The Determinants of Job Satisfaction among Nurses, Midwives, and Auxiliary Nurses in Health Clinics

The Case of Bénin, West Africa

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Abstract

Health workers are a crucial component of a well-functioning health system. Their motivation and attitudes have significant ramifications for patient health outcomes. In low- and middle-income countries, low performance and suboptimal behaviors of health workers have often been reported as contributing factors leading to adverse health outcomes. One possible solution to reduce suboptimal health worker practices is to increase health worker job satisfaction.

Using secondary data from a performance-based financing project in health facilities, this dissertation examines the concept of work satisfaction among health workers in Bénin. First, I validate the instrument used—The Minnesota Satisfaction Questionnaire. I then use it to examine the level of satisfaction among midwives, nurses, and auxiliary nurses. I find that, on average, health workers are moderately satisfied. I then investigate the determinants of work satisfaction at both the individual and the health facility level, using a multilevel analysis to take advantage of the nested structure of my data. My findings indicate that tenure, gender, training opportunities, working conditions, and style of management are all factors that play a role in explaining work satisfaction.

Finally, to understand how different kinds of health workers relate to their work environments, I conducted semi-structured interviews on a selected sample of health professionals. The qualitative evaluation of these interviews shows that these health workers perceive their work environments to be an important contributing factor to their satisfaction. This has potentially important implications on the level of the quality of care health workers can provide to their patients.

As a whole, the results of my research provide a better understanding of work satisfaction among health workers in Bénin, and identify future research questions on a subject overlooked in low- and middle-income sub-Saharan African countries. The implications of my findings are discussed in order to benefit hospital administrators, the Ministry of Health in Bénin, and international organizations.

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1. Introduction

Policy Problem and Motivations

In low-income countries, the lifetime risk for maternal mortality is 1 in 52, compared with 1 in 3400 in high-income countries [1]. For the last decades, reducing maternal mortality has been one of the priorities of global health initiatives. Governments, non-governmental organizations (NGOs), and international organizations, have committed substantial resources to health programs and systems in low- and middle-income countries to reduce these preventable deaths. However, results have been disappointing compared to efforts made and much remains to be done in terms of translating these investments into health benefits capable of improving population health[2].

Alleviating maternal morbidity and mortality, entails optimizing the performance, practices, and behavior of health workers which is also a primary goal of health systems [3]. Health systems, therefore, have an important role to play in achieving better health outcomes. The commitment by the international community to achieve the new Sustainable Development Goals (SDGs), particularly the third SDG, which calls for improved outcomes for child and maternal health, HIV/AIDS, malaria and other diseases is an opportunity to revamp health system effectiveness [4, 5]. However, inadequate health-worker performance plagues the health system of many low- and middle-income countries (LMICs) and is exacerbated by problems of health provider scarcity and low retention rates all contributing to low health indicators [6-8].

Bénin is one example of a low-income country with a relatively high maternal mortality ratio (MMR) of 415 [9], in which, over the last decade, the reorganization of the national health system, together with investments in health provider training, have already achieved substantial improvements in health clinic accessibility[10]. According to the Demographic Health Survey (DHS) of 2011, health clinic accessibility in Bénin has improved to the point that 70-80% of the population now live within a 5km radius of a health center. The same data show that 90% of pregnant women attended health facilities to deliver with qualified providers such as nurses, midwives or skilled birth attendants, a practice that has been shown to decrease adverse health effects [11-14]. These statistics suggest that the issue of access to both clinics and skilled workers, although not yet completely resolved, may no longer be as pressing an issue as it was in earlier years. Despite these improvements, access and utilization continue to fall short of desired health outcomes. The maternal mortality ratio of more than 400 in Bénin has been stagnant for the last several years [15]. Altogether, further reorganization and interventions are necessary to take full advantage of the benefits of these improvements; and determining how to increase health provider performance and practices in Bénin is critical to establishing a well-functioning health system.

The following example from a patient who gave birth in one of Benin's referral hospitals may help better understand the health behaviors and practices that are at stake.

