financial considerations, working conditions and professional advancement,

staff accommodation and infrastructure as separate dependent variables to find out the characteristics of health care workers who would opt for each retention factor.

3.3 MODEL SPECIFICATIONS

In this survey, Binary Logit models were estimated. The main model (equation 1) measures the probability that health workers are willing to remain in rural areas or not while the other models were developed from the main model. Thus, all the models have a qualitative dependent variable with binary or dichotomous responses. According to Gujarati (2003) in models where the dependent variable, is qualitative, the objective is to find the probability of something happening. Thus, in this study the probability that a particular health worker is willing to remain in rural area is specified as:

$$P_i = \Pr(y_i = 1) = \frac{e^{x_i\beta}}{1 + e^{x_i\beta}}$$

And the probability that a particular health worker is not willing to remain in rural area is also expressed as

$$(1 - P_i) = \Pr(y_i = 0) = \frac{1}{1 + e^{x_i\beta}}$$

Thus the odds ratio i.e. the ratio of the probability that a health worker is willing to remain in rural area to the probability that a health worker is not willing to remain in rural area is written as

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{x_i\beta}}{1 + e^{-x_i\beta}}$$

The logarithm of the ratio P_i and $(1 - P_i)$ is the log-odds ratio and the log-odds ratio is a linear function of the explanatory variables. That is:

$$\log \frac{P_i}{1 - P_i} = \beta_0 + \sum_{j=1}^k \beta_j x_{ij}$$

The Logit model has features which include:

1. As P goes from 0 to 1, the logit L goes from $-\infty$ to $+\infty$. That is, although the probabilities (of necessity) lie between 0 and 1, the logits are not so bounded.
2. Although L is linear in the explanatory variables, the probabilities themselves are not.
3. If L, the logit, is positive, it means that when the value of the regressor (s) increases, the odds are that the regressand equals 1 (meaning some event of interest happens) increases. If L is negative, the odds are that the regressand equals 1 decrease as the value of explanatory variables increase.

Based on the above formulations, the models are therefore stated mathematically as:

$X\beta$ for the various models are as follows:

$$X\beta \text{ for WR} = \beta_0 + \beta_1 \text{ FC} + \beta_2 \text{ ACC} + \beta_3 \text{ WC} + \beta_4 \text{ PA} + \beta_5 \text{ INF} + \mu_0 \dots \text{eq(1)}$$

$$1. X\beta \text{ for FC} = \theta_0 + \theta_1 G + \theta_2 A + \theta_3 \text{MS} + \theta_4 P + \theta_5 E + \mu_1 \dots \text{eq(2)}$$

$$2. X\beta \text{ for ACC} = \alpha_0 + \alpha_1 G + \alpha_2 A + \alpha_3 \text{MS} + \alpha_4 P + \alpha_5 E + \mu_2 \dots \dots \text{eq(3)}$$

$$3. X\beta \text{ for WC} = \infty_0 + \infty_1 G + \infty_2 A + \infty_3 \text{MS} + \infty_4 P + \infty_5 E + \mu_3 \dots \dots \text{eq(4)}$$

$$4. X\beta \text{ for PA} = \delta_0 + \delta_1 G + \delta_2 A + \delta_3 \text{MS} + \delta_4 P + \delta_5 E + \mu_4 \dots \dots \text{eq(5)}$$

$$5. X\beta \text{ for INF} = \gamma_0 + \gamma_1 G + \gamma_2 A + \gamma_3 MS + \gamma_4 P + \gamma_5 E + \mu_5 \dots\dots\dots \text{eq(6)}$$

Where,

WR = Willingness to remain at post in the rural areas of Ghana.

FC= financial consideration (all income received monthly: salary and allowances/ incentives)

ACC= Staff accommodation

INF = socio- economic infrastructure (good road net, good communication network, availability of electricity etc.)

WC= Good Working conditions (availability of equipment, drugs, beds and other materials with which health care workers efficiently work)

PA= professional advancement (further professional education, seminars and conferences etc)

G= Gender

A= Age

MS= Marital status

P=Professional type (nursing etc.)

E= Educational level.

$\mu_{0...5}$ = stochastic term (include all omitted variables that can influence the dependent variables)

β_{1-5} = parameters to be estimated to measure the impact or the contribution of financial incentive, staff accommodation, working conditions, professional advancement and infrastructure respectively on the willingness to remain at post in the rural areas of Ghana.

$\beta_s, \delta_s, \alpha_s, \gamma_s, \theta_s$ = parameters to be estimated to measure the impact of gender, age, marital status, professional post and religion on dependent variables in their respective functions.

3.4 DESCRIPTION OF VARIABLES

The section explains how the variables were used for the econometric (modeling) analyses. All the variables were entered as dummy with exception of age.

i. Socio- demographic factors

Gender and Education

Gender was coded as 1 for males and 0 for females; hence females were the controlled category. With regards to education, those with six months post secondary education were the controlled category. The other categories are certificate, diploma and first degree.

Age

Another question on socio-demographic factors is the age of the respondents. The respondents were asked to give their ages in years.

Marital Status

Marital status had four categories (single, married, divorced and widowed). Single was chosen as controlled category. The other categories are married, divorced and widowed.

ii. Job Characteristics

Professional post

The question on professional post is aimed at knowing the professional type of respondents. Health extension workers (non professional health workers) were the controlled category. The categories are doctors, medical assistant, nurses, midwives, dispensers, health assistants and ward assistants.

iii. Retention factors

On what would make health workers remain in the rural areas of Ghana, the researcher identified five key factors (Good working condition, Good infrastructure, Professional advancement, Financial incentive and availability of good staff accommodation) from which respondents selected 'important' and 'not important' factor(s). All 'not important' factors were coded as 0 and 'important' factors were as coded 1.

iv. Dependent variable

The dependent variable, y , in the main model (equation 1) is willingness to remain in rural areas. Binary logit model were estimated. If a health worker is willing to remain in rural area, $y=1$ and if he/she is not, $y=0$

3.5 DATA PROCESSING AND STATISTICAL ANALYSIS

The analysis was in two parts; descriptive and regression. In the descriptive part, characteristics of the study sample were described, and then frequency distributions were used to highlight the socio-demographic and job characteristic status of respondents. Moreover, chi-square was used in the development of independence of willingness to remain at post and satisfaction level at current post. The data was processed and analyzed by SPSS.

Logit regressions were used to estimate the relative impacts of financial consideration/incentives, good working conditions, availability of good staff accommodation, professional advancement and improved infrastructure on willingness to remain at post in rural Ghana. Also, socio- demographic and job characteristics factors were regressed on all retention factor(s) separately. The full regression model was specified on the basis of the theoretical model (Lehmann et al. (2005) and Dussault & Franceschini (2006)). The interpretation of the estimated

parameters (coefficients) is done by exponentiating the coefficients and interpreting them as odd ratios.

The critical significant level of statistical test is set as 5%.

3.6 CREDIBILITY

This study can be judged from the view point of credibility. Credibility is based on the validity and reliability of the instruments used and the internal validity of the study. The reliability and validity of this study is fundamental to its utility. Credibility is supported by prolonged engagement, persistent observation, and appropriate selection of respondents.

First and foremost, the study was performed over the period of one year and therefore a thorough observation and in-depth interview from the right persons were done to ensure the dependability of the results. Moreover the findings were based on the analysis of reliable and valid qualitative information obtained from the selected professionals, who are well acquainted with the subject matter and objectives of the study on push and pull factors of health workers in rural Ghana, and hence, results can be trusted to represent the real world situation.

Moreover, among the three non-probability sampling i.e., convenience sampling, quota sampling, and purposive sampling, this purposive sampling (Merriam, 1988; Patton, 1990) is the sampling approach mostly used by qualitative researchers with the intention to improve representativeness of the sample by subjective selection.