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"When I climbed on the delivery table, the midwife was cursing, and insulting me in her native tongue. (The auxiliary nurse told me afterwards that she was calling me a dirty old lady who still is having children.) Since I did not understand her language, her insults meant nothing to me. Later, I pushed to see if the child would get out. The midwife slaps me and I hurt my head on the table. Immediately, I started seeing stars and my ears were ringing. I was upset so I forgot about the birth, and I slapped the woman in return. Then, I got off the table, and I refused that she touched me. I put my kilt on the floor and started to give birth. But to hurt me, she [the midwife] said that I need to be hospitalized for a while and refused to discharge me. I wanted to complain to the authority but my husband refused. He ended up paying all the fees. But, we are done giving birth at this hospital unless there are unforeseen complications."*source:report from a World Bank project on RBF project)*[1].

This example of suboptimal behavior by health workers in Bénin is not an isolated case, as evidenced by the qualitative study conducted by Grossmann-Kendal et al. Their research on the referrals of 20 women who had recently given birth in maternity hospitals in Bénin showed that the women complained of being unable to ask questions or request explanations concerning their conditions for fear of being reprimanded and subjected to reprisals from midwives [16]. In the same study, a woman described being slapped by a midwife for crying out in pain. This type of reported behavior is not unique to Bénin or West Africa; elsewhere, in Uganda, Tanzania, and Bangladesh, for example, pregnant women and patients using primary health care facilities have frequently reported rude behavior--being insulted by health care workers-- and give these reasons for postponing or avoiding visits to health centers [17-20]. Investigating the proxies or causes of such behavior and practices by health workers is, therefore, important and has the potential to improve patient care and experience.

By taking into consideration these case studies and other reports of harmful behavior by health workers as a starting point, my study assesses the concept of job satisfaction among health workers in Bénin, and considers ways in which human resource managers can improve health worker behavior in low-income countries. I examine the levels of health worker satisfaction in Bénin and analyze the variations found. My work explores both the individual and the contextual factors that determine health worker job satisfaction levels in the country.To my knowledge, no previous published studies on sub-Saharan African countries have analyzed both individual and contextual factors to explain health workers' satisfaction.

This dissertation topic will be of interest to health policy makers and health administrators in sub-Saharan Africa, as it will identify factors that determine work satisfaction. My findings will have implications for devising methods to motivate behavioral change in health workers, to

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[1] The World Bank Group. Rapport d'analysis de l'enquête de base de l'évaluation d'impact du Financement Basé sur les Résultats.

improve the effectiveness and performance of health workers in public facilities, and to raise the quality of care and thus alleviate maternal and child morbidity and mortality. The results of this dissertation will determine ways to improve overall job satisfaction among health workers, and potentially help to reduce suboptimal behaviors.

The dissertation addresses three specific research questions:
1. What is the current state of job satisfaction among health workers in Bénin?
2. What organizational and individual-level factors correlate with job satisfaction?
3. How do health workers describe their work environments?

To answer these three questions, I use a mixed-method approach. I rely on both multilevel quantitative data collected from healthcare workers working in 251 clinics in Bénin as well as qualitative data collected during semi-structured interviews with a sample of health workers in select health clinics.

The dissertation is divided into nine chapters. In Chapter 2, I provide an overview of the health system and background on job satisfaction. Chapter 3 covers the quantitative and qualitative data methods I used to answer my three questions. In Chapter 4, I examine the validity of the instrument that I use to measure work satisfaction. Chapter 5 presents the characteristics of health workers in my sample as well as the satisfaction levels of the participants in the study. In Chapters 6 and 7, I present my quantitative and qualitative results, which leads to the discussion in Chapter 8. I end by presenting the implications of my findings in Chapter 9.

2. Background, Context, and Literature Review

The first part of this chapter describes the overall context of Bénin. It presents Bénin's health system and epidemiological profile, and gives an overview of the challenges the country faces. I introduce the concept of job satisfaction, and present a brief historical background of its importance, its role in performance, and how improvement in job satisfaction leads to improved health care. I then consider the methodological challenges of measuring job satisfaction among employees, and give an overview of the literature on the determinants of job satisfaction using Hayes's framework. I conclude by reflecting on how my study can help bridge the gaps of knowledge on job satisfaction in sub-Saharan Africa.