KNUST

The logo of Kwame Nkrumah University of Science and Technology (KNUST) is centered in the background. It features a yellow eagle with spread wings perched on a green shield. Above the eagle is a red flame. The shield has a yellow border with the text 'NYANSAPO' on the left and 'BADWENNA' on the right. The eagle's body is yellow with a red beak and a yellow star on its chest.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF EMPIRICAL RESULTS

4.0 INTRODUCTION

This chapter deals with the analysis and discussion of findings. The analysis was based on self-reported data by respondents, who were all health care workers in the Mpohor Wassa East District. The study covered all hospital and clinic in the district and all health care workers present at the time of interview. A total of 110 respondents representing 72.85% of the total population of health care workers in the district were interviewed. This chapter is moreover divided into two main sub headings: descriptive and econometric analyses.

4.1 DESCRIPTIVE ANALYSIS

4.1.1 Socio- demographic characteristics

As shown in the methodology of this study, the socio- demographic characteristics of the respondents who were all health care workers in the Mpohor Wassa East District were composed of four items, including: gender, age, marital status and educational level.

Out of the 110 respondents interviewed, only 26 representing 23.6 % of respondents were males. The remaining 84 respondents forming 76.4 % were all females. Females outnumbered the males since in Ghana women normally pursue nursing related professions since they are considered more feminine than masculine.

With regards to age of respondents. The minimum age and the maximum age captured by the survey were 22years and 62years respectively with the mean age of 31.1818. On age distribution of respondents, 68 respondents, constituting 61.8% were 22-30 years old, 18.2% of respondents were 31- 40 years old, 5.5% of respondents were 41-50 years old, 11.8% were 51-60 years old and 2.7% were 61-62 years old.

On the marital status, 71 respondents, representing 64.5 % were single, 33 constituting 30.0 % were married. The remaining were widowed (5 representing 4.5%) and divorced (1 representing 0.9%). The age distribution of the respondents could explain why the number of respondents who were single exceeded those in the other categories of marital status (married, divorced and widowed). Out of those who were single, 52 forming 73.2% were females and the remaining 19 constituting 26.8%, were males.

Most of the respondents interviewed were under the national youth employment programme (health module). These were non professional health workers and had six months post Secondary education training and constituted 41.8% of the total respondents. This was followed by certificate education (44 of the respondents forming 37.3%), Diploma holders (18 of the respondents representing 16.4%) and first degree (5 of the respondents constituting 4.5%) . Out of the total respondents of 110, 25 accounting for 22.7% had their education in the rural areas of Ghana whiles the remaining 85; representing 77.3% had their education in urban communities of Ghana.

Majority of the respondents (71.8%) were from the district whiles only 28.2% of the respondents were not from the district. Table 4.1 gives the number and percentage distribution of socio-demographic factor of respondents who were health care workers in the district.

Table 4. 1: Number and Percentage Distribution of Socio- demographic Factors of Respondents

Factors	Number (n= 110)	Percent
---------	-----------------	---------

Gender:

Males	26	23.6
Females	84	76.4

Age:

minimum	22	
maximum	62	
mean age	31.1818	

Marital status:

Single	71	64.5
Married	33	30.0
Divorced	1	0.9
Widowed	5	4.5

Natives of health care workers

From the district	79	71.8
Not from the district	31	28.2

Educational level:

Secondary specialized school	46	41.8
Certificate	41	37.3
Diploma	18	16.4
First degree	5	4.5

Area of prof. training/ education:

Rural community	25	22.7
Urban community	85	77.3

Source: Author from field data, 2010

4.1.2 Job characteristics

In terms of Professions of respondents, health extension workers were 46 accounting for 41.8% and this group was highest followed by community nurses, midwives, ward assistants, nurses, representing 30.0% , 12.7%, 6.4% , 3.6%, respectively. Doctors, medical assistant and dispensers formed the least with 1.8% each.

The number of years of work experience ranged between 1 and 23. Table 4. 2 shows the number and percentage distributions of job characteristics of respondents.

Table 4. 2: Number and Percentage Distribution of Job Characteristics of Respondents

Characteristics	Number (N=110)	Percent
Professional post:		
Assistant doctor	2	1.8
Attending doctor	2	1.8
Nursing	4	3.6
Midwives	14	12.7
dispenser	2	1.8
Community nurses	33	30.0
Ward assistants	7	6.4
Health extension workers	46	41.8
Years spent at current post:		
Minimum year of work experience	1	
Maximum year of work experience	23	

Source: Author from field data, 2010

4.1.3 Job Satisfaction

4.1.3.1 Overall satisfaction with current post

Satisfaction among respondents as overall was asked only one question; that was overall feeling of satisfaction level with their current post. There were total of 110 respondents to respond to this item. The unsatisfied level was the was highest. These were very unsatisfied (15.5%), unsatisfied (26.4%), relatively unsatisfied (19.1%), relatively satisfied (19.0%), satisfied (19.0%), and very satisfied (6.7%). The breakdown is given in table 4 .3.

Table 4.3: Number and Percentage Distribution of Feeling of Job Satisfaction.

Job satisfaction level	Number (N=110)	Percent
Very unsatisfied	17	15.5
Unsatisfied	29	26.4
Relatively unsatisfied	21	19.1
Relatively satisfied	22	20.0
Satisfied	16	14.5
Very satisfied	5	4.5

Source: Author from field data, 2010

4.1.3.2 Satisfaction with current post and characteristics of respondents

This section finds out the characteristics of respondents who were health care workers in relation to level of feelings of satisfaction at rural health post in Ghana. Among the health care professions in the district, ward assistants expressed more feelings of dissatisfaction with the current post, followed by community nurses and health extension workers. Out of the 7 ward assistants: very unsatisfied (0.0%), unsatisfied (4 representing 57.1%), relatively unsatisfied (2, representing 28.6 %) and relatively satisfied (1, representing 14.2%). Out of 33 community nurses: very unsatisfied (5, forming 15.2%), unsatisfied (7 forming 21.2%) and relatively unsatisfied (11, forming 33.3%) and these together constituted 69.7% of community nurses with

the remaining 30.3% belonging to groups with some feeling of satisfaction. With respect to health extension workers: very unsatisfied (8, constituting 17.4%), unsatisfied (15, constituting 32.6%) and relatively unsatisfied (7, constituting 15.2%) and these together represented 65.2% of health extension workers with the remaining 34.8% with some feeling of satisfaction. The reasons for feelings of dissatisfaction among these groups of health care professions in the district identified by the field survey were delay in payment of allowances, job insecurity and difficulty in pursuing higher education.

However, all medical assistant and medical doctors in the district were satisfied. The midwives were more satisfied: relatively satisfied (5, representing 35.7%), satisfied (4, representing 28.6%) and these as a whole formed 64.3% of the total midwives of 14 with the remaining 35.7% showing feelings of unhappiness.

Both males and female respondents expressed more feelings of dissatisfaction with current post. 53.9% of the 26 male respondents expressed some feeling of dissatisfaction: very unsatisfied (15.4%) unsatisfied (30.8%) and relatively unsatisfied (7.7%) and the remaining 46.1% of them expressed some feeling of satisfaction with their current post. Also, 63.1 % female respondents were dissatisfied. The result is given in table 4.4 below.

Table 4. 4: Levels of Feeling of Satisfaction and Characteristics of Respondents

characteristics	very Unsatisfied	unsatisfied	relatively unsatisfied	relatively satisfied	satisfied	very satisfied	total	chi-sq.	p-value
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Gender:								3.487	0.625
Males	4	8	2	6	4	2	26		
	15.4%	30.8%	7.7%	23.1%	15.4%	7.7%	100%		
Females	13	21	19	16	12	3	84		
	15.5%	25.0%	22.6%	19.0%	14.3%	3.6%	100%		
Marital status:								35.393	0.002
Single	11	25	14	11	7	3	71		
	15.5%	35.2%	19.7%	15.5%	9.9%	4.2%	100%		
Married	5	4	7	9	7	1	33		
	15.2%	12.1%	21.2%	27.3%	21.1%	3.0%	100%		
Divorced	0	0	0	0	0	1	1		
	0%	0%	0%	0%	0%	100%	100%		
Widowed	1	0	0	2	2	0	5		
	20%	0%	0%	40%	40%	0%	100%		
Age								1.672E2	0.058
Education:								21.215	0.130
Secondary	8	15	7	9	6	1	46		
	17.4%	32.6%	15.2%	19.6%	13.0%	2.2%	100%		
Certificate	5	11	13	7	3	2	41		
	12.2%	26.8%	31.7%	17.1%	7.3%	4.9%	100%		
Diploma	4	3	1	4	5	1	18		
	22.2%	16.7%	5.6%	22.2%	27.8%	5.6%	100%		
First degree	0	0	0	2	2	1	5		
	0.0%	0.0%	0.0%	40.0%	40.0%	20.0%	100%		
Prof. post:								44.233	0.136
Medical Assistant	0	0	0	1	0	1	2		
	0.0%	0.0%	0.0%	50.0%	0.0%	50.0%	100%		
doctor	0	0	0	1	1	0	2		
	0.0%	0.0%	0.0%	50%	50%	0.0%	100%		
Nurses	1	1	0	0	1	1	4		
	25%	25%	0.0%	0.0%	25%	25%	100%		
Midwives	2	2	1	5	4	0	14		
	14.3%	14.3%	7.1%	33.7%	28.6%	0.0%	100%		
Dispensers	1	0	0	0	1	0	2		
	50%	0.0%	0.0%	0.0%	50%	0.0%	100%		
Com. Nurses	5	7	11	5	3	2	33		
	15.2%	21.2%	33.3%	15.2%	9.1%	6.1%	100%		
Ward assistants	0	4	2	1	0	0	7		
	0.0%	57.1%	28.6%	14.3%	0.0%	0.0%	100%		
Health ext. workers	8	15	7	9	6	1	46		
	17.4%	32.6%	15.2%	19.6%	13.0%	2.2%	100%		

From Table 4.4, marital status is very significant in satisfaction with current post at 5% level.

4.1.3.3 Satisfaction level and willingness to remain at post

This section seeks to find out whether level feelings of satisfaction at rural health posts are associated with willingness to remain at rural health post. The result in table 4.4 indicates that willingness of health care workers to remain in the district strongly depends on their level of feelings of satisfaction with their current post. Those who are more satisfied are more willing to remain than those who are not. The result is shown in table 4.5.

Table 4.5: Satisfaction Level and Willingness to Remain at Post in Rural Ghana

Satisfaction level	willingness to remain		total	chi-square	p- value
	No	Yes			
Very unsatisfied	11	6	17	31.497	0.000
	64.7%	35.3%	100%		
Unsatisfied	15	14	29		
	51.7%	48.3%	100%		
Relatively unsatisfied	8	13	21		
	38.1%	61.9%	100%		
Relatively satisfied	1	21	22		
	4.5%	95.5%	100%		
Satisfied	0	16	16		
	0.0%	100%	100%		
Very satisfied	0	5	5		
	0.0%	100%	100%		

4.1.4 Push factors

This section seeks to find out the factors that push health workers out of the district. The study sought the views of health administrators at both government and non- government health posts in the district. The factors were grouped under three headings; socio- environmental push factors and monetary push factors. The same factors were also identified as reasons for dissatisfaction among health care professionals in the districts. Table 4.6 shows the factors.

Table 4.6: Push Factors / Reasons for Dissatisfaction of Health Care Workers at Mpohor Wassa East District

Socio- environmental push factors	Monetary push factors
<ol style="list-style-type: none"> 1. Lack good schools for children 2. Poor communication network 3. Poor road network 4. Lack of electricity 5. Lack of portable water 6. Difficulty of finding courtship 	<ol style="list-style-type: none"> 1. poor remuneration 2. lack of other source of income 3. delay in payment of allowances

Source: Author from Field Survey, 2010.

4.2 ECONOMETRIC ANALYSIS (The Logit Regression Equation)

4.2.1 Attracting and keeping health care workers in rural Ghana. What works?

This session explores the impact of financial incentive, staff accommodation, working conditions, professional advancement and socio- economic infrastructure on health care workers' willingness to remain at rural health post in Ghana.

The SPSS (version 16) result of the Logit regression is used in this analysis. The regression was run with willingness to remain at rural health post in Ghana as the dependent variable.

From table 4.7, the final logit regression equation is expressed as:

$$WR = \beta_0 + \beta_1 FC + \beta_2 ACC + \beta_3 WC + \beta_4 PA + \beta_5 INF + \mu_0$$

Where,

WR = Willingness to remain at post in the rural areas of Ghana.

FC= financial consideration (all income received monthly: salary and allowances/ incentives, income from private practice etc.)

WC= Working conditions (availability of equipment, drugs, beds and other materials to work with and these are the things which would make health care workers work effectively)

ACC= Staff accommodation

PA= professional advancement (refresher courses, study leave etc.) and

INF = socio- economic infrastructure (schools, roads, portable water, electricity, communication network etc.)

β_{0-5} = parameters

μ_0 = stochastic term

From Logit regression table 4.7, a proper interpretation of the coefficients is done by exponentiating the coefficient and interprets them as odd ratios. All the explanatory variables are positively related to willingness to remain at post in rural Ghana. This means that increase or improvement in any of explanatory variables increases the willingness to remain at health post while decrease in any of them would decrease willingness to remain at health post in rural Ghana. However, the explanatory variables impact differently on the willingness to remain at rural health post in Ghana.

The results showed that rural health care workers are 32 times ($e^{3.466} = 32.00845223$) more willing to remain at post when there is increase or improvement in their finances (increase in salary and allowance of rural health worker, loans for big purchase like cars and house) than when they are faced with financial hardship. Moreover, rural health care workers are 17 time ($e^{2.838} = 17.08156821$) more willing to remain at rural health post when good socio- economic infrastructures are available than when these infrastructures are lacking in rural communities.

Generally staff accommodation, working conditions and professional advancement were however not statistically significant in determining the willingness of health workers to remain in rural Ghana. From the study majority of the health care workers (71.8%) were from the district where they already have family accommodation. As a result staff accommodation was generally not a priority and did not influence their stay or otherwise in the district. Working condition was not statistically significant because is a hygiene factor and its absence can create job dissatisfaction but its presence does not motivate or create satisfaction (Herzberg, 1959). The professional advancement was no significant. This is because location of professional training influences place of work of health workers after graduation and as more health institutions are located in urban centre in Ghana, health workers are more comfortable to stay in urban areas to practice, hence professional advancement does not influence or motivate rural health workers to stay in rural areas.

The Cox and Snell's R^2 and Nagelkerke's R^2 were obtained to measure the strength of the association between the dependent variable (willingness of health care workers to remain in rural Ghana) and the explanatory variables (financial factors, staff accommodation, working conditions, professional advancement and infrastructure). These two estimated R^2 s were found

to be high, accounting for 0.589 for Cox and Snell's R^2 and 0.825 for Nagelkerke's R^2 , indicating high explanatory power of the model.

The Omnibus test of the model coefficients shows the Chi-square test- statistic for testing the null hypothesis that all the coefficients of the predictors equal to zero (0) is $X^2 = 97.853$ with significant level of 0.000, indicating that the logit regression model was meaningful in the sense that the dependent variable is related to each specified explanatory variable and the overall model is statistically significant. The result is represented in table 4.7.