Health and the Health System in the Republic of Bénin

Located in West Africa, Bénin is a low-resource country with 10.6 million inhabitants and a GNI per capita of $890 [21]. The country borders 4 countries: Nigeria, Niger, Burkina Faso, and Togo, with 57% of its population living in rural areas and 43% in urban areas [22]. Data show that 52% of the population lives below the poverty level of one dollar per day [15], and only 60% of the population has access to improved water sources in 2006 [22]. The continuing and rapid urbanization of Bénin has resulted in 72% of the urban population residing in shacks [22]. Due to the high levels of poverty coupled with overcrowded conditions, the overall health indicators of the population are stagnating or deteriorating.

Life expectancy at birth is 60 years of age for females and 57 years of age for males. Education and literacy levels are low especially among women living in rural areas, where 64% of women have never attended school. Bénin's standard of living is ranked at 161st of 177 countries.

Health indicators

Maternal and child health indicators have improved in the last decades [22]; efforts by the government, NGOs, and the international community have increased to provide better health care. In Benin, 90% of live births are attended by a skilled attendant, and the proportion of pregnant women who attended four or more antenatal care services sessions was 61% [23]. However, the country's health situation is still precarious, and much remains to be achieved. The MMR of 400 has been stagnant for years and further improvements in quality of care could help reduce morbidity and mortality associated with maternal health.

Moreover, old communicable diseases have reemerged in the last several decades [24], plaguing the country with familiar communicable diseases such as tuberculosis (TB) and malaria, as well as non-communicable diseases threats such as hypertension, diabetes, endemic parasitic diseases, and the emergence of cardiovascular diseases [10]. According to the Institute for Health Metrics and Evaluation, child and maternal malnutrition, air pollution, unsafe water, sanitation, and handwashing were among the leading risk factors in 2013 in terms of disability-adjusted life years (DALYS). Table 1 shows the change in percentages of the leading causes of years of life

lost to premature deaths and the change in percentage from 1990 to 2013. Table 2 presents the burden of disease attributable to leading risk factors. These indicators point to a worrisome health outlook.

Table 1. Leading causes of years of life lost (YLL) to premature death, 1990 and 2013, and percent change, 1990-2013.

● Communicable, maternal, neonatal, and nutritional diseases
● Non-communicable diseases
● Injuries

1990 ranking	2013 ranking	% change 1990-2013
Lower respiratory infect (1)	(1) Malaria	-53%
Diarrheal diseases (2)	(2) Lower respiratory infect	-76%
Malaria (3)	(3) HIV/AIDS	698%
Protein-energy malnutrition (4)	(4) Neonatal preterm birth	-60%
Measles (5)	(5) Diarrheal diseases	-85%
Neonatal preterm birth (6)	(6) Neonatal encephalopathy	-55%
Neonatal encephalopathy (7)	(7) Congenital anomalies	-57%
Meningitis (8)	(8) Neonatal sepsis	-38%
Congenital anomalies (9)	(9) Road injuries	-26%
Neonatal sepsis (10)	(10) Protein-energy malnutrition	-81%
Road injuries (11)	(12) Meningitis	-73%
HIV/AIDS (30)	(13) Measles	-84%

Source: Institute for Health Metrics and Evaluation, Country profile, 2013

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Table 2. Burden of disease attributable to leading risk factors, 2013

△ Metabolic risks
☐ Environmental/occupational risks
○ Behavioral risks

Child and maternal malnutrition ○
Air pollution ☐
Unsafe water, sanitation, and handwashing ☐
Unsafe sex ○
High systolic blood pressure △
Dietary risks ○
Alcohol and drug use ○
High body-mass index △
Occupational risks ☐
High fasting plasma glucose △