Table 4.7: The SPSS Logit Regression Result

Exp. Variables	coefficient	wald	p-value
Financial	3.466	6.830	0.009
Staff accommodation	1.821	1.526	0.217
Working conditions	0.867	0.440	0.507
Professional advancement	1.728	2.358	0.125
Socio-economic infrastructure	2.383	5.062	0.024
Constant	-2.360	16.042	0.000
Cox & Snell R square: 0.589 , Nagelkerke R square: 0.825			
Chi- square: 97.853, sig. : 0.000			

4.2.1.1 Hypothesis Results

This section considers the results of hypotheses testing based on the main model. The hypotheses results discussed as follows:

H₀ hypothesis is rejected infavour of H₁ hypothesis which states that willingness of health workers to remain in rural areas is influenced by financial consideration.

H₀ hypothesis which states that willingness of health workers to remain in rural areas is not influenced by staff accommodation is accepted

H₀ hypothesis which states that willingness of health workers to remain in rural areas is not influenced by professional advancement is accepted

H₀ hypothesis which states that willingness of health workers to remain in rural areas is not influenced by working conditions is accepted.

H₀ hypothesis is rejected in favour of H₁ hypothesis which states that willingness of health workers to remain in rural areas is influenced by socio-economic factors.

4.3.2 Characteristics of health workers who would opt for particular retention factor

This session explores the socio-demographic and job characteristics of respondents who would opt for financial incentive, availability of good staff accommodation, good working conditions, professional advancement and improved socio-economic infrastructures as retention factors.

4.3.2.1 Financial factor

Gender

The average financial consideration of male health care workers is higher by 3.803 ($e^{1.336} = 3.803797843$) than female health care workers and this was statistically significant. The

male health care workers are more sensitive to financial incentive because of their obligations as the heads of families. Payment of school fees, provision of food and shelter and others require huge money, thus they are more sensitive to increases in finance than their female counterparts.

Age

This was not statistically significant, suggesting that financial incentives matter to all health care workers regardless of their ages.

Marital status

All marital status categories (married, divorced and widowed) were not statistically significant, suggesting that financial incentive matters to all marital status categories.

Educational level

All educational level categories were not statistically significant, meaning that financial incentives cut across educational levels. The financial incentive is important to health care workers no matter the level of education.

Health Professions

The results health professions were not statistically significant; hence financial incentives are important to all health profession categories. The SPSS Logit regression result is given in table 4.8 below.

Table 4.8: Characteristics of Health Care Workers and Financial Factor

Characteristics	coefficients	p-value
-----------------	--------------	---------

Male	1.336	0.015
Age	0.088	0.055
Married	-0.373	0.548
Divorced	-3.792	1.000
Widowed	-2.380	0.176
Certificate	-0.138	0.873
Diploma	-21.135	1.000
First degree	0.027	1.000
Medical assistant	20.814	1.000
Doctor	-1.484	1.000
Nurse	20.197	1.000
Midwife	20.650	1.000
Dispenser	20.380	1.000
Community nurse	-0.489	0.582
Constant	-2.270	0.063

4.3.2.2 Staff accommodation

The results in table 4.9 showed that gender (Male), age, marital status (married, divorced and widowed), educational level (certificate, diploma and first degree) and health Professions (Medical assistants, Medical doctors, midwives, nurses, dispensers and community nurses) were all not statistically significant; hence good staff accommodation is important to all health care workers regardless of gender, age, marital status, educational level and health. The result is given in table 4.9 below.

Table 4.9: Characteristics of Health Care Workers and Staff Accommodation

Characteristics	coefficients	p-value
-----------------	--------------	---------

Males	1.016	0.058
Age	0.083	0.100
Married	0.372	0.567
Divorced	-45.760	0.999
Widowed	-21.061	0.999
Certificate	1.416	0.124
Diploma	21.104	1.000
First degree	63.502	0.999
Medical assistant	-41.720	1.000
Doctor	-42.817	0.999
Nurse	-43.395	0.999
Midwife	-23.080	1.000
Dispenser	-21.136	1.000
Community nurse	-1.035	0.272
Constant	-3.084	0.026

4.3.2.3 Working condition

Gender

Male health care workers are more attracted by good working conditions than female health care workers by 2.942 ($e^{1.079}=2.941736343$) and this is statistically significant.

Age

As age increases, the willingness to remain at rural health post increases when there is good working conditions. A unit increase in age increases the willingness to remain at rural health post due to good working conditions by 1.102 ($e^{0.097}=1.101860374$) and this is statistically

significant. This may be due to the fact that as health care workers grow and have more experience, they begin to think more about quality of health care to communities in which they work.

Marital status

The results on all marital status categories are not statistically significant, suggesting that good working conditions matters to all categories of marital status of health care workers.

Educational level

The results on all categories of educational levels are not statistically significant, suggesting that good working conditions cut across educational levels. The good working conditions are important to health care workers no matter the level of education.

Health Professions

The results on all categories of health professions are not statistically significant, meaning that good working conditions (availability of equipment, drugs, beds and other materials) are important to all health professional categories. The result is presented in table 4.10.

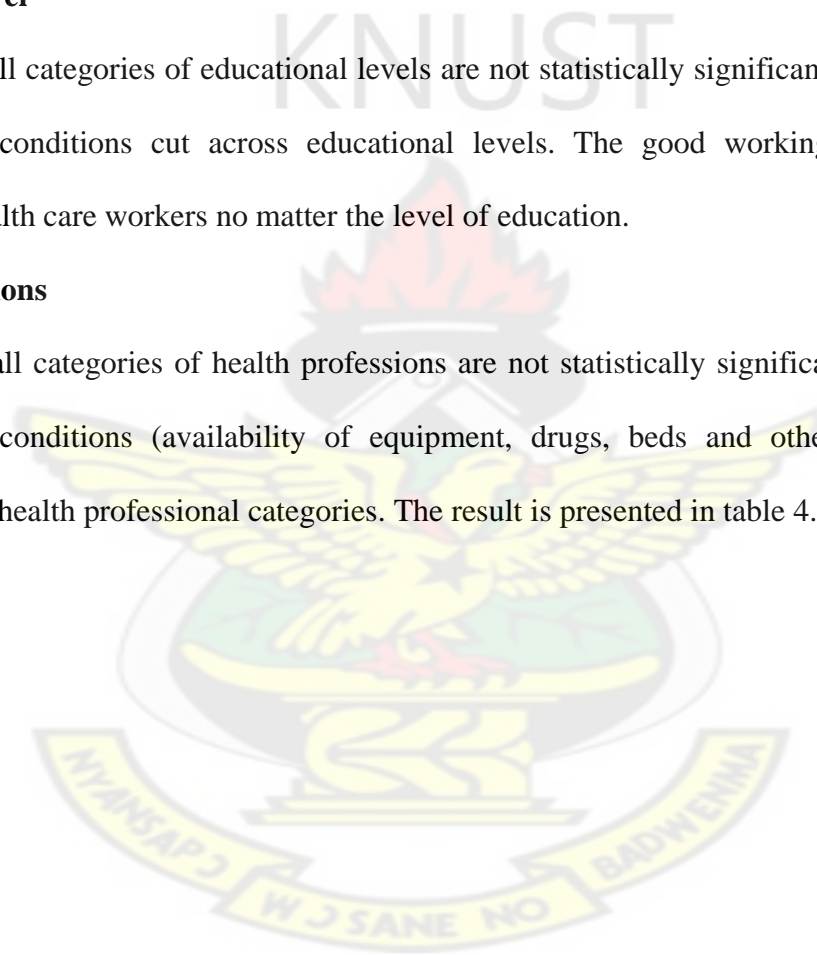


Table 4.10: Characteristics of Health Care Workers and Good Working Conditions

Characteristics	coefficients	p-value
Male	1.079	0.036
Age	0.097	0.033
Married	-0.567	0.371
Divorced	-3.782	1.000
Widowed	-0.409	0.818
Certificate	0.204	0.813
Diploma	20.403	1.000
First degree	40.425	0.999
Medical assistant	-18.717	1.000
Doctor	-40.852	0.999
Nurse	-42.244	0.999
Midwife	-21.107	1.000
Dispenser	-20.057	1.000
Community nurse	0.174	0.845
Constant	-3.401	0.006

4.3.2.4 Professional advancement

Gender

Male health care workers are more willing to remain at post in rural areas if they are exposed to professional advancement than female health care workers by 3.728 ($e^{1.316} = 3.728477599$) and this is statistically significant. Males, by virtue of their positions as head of families have to earn enough income in order to provide basic needs of their families and the level of income earned

partly depends on educational level or level of professional training attained so they are more willing to pursue higher health professions.

Age

The result on age is not statistically significant. This means that the desire for professional advancement cut across all levels of age.

Marital status

The results in table 4.11 showed that the health care workers who are married have more desire to pursue higher health professions than those who are single by 0.225 ($e^{-1.493}=0.22469755$) and this is statistically significant. However, the divorced and widowed categories are not statistically significant.

Educational level

The results showed that all educational level categories (certificate and diploma and first degree) are not statistically significant, suggesting that professional advancement matters to all health care workers regardless of their educational levels.

Health Professions

The results on health profession categories (medical assistants, doctors, nurses, midwives, Community nurses and dispensers) are not statistically significant, meaning that professional advancement is important to all health profession categories. The SPSS result is given in table 4.11.

Table 4.11: Characteristics of Health Care Workers and Professional Advancement

Characteristics	coefficients	p-value
Male	1.316	0.021
Age	0.012	0.771
Married	-1.493	0.022
Divorced	-44.063	0.999
Widowed	-2.091	0.241
Certificate	0.026	0.977
Diploma	20.477	1.000
First degree	42.773	0.999
Medical assistant	-21.739	1.000
Doctor	-42.393	0.999
Nurse	-20.597	1.000
Midwife	-20.002	1.000
Dispenser	1.196	1.000
Community nurse	0.266	0.773
Constant	-0.197	0.862

4.3.2.5 Socio-economic infrastructure

The results in table 4.12 showed that gender (Male), age, marital status (married, divorced and widowed), educational level (certificate, diploma and first degree) and health Professions (Medical assistants, Medical doctors, midwives, nurses, dispensers and community nurses) are all not statistically significant; hence improvement in socio-economic infrastructure is important to all health care workers regardless of gender, age, marital status, educational level and health profession type. The SPSS Logit regression result is given in table 4.12 below.

Table 4.12: Characteristics of Health Care Workers and Socio-economic Infrastructure

Characteristics	coefficients	p-value
Male	0.851	0.120
Age	0.060	0.214
Married	0.598	0.377
Divorced	-44.939	0.999
Widowed	-0.475	0.789
Certificate	1.210	0.184
Diploma	-20.152	1.000
First degree	1.021	1.000
Medical assistant	20.613	1.000
Doctor	19.532	1.000
Nurse	-2.001	1.000
Midwife	19.345	1.000
Dispenser	41.156	0.999
Community nurse	-0.652	0.487
Constant	-2.234	0.090

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATION

5.0 CONCLUSION

In conclusion, the current study identified the push and pull factors of health care workers in rural areas in Ghana and provided some quantitative evidence on the importance of financial factors, staff accommodation, working conditions, professional advancement and socio-economic infrastructure to health care workers in Ghana as a whole and Mpohor Wassa East District in particular. Through the application of rigorous economic methodology in the analysis of this issue, the research provides new empirical evidence on how these five factors affect healthcare workers' willingness to remain in rural health post in Ghana.

Thus, the current findings provide new and important information regarding the relationship between these five variable groups and the willingness to remain in rural health post in Ghana. Although some of the estimated coefficients of explanatory variables were not significant at 5% level, the entire relation is strongly significant. Financial factors and Socio-economic factors were significant in influencing the willingness of health care workers to remain at rural health post in Ghana, while other explanatory variables (staff accommodation, working conditions and professional advancement) were not significant.

These results also suggest that for the financial factors, gender is very important variable in choice of financial factors as retention variable. Thus male health care workers consider financial incentives more important than female health care workers. Good staff accommodation was equally important to all gender, age group, marital status, educational levels and health

professions. With regard to working conditions, gender and age are only variables that were significant. For professional advancement, genders, married category of marital status are significant. Male and married health care workers consider professional advancement more important than female and single health care workers respectively. There was no variable that was significant under socio-economic infrastructure. Socio- economic factors matters equally to all gender, age group, marital status, educational levels and health professions categories of health care workers.

On push factors, the study found that socio-economic factors, monetary factors and educational factors are push factors for various health professionals in rural Ghana. The findings of the study show that lack of good schools for children , poor communication network , poor road network, lack of electricity, lack of portable water and difficulty of finding courtship are the socio-economic factors that push health care workers out of rural health post in Ghana. Monetary push factors identified are poor remuneration, lack of second or other source of income and delay in payment of allowances whiles desire for further training and desire to get more experience are the identified educational push factors.

The push factors were also identified as reasons for dissatisfaction among health care professionals in the districts and the number of health care workers who are dissatisfied exceeds those who are satisfied with the current post. The study moreover found out that willingness of health care workers to remain in the district strongly depends on their level of satisfaction with their current post.

These findings raise many new questions and encourage continued examination of these variables and their inter-relationships in a variety of populations and subgroups. Future research should address some of the limitations of the current study and incorporate new populations in order to further increase the understanding of the factors that affect the willingness of health care workers to remain at rural health post. The researcher has identified some areas for further research:

- evaluating the impact of increased workloads brought about by the shortage of human resources on quality of care;
- assessing the motivation and morale of the health professionals before and after the implementation of various incentives to determine their impact on the workforce; and
- costing, in monetary terms, the loss of human resources to the public sector.

5.1. RECOMMENDATIONS

This section makes recommendations based on the findings of the study to stakeholders involved in the health service delivery sector in Ghana. The target of this section is to increase the number of health care workers in rural health post. The number of health care workers in rural Ghana can be increased by looking at the impact of financial incentives, staff accommodation, working conditions, professional advancement and socio-economic infrastructures.

5.1.1 Financial incentives

The researcher recommends financial incentives as most important factor that attracts and increases the willingness of health workers to stay in rural and remote areas of Ghana. Moreover, for financial incentives to be effective to attract and retain more health care workers, it should

target male health care workers more than female health care workers since male health care workers are more sensitive to financial incentives than female health care workers.

5.1.2 Professional advancement

The study showed that male and married health care workers are more sensitive to professional advancement than female and 'single' health care workers respectively. Therefore there should be a policy whereby male and married health care workers are given more opportunities to pursue higher professions as a way of motivating them to remain in rural areas of Ghana.

5.1.3 Staff accommodation

On provisions of staff accommodation, all health care workers in rural or remote areas in Ghana should be given befitting staff accommodation, regardless of gender, age, marital status, educational level and health profession type since they are all equally motivated by it.

5.1.4 Good working conditions

The study showed that male and aged health care workers are more attracted and willing to remain in rural health post by good working conditions. The government should therefore provide more drugs, bed and equipment in all rural health post especially where males and aged dominate.

5.1.5 Socio-economic infrastructures

Good socio- economic infrastructures such as good road network, reliable electricity, potable water and good schools are significant in attracting and retaining health care workers in rural Ghana. Government and other stakeholders should embark on rigorous provision of such

facilities to help curb migration of health care workers from these rural communities and also to attract more health care workers to rural communities.

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APPENDIX 1: QUESTIONNAIRES

APPENDIX 1A: Questionnaire for health administrators

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF ECONOMICS

This questionnaire is to enable me collect necessary information to complete my research on the topic:

‘IDENTIFYING ‘PUSH’ AND ‘PULL’ FACTORS OF HEALTH WORKERS IN RURAL GHANA: a case study Mpohor Wassa East District in Western Region’.

All information provided in this study will be treated as confidential and your anonymity is assured.

Community Hospital/clinic.....