0%　5%　10%
Percent of total DALYs

- HIV/AIDS and tuberculosis
- Diarrhea, lower respiratory, and other common infectious diseases
- Neglected tropical diseases and malaria
- Maternal disorders
- Neonatal disorders
- Nutritional deficiencies
- Other communicable, maternal, neonatal, and nutritional diseases
- Neoplasms
- Cardiovascular diseases
- Chronic respiratory diseases
- Cirrhosis
- Digestive diseases
- Neurological disorders
- Mental and substance use disorders
- Diabetes, urogenital, blood, and endocrine diseases
- Musculoskeletal disorders
- Other non-communicable diseases
- Transport injuries
- Unintentional injuries
- Self-harm and interpersonal violence
- Forces of nature, war, and legal intervention

Risk factors are potentially modifiable causes of disease and injury.

Source: Institute of Health Metrics, 2013

Health system

Bénin's health system is based on a pyramid in which the Health Zone forms the bottom and the Ministry of Health (MOH) the top. The role of the MOH is to design and implement all government policy and activities pertaining to health. Its goal is to improve the health of its citizens by improving the quality of and access to health services; by increasing community participation and use of health services; and by ensuring that health care is equitable for all. The Health Zone is the first entry point into the health system for all participants. Its primary function is to ensure access and guarantee quality of basic health care.

The public sector which includes the health sector is characterized by strong government oversight and a top-down approach to decision-making. This approach means that significant government efforts to implement policy changes have not always been responsive to the needs of its citizens [10]. Until recently, the health care sector was a heavily centralized organization. To palliate the negative effects of centralization, the MOH established a territorial reform that was adopted between 1997 and 2001. The new system is now composed of three levels :1) a central level comprised of the MOH and its central Directorates, and the National Referral Hospital; 2) an intermediate level consisting of Departmental Directorates for health and departmental referral hospitals; and 3) a peripheral level serving as a first point of entry for patients,

containing health zones comprised of zonal referral hospitals, communal health centers, arrondissement and commune health centers, private facilities, and village health units (Fig.1).

Figure 1. Bénin's health system

Managing Body	Facility or Organization
Ministry of Health — National Level	• Benin National Teaching Hospital—Hubert K. Maga • Mother and Child Hospital in Lagune • National Referral Hospital of the National Tuberculosis Program • National Employers' Council of Benin • National Committee of Gerontology • Military Hospital in Camp Guézo, Cotonou
District Health Offices — Departmental Level	• Departmental hospitals • Centers of information, planning, and advice • Leprosy treatment centers • Post-pregnancy health care facilities
Health Zone Offices — Local Level	• Zonal hospitals • Health clinics • Private facilities • HIV testing and treatment centers • Testing centers for leprosy and Buruli ulcers • HIV voluntary testing centers

Source: *Health Systems 20/20, 2012*

The intent of this organizational structure is to decentralize the health sector and to transfer authority and responsibility to the first point of service. Following this reorganization, the country is now divided into 12 departments with 34 health zones which can be thought of as health counties, responsible for the health of their constituents. The health zones have oversight over the entire range of providers, public and private, and they contain an average of 2.25 communes each. On average, each health zone catchment area covers between 100,000 and 200,000 people. Commune health centers serve 50,000 to 60,000 people each and arrondissement health centers serve between 10,000 and 15,000 people [10]. The health zones are reinforced by a referral hospital, which is the first referral level of specialized care and is usually staffed by a pediatrician, a surgeon, and an obstetrician-gynecologist [10]. Two other levels of referral, the Departmental hospital and the Central hospital, have jurisdiction over each health zone.

The first-level of entry in the public sector is the arrondissement health center. The arrondissement health center is usually served by a nurse, a midwife, and some auxiliary staff. The second level is the commune health center, which is to be staffed by a physician, several nurses, and midwives, in addition to auxiliary staff. This decentralization and autonomy was intended to better organize delivery of service, to move away from centralized authority and

power, and to focus on hospital health zones. However, some problems still persist with the implementation of this decentralization, with human resources management remaining at the central level. The USAID evaluation of Bénin's health system revealed substantial reluctance among communities, administrative authorities, and health workers to accept the new health zone reforms out of concern over persistent management issues[10]. Table 3 summarizes the 2006 USAID assessment of the level of decentralization in Bénin's health systems and shows that substantial oversight still resides at the central level, particularly for service delivery, operation maintenance, and information management.