PART I: SOCIO- DEMOGRAPHIC FACTORS

1. **Gender :** 1= male () 2= Female ()
2. **Age:**
3. **Marital status :** 1= Single () 2= married () 3= divorced () 4=widowed ()
4. **Education :** 1=Secondary specialized school/certificate () 2= Diploma ()
3= First degree (under graduate) () 4= masters and above ()
5= others.....
5. **Where did you have your professional education/training?**
1= rural community () 2= urban community ()
6. **Religion:** 1 =Christian() 2= Muslim() 3=Traditional () 4=Other, specify.....
7. **Are you the head of the household?** 1= Yes () 2= No ()
8. **Household size:**

9. **What is your total monthly income** 1=below ₵300 () 2= between ₵300-₵500 ()
3= between ₵500-₵700 () 3= between ₵700- ₵900 () 4= between ₵900-₵1100 ()
5= above ₵1100 ()
10. **Do you live with your family?** 1= Yes () 2= No ()
11. **If no to question 9, where does the family live.....**

PART II: JOB CHARACTERISTICS

12. **Professional post:** 1= Assistant doctor grade () 2= attending doctor or
in charge () 3= Nursing () 4=midwifery () 5=pharmacist 6= community nursing
() 7= others, please specify
13. **Department of internal medicine :** 1=surgery () 2=family bed dept () 3=
Dept. of birth control () 4= dept. of health education () 5= Dept. of medical
technology () 6= dept. of prevention and health care () 7= Others, please
specify
14. **Is here your first posting?** 1= Yes () 2=No ()
15. **For how long have you been in post here?**
16. **For how long have you been in health service in Ghana?**

PART III: PUSH AND PULL FACTORS

17. Are you willing to remain at post here? 1=Yes () 2=No ()

18. Which of the following factors would make you remain at post here?

Factors	Not important	Important
Financial incentives		
Staff accommodation		
Good infrastructure		
Good working conditions		
Professional advancement		

19. Is/ are your expectation(s) of accepting posting to the area met? 1= expectations are met () 2=expectations are not met () 3=expectations cannot be met () 4= expectations will be met

20. Do you feel satisfied about the present condition of the work? 1 =very unsatisfied () 2= unsatisfied () 3= relatively unsatisfied 4= relatively satisfied 5= satisfied 6= very satisfied ()

21. Have some health workers ever vacated their post in the area to different place? 1=yes () 2=no ()

22. If yes, why did they leave the area to different area?.....

23. Which categories of health workers in the area usually vacate their post to the cities? 1=nurses() 2=doctors () 3=midwives() 4= pharmacists()

5=community nurses() 6=ward assistants() 7= dentists() 8=others,
specify.....



APPENDIX 1B: Questionnaire to health care workers

KWAME NKUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF ECONOMICS

This questionnaire is to enable me collect necessary information to complete my research on the topic:

‘IDENTIFYING ‘PUSH’ AND ‘PULL’ FACTORS OF HEALTH WORKERS IN RURAL GHANA: a case study Mpohor Wassa East District in Western Region’.

All information provided in this study will be treated as confidential and your anonymity is assured.

Community Hospital/clinic.....

PART I: SOCIO- DEMOGRAPHIC FACTORS

1. **Gender :** 1= male () 2= Female ()
2. **Age:**
3. **Marital status :** 1= Single () 2= married () 3= divorced () 4=widowed ()
4. **Education :** 1=Secondary specialized school/certificate () 2= Diploma ()
3= First degree (under graduate) () 4= masters and above ()
5= others.....
5. **Where did you have your professional education/training?**
1= rural community () 2= urban community ()
6. **Religion:** 1 =Christian() 2= Muslim() 3=Traditional () 4=Other, specify.....
7. **Are you the head of the household?** 1= Yes () 2= No ()
8. **Household size:**
9. **What is your total monthly income** 1=below ₵300 () 2= between ₵300-₵500 ()
3= between ₵500-₵700 () 3= between ₵700- ₵900 () 4= between ₵900-₵1100 ()
5= above ₵1100 ()

10. Do you live with your family? 1= Yes () 2= No ()

11. If no to question 9, where does the family live.....

PART II: JOB CHARACTERISTICS

12. Professional post: 1= Assistant doctor grade () 2= attending doctor or

in charge () 3= Nursing () 4=midwifery () 5=pharmacist 6= community nursing
() 7= others, please specify

13. Department of internal medicine : 1=surgery () 2=family bed dept () 3=

Dept. of birth control () 4= dept. of health education () 5= Dept. of medical
technology () 6= dept. of prevention and health care () 7= Others, please
specify

14. Is here your first posting? 1= Yes () 2=No ()

15. For how long have you been in post here?

16. For how long have you been in health service in Ghana?

PART III: PUSH AND PULL FACTORS

17. Are you willing to remain at post here? 1=Yes () 2=No ()

18. Which of the following factors would make you remain at post here?

Factors	Not important	Important
Financial incentives		
Staff accommodation		
Good infrastructure		
Good working conditions		
Professional advancement		

19. Is/ are your expectation(s) of accepting posting to the area met?

1=

expectations are met () 2=expectations are not met () 3=expectations cannot be met () 4= expectations will be met

20. Do you feel satisfied about the present condition of the work? 1 =very unsatisfied

() 2= unsatisfied () 3= relatively unsatisfied 4= relatively satisfied 5= satisfied 6= very satisfied ()

21. What will make you leave your current post? 1= Family conflict or family worries (

) 2=Unfavorable conditions in the current residence() 3=Oppression () 4=Lack of independence in the current residence () 5=Lack of some services in the locality of the current residence() 6= no other source of income or lack of incentives() 7=others, specify

APPENDIX 2: SPSS LOGIT REGRESSION RESULT

APPENDIX 2A: IMPACT OF FINANCIAL, STAFF ACCOMMODATION, WORKING CONDITIONS, PROFESSIONAL ADVANCEMENT AND SOCIO-ECONOMIC FACTORS ON WILLINGNESS TO REMAIN AT POST IN RURAL AREAS.

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	97.853	5	.000
	Block	97.853	5	.000
	Model	97.853	5	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	39.755 ^a	.589	.825

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.762	.205	13.861	1	.000	2.143

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	FC	3.466	1.326	6.830	1	.009	32.007
	ACC	1.821	1.474	1.526	1	.217	6.176
	WC	.867	1.306	.440	1	.507	2.379
	PA	1.728	1.126	2.358	1	.125	5.632
	INF	2.383	1.059	5.062	1	.024	10.837
	Constant	-2.360	.589	16.042	1	.000	.094

a. Variable(s) entered on step 1: FC, ACC, WC, PA, INF.

APPENDIX 2B

Table 4.8: Characteristics of Health Care Workers and Financial Factor

Characteristics	B	S.E.	Wald	Df	Sig.	Exp(B)
Male	1.336	.549	5.912	1	.015	3.803
Age	.088	.046	3.691	1	.055	1.092
Married	-.373	.621	.361	1	.548	.689
Divorced	-3.792	5.684E4	.000	1	1.000	.023
Widowed	-2.380	1.757	1.835	1	.176	.093
Certificate	-.138	.863	.025	1	.873	.871
Diploma	-21.135	4.019E4	.000	1	1.000	.000
First degree	.027	5.684E4	.000	1	1.000	1.028
Medical Assistants	20.814	6.962E4	.000	1	1.000	1.095E9
Doctors	-1.484	5.684E4	.000	1	1.000	.227
Nurses	20.197	4.019E4	.000	1	1.000	5.907E8
Midwives	20.650	4.019E4	.000	1	1.000	9.297E8
Dispensers	20.380	4.019E4	.000	1	1.000	7.091E8
Community Nurses	-.489	.890	.302	1	.582	.613
Constant	-2.270	1.220	3.461	1	.063	.103

APPENDIX 2C

Table 4.9: Characteristics of Health Care Workers and Staff Accommodation

Characteristics	B	S.E.	Wald	Df	Sig.	Exp(B)
Male	1.016	.535	3.604	1	.058	2.763
Age	.083	.051	2.707	1	.100	1.087
Married	.372	.651	.327	1	.567	1.451
Divorced	-45.760	5.684E4	.000	1	.999	.000
Widowed	-21.061	1.996E4	.000	1	.999	.000
Certificate	1.416	.920	2.371	1	.124	4.122
Diploma	21.104	4.019E4	.000	1	1.000	1.464E9
First degree	63.502	6.024E4	.000	1	.999	3.790E27
Medical Assistants	-41.720	7.242E4	.000	1	1.000	.000
Doctors	-42.817	6.620E4	.000	1	.999	.000
Nurses	-43.395	4.394E4	.000	1	.999	.000
Midwives	-23.080	4.019E4	.000	1	1.000	.000
Dispensers	-21.136	4.019E4	.000	1	1.000	.000
Community Nurses	-1.035	.943	1.206	1	.272	.355
Constant	-3.084	1.387	4.942	1	.026	.046

APPENDIX 2D

Table 4.10: Characteristics of Health Care Workers and Good Working Conditions

Characteristics	B	S.E.	Wald	Df	Sig.	Exp(B)
Male	1.079	.515	4.392	1	.036	2.941
Age	.097	.045	4.556	1	.033	1.101
Married	-.567	.634	.800	1	.371	.567
Divorced	-3.782	5.684E4	.000	1	1.000	.023
Widowed	-.409	1.776	.053	1	.818	.664
Certificate	.204	.864	.056	1	.813	1.227
Diploma	20.403	4.019E4	.000	1	1.000	7.260E8
First degree	40.425	5.684E4	.000	1	.999	3.600E17
Medical Assistants	-18.717	6.962E4	.000	1	1.000	.000
Doctors	-40.852	5.684E4	.000	1	.999	.000
Nurses	-42.244	4.391E4	.000	1	.999	.000
Midwives	-21.107	4.019E4	.000	1	1.000	.000
Dispensers	-20.057	4.019E4	.000	1	1.000	.000
Community Nurses	.174	.889	.038	1	.845	1.190
Constant	-3.401	1.249	7.409	1	.006	.033

APPENDIX 2E

Table 4.11: Characteristics of Health Care Workers and Professional Advancement

Characteristics	B	S.E.	Wald	Df	Sig.	Exp(B)
Male	1.316	.569	5.350	1	.021	3.728
Age	.012	.042	.085	1	.771	1.012
Married	-1.493	.651	5.264	1	.022	.225
Divorced	-44.063	5.684E4	.000	1	.999	.000
Widowed	-2.091	1.782	1.377	1	.241	.124
Certificate	.026	.884	.001	1	.977	1.026
Diploma	20.477	4.019E4	.000	1	1.000	7.815E8
First degree	42.773	5.684E4	.000	1	.999	3.767E18
Medical Assistants	-21.739	6.962E4	.000	1	1.000	.000
Doctors	-42.939	5.684E4	.000	1	.999	.000
Nurses	-20.597	4.019E4	.000	1	1.000	.000
Midwives	-20.002	4.019E4	.000	1	1.000	.000
Dispensers	1.196	4.728E4	.000	1	1.000	3.307
Community Nurses	.266	.921	.083	1	.773	1.305
Constant	-.197	1.135	.030	1	.862	.821

APPENDIX 2F

Table 4.12: Characteristics of Health Care Workers and Socio-Economic Infrastructure

Characteristics	B	S.E.	Wald	Df	Sig.	Exp(B)
Male	.851	.547	2.416	1	.120	2.341
Age	.060	.048	1.542	1	.214	1.062
Married	.598	.677	.781	1	.377	1.819
Divorced	-44.939	5.684E4	.000	1	.999	.000
Widowed	-.475	1.771	.072	1	.789	.622
Certificate	1.210	.911	1.763	1	.184	3.354
Diploma	-20.152	4.019E4	.000	1	1.000	.000
First degree	1.021	5.684E4	.000	1	1.000	2.777
Medical Assistants	20.613	6.962E4	.000	1	1.000	8.954E8
Doctors	19.532	6.340E4	.000	1	1.000	3.038E8
Nurses	-2.001	4.416E4	.000	1	1.000	.135
Midwives	19.345	4.019E4	.000	1	1.000	2.520E8
Dispensers	41.156	4.912E4	.000	1	.999	7.476E17
Community Nurses	-.652	.939	.483	1	.487	.521
Constant	-2.234	1.318	2.873	1	.090	.107

APPENDIX 3: DESCRIPTIVE ANALYSIS RESULTS

GENDER OF RESPONDENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Males	26	23.6	23.6	23.6
	Females	84	76.4	76.4	100.0
	Total	110	100.0	100.0	

MARITAL STATUS OF RESPONDENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SINGLE	71	64.5	64.5	64.5
	MARRIED	33	30.0	30.0	94.5
	DIVORCED	1	.9	.9	95.5
	WIDOWED	5	4.5	4.5	100.0
	Total	110	100.0	100.0	

EDUCATIONAL LEVEL OF RESPONDENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SECONDARY	46	41.8	41.8	41.8
	SPECIALISED SCHOOL	18	16.4	16.4	58.2
	DIPLOMA	5	4.5	4.5	62.7
	FIRST DEGREE	41	37.3	37.3	100.0
	CERTIFICATE				
	Total	110	100.0	100.0	

PROFESSIONAL POST OF RESPONDENTS

	Frequency	Percent	Valid Percent	Cumulative Percent
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Valid	ASSISTANT DOCTOR	2	1.8	1.8	1.8
	ATTENDING DOCTOR	2	1.8	1.8	3.6
	NURSING	4	3.6	3.6	7.3
	MIDWIFERY	14	12.7	12.7	20.0
	DISPENSER	2	1.8	1.8	21.8
	COMMUNITY NURSING	33	30.0	30.0	51.8
	HEALTH EXTENSION WORKERS	46	41.8	41.8	93.6
	WARD ASSISTANTS	7	6.4	6.4	100.0
	TOTAL	110	100.0	100.0	

SATISFACTIONS LEVEL OF RESPONDENTS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	VERY UNSATISFIED	17	15.5	15.5
	UNSATISFIED	29	26.4	41.8
	RELATIVELY UNSATISFIED	21	19.1	60.9
	RELATIVELY SATISFIED	22	20.0	80.9
	SATISFIED	16	14.5	95.5
	VERY SATISFIED	5	4.5	100.0
	Total	110	100.0	100.0

AREA OF PROFESSIONAL TRAINING/EDUCATION OF RESPONDENTS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RURAL COMMUNITY	25	22.7	22.7
	URBAN COMMUNITY	85	77.3	100.0
	Total	110	100.0	100.0

APPENDIX 4: COMPUTATION OF SAMPLE SIZE

$$n = N / [1 + N (\sigma^2)]$$

Where:

n= Sample size

N= The target population (151)

σ^2 = error margin (5%)

Therefore:

$$n = 151 / [1 + 151(0.05)] = 109.6 = 110$$

The sample size is therefore 110.

APPENDIX 5: DATA USED FOR THE STUDY

WILLINGNES S TO REMAIN IN RURAL AREA	FINANCIAL FACTOR	STAFF ACCOMMODATION	WORKING CONDITION	PROFESSIONAL ADVANCEMENT	SOCIO- ECONOMIC INFRASTRUC TURE
No	Important	Not important	Not important	Not important	Important
Yes	Important	Not important	Important	Not important	Important

No	Not important	Not important	Not important	Not important	Not important
No	Not important	Important	Not important	Not important	Important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
No	Not important	Not important	Not important	Important	Important
Yes	Not important	Important	Important	Important	Important
Yes	Important	Not important	Important	Not important	Not important
No	Not important	Not important	Not important	Not important	Not important
No	Important	Not important	Not important	Important	Important
No	Important	Not important	Not important	Important	Not important
No	Important	Not important	Not important	Important	Not important
Yes	Important	Important	Important	Important	Important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
No	Important	Not important	Not important	Important	Not important
No	Not important	Not important	Not important	Not important	Not important
No	Important	Not important	Not important	Not important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Not important	Not important	Important	Not important	Important
Yes	Important	Important	Important	Not important	Important
Yes	Important	Important	Important	Important	Important
Yes	Not important	Not important	Important	Important	Not important
No	Not important	Not important	Not important	Not important	Important

No	Important	Not important	Not important	Not important	Important
Yes	Important	Important	Important	Not important	Important
No	Important	Important	Not important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Important	Not important	Not important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
Yes	Important	Important	Important	Important	Important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Not important	Important	Not important	Not important	Not important
Yes	Important	Important	Important	Not important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Not important	Important
No	Important	Important	Not important	Important	Important
Yes	Not important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Important	Not important	Not important	Important	Not important
Yes	Important	Not important	Important	Important	Not important
No	Important	Important	Not important	Important	Important

No	Important	Not important	Not important	Important	Not important
Yes	Important	Important	Important	Important	Important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Important	Important
Yes	Important	Important	Important	Important	Important
Yes	Important	Not important	Important	Important	Not important
Yes	Important	Not important	Important	Important	Not important
Yes	Not important	Important	Important	Not important	Important
Yes	Important	Important	Important	Not important	Important
No	Not important	Not important	Not important	Not important	Important
No	Not important	Not important	Not important	Not important	Not important
No	Not important	Not important	Not important	Not important	Not important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Important	Not important
Yes	Important	Important	Important	Important	Important
Yes	Important	Important	Important	Important	Important
Yes	Not important	Important	Important	Important	Important
No	Not important	Not important	Not important	Important	Important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important

Yes	important	Important	Important	Important	Important
yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Not important	Not important	Not important	Not important	Not important
No	Important	Not important	Not important	Important	Not important
No	Not important	Important	Not important	Not important	Important
Yes	Important	Important	Important	Not important	Important
No	Not important	Not important	Not important	Not important	Not important
Yes	Important	Important	Important	Important	Important
No	Important	Important	Not important	Important	Important
Yes	Important	Important	Important	Important	Important
Yes	Not important	Not important	Not important	Not important	Not important
No	Important	Important	Not important	Not important	Important
Yes	Important	Important	Important	Important	Important

Gender	Age	Marital Status	Educational level	Professional Type
Female	52.0	Married	certificate	Midwife
female	61.0	widowed	diploma	Midwife
male	26.0	single	certificate	Community nurse
female	32.0	married	First degree	Health extension worker

female	26.0	single	certificate	Community nurse
female	22.0	single	certificate	Health extension worker
male	36.0	married	certificate	Attending doctor
female	32.0	single	certificate	Community nurse
male	58.0	divorced	First degree	Assistant doctor
female	24.0	single	SSSCE	Health extension worker
female	24.0	single	SSSCE	Health extension worker
female	29.0	single	SSSCE	Health extension worker
male	26.0	single	SSSCE	Health extension
female	31.0	single	SSSCE	Health extension
female	30.0	single	SSSCE	Health extension worker
female	34.0	married	certificate	midwife
male	26.0	single	SSSCE	Health extension worker
female	23.0	single	SSSCE	Health extension worker
female	38.0	married	certificate	midwife
female	26.0	single	SSSCE	Health extension worker
female	52.0	widowed	diploma	midwife
female	37.0	married	certificate	Community nurse
male	24.0	married	diploma	Health extension worker
female	25.0	single	certificate	Health extension worker
female	28.0	single	SSSCE	Health extension worker
female	24.0	single	certificate	Nurse
female	28.0	single	certificate	Community nurse

female	25.0	single	SSSCE	Health extension worker
female	23.0	single	SSSCE	Health extension worker
male	24.0	single	SSSCE	Health extension worker
female	29.0	married	certificate	Community nurse
female	48.0	married	certificate	midwife
female	24.0	single	certificate	Community nurse
female	26.0	single	certificate	Community nurse
male	51.0	married	diploma	nurse
female	30.0	single	first degree	Assistant doctor
female	27.0	single	SSSCE	Health extension worker
female	23.0	single	SSSCE	Health extension nurse
female	46.0	married	diploma	Ward assistant
female	27.0	single	certificate	Community nurse
male	25.0	single	SSSCE	Health extension worker
male	25.0	single	SSSCE	Health extension worker
female	23.0	single	SSSCE	Health extension worker
female	35.0	Single	certificate	Health extension worker
female	24.0	Single	diploma	Nurse
female	26.0	single	certificate	Community nurse
female	24.0	single	certificate	Community nurse
female	32.0	married	certificate	Community nurse
female	32.0	married	diploma	Midwife
male	37.0	married	certificate	Community nurse

female	26.0	single	diploma	Community nurse
female	37.0	married	certificate	Community nurse
female	41.0	married	diploma	Midwife
female	32.0	married	certificate	Community nurse
female	27.0	single	diploma	Ward assistant
male	42.0	single	first degree	Health extension worker
male	28.0	single	certificate	Community nurse
female	28.0	married	certificate	Community nurse
female	22.0	single	SSSCE	Health extension worker
male	25.0	single	certificate	Community nurse
female	30.0	married	SSSCE	Health extension worker
female	54.0	married	SSSCE	Health extension worker
female	30.0	single	SSSCE	Health extension worker
female	52.0	married	SSSCE	Health extension worker
male	34.0	married	certificate	Community nurse
female	25.0	single	diploma	Midwife
female	23.0	single	SSSCE	Health extension worker
female	25.0	single	certificate	Community nurse
female	24.0	single	SSSCE	Health extension worker
male	25.0	single	diploma	Community nurse
female	27.0	single	certificate	Community nurse
female	33.0	single	SSSCE	Health extension worker
female	31.0	married	certificate	Community nurse

male	26.0	single	SSSCE	Community nurse
female	26.0	single	certificate	Community nurse
female	30.0	single	SSSCE	Health extension worker
female	52.0	married	diploma	Midwife
female	59.0	widowed	diploma	Midwife
male	52.0	married	first degree	Attending doctor
female	39.0	married	SSSCE	Health extension worker
male	29.0	Single	diploma	Nurse
female	25.0	single	certificate	Community nurse
male	25.0	single	SSSCE	Community nurse
female	28.0	married	certificate	Community nurse
female	26.0	single	SSSCE	Health extension worker
female	23.0	single	SSSCE	Health extension worker
male	26.0	single	SSSCE	Health extension worker
female	24.0	single	SSSCE	Health extension worker
female	24.0	single	SSSCE	Health extension worker
female	25.0	single	SSSCE	Health extension worker
male	31.0	single	certificate	Community nurse
female	26.0	married	diploma	Dispenser
male	32.0	single	SSSCE	Dispenser
female	27.0	single	diploma	Community nurse
female	59.0	widowed	certificate	Midwife
male	26.0	single	SSSCE	Health extension worker

female	62.0	widowed	SSSCE	Midwife
female	23.0	single	SSSCE	Health extension worker
male	26.0	single	SSSCE	Health extension worker
female	25.0	single	certificate	Community nurse
female	24.0	single	SSSCE	Health extension worker
female	32.0	married	SSSCE	Health extension worker
female	46.0	married	certificate	Community nurse
female	22.0	single	SSSCE	Health extension workers
female	28.0	single	diploma	Midwife
male	32.0	single	certificate	Ward assistant
male	26.0	single	SSSCE	Ward assistant
female	27.0	single	certificate	Ward assistant
female	31.0	Married	certificate	Ward assistant
female	26.0	Single	SSSCE	Ward assistant