Table 3. Assessment of the level of decentralization in Bénin's health system

Health System Functions	Level of Government			
	National MoH	Subnational (Department)	Health Zone	Commune (Administration)
Financing				
- Revenue generation and sources	—	—	—	X
- Budgeting, revenue allocation	XX	—	X	X
- Expenditure management and accounting	XX	X	X	X
- Financial audit	XX	X	X	X
Human Resources				
- Staffing (planning, hiring, firing, evaluation)	XX	X	X	—
- Contracts	X	X	X	X
- Salaries and benefits	X	X	X	X
- Training	XX	X	XX	—
Service Delivery and Program/Project Implementation				
- Hospital autonomy	X	X	XX	—
- Defining service packages (primary, tertiary)	XX	—	—	—
- Targeting service delivery	XX	—	X	—
- Setting norms, standards, regulation	XX	—	—	—
- Monitoring and oversight of service providers	X	X	XX	—
- User participation	—	—	X	—
- Managing insurance schemes	—	—	—	—
- Contracting	X	—	—	—
- Payment mechanisms	—	—	X	—
Operation Maintenance				
- Medicines and supplies (ordering, payment, inventory)	X	—	XX	—
- Vehicles and equipment	X	X	XX	—
- Facilities and infrastructure	XX	X	XX	X
Information management				
- Health information systems design	XX	—	—	—
- Data collection, processing, and analysis	XX	XX	XX	—
- Dissemination of information to various stakeholders	XX	X	XX	—
Political or democratic participatory mechanisms and citizen feedback systems	—	—	XX	XX

Notes: XX = extensive; X = some; — = limited or none
Source: Rapid Assessment of Bénin Health System (2006)

In terms of investment, the government spent 4.6% of its GDP on health care, which is below the average sub-Saharan African country spending on health [25]. The country's total expenditure on health per capita was $82, with private out-of-pocket expenditure making up the bulk of total spending (51%), and the rest split between the government (31%) and donors (16.5%) [10]. While investments by different stakeholders have increased health coverage, and 90% of

pregnant women use health services to deliver, only 44% of the general population seek health services when sick [23] The surprisingly low use of health facilities by the general population is influenced by various factors, such as cultural reasons, out-of-pocket fees, low perception of the quality of services, and poor reception at health centers by health workers [26].

Human resources and especially health workers are one of the most critical elements of a well-performing health system. The low density of qualified health workers in sub-Saharan African countries is a continuous issue that negatively affects many of these countries' health system. The minimum density recommended is 23 doctors, nurses, and midwives per 10,000 population [27] by the World Health Organization. However, in Bénin, data show that only 8 doctors, nurses and midwives are available [27].

The low density of health personnel in Bénin is compounded by the unequitable distribution of health workers [28]. Most health personnel are concentrated near the capital in the southern part of the country, which has a higher density urban area. The ratio of nurses or doctors to inhabit the southern areas is therefore higher than the northern, more rural areas of the country. This unequal distribution of health personnel is due to harsher living and working conditions in rural northern areas compared to urban southern areas. Also, working in remote areas presents substantially fewer opportunities for career advancement, and moonlighting practices in the private sector are more limited. The health personnel who move to these underserved areas tend to become demotivated due to poor working conditions, absenteeism, high turnover, low job performance, and negligence, all of which become a common part of their everyday work. Overall, Bénin's health system faces challenges with regards to producing qualified health personnel, and retaining, motivating, and distributing health staff effectively.

Human resources for health in Bénin is receiving increased attention from the MOH and the international community, as shown by the shift in investment from structural issues to a Results-Based Financing approach [8, 29, 30]. These programs aim to improve service delivery at the health facility level. They focus on health workers or supply incentives to deliver quality care or demand-driven schemes to incentivize the population to use health services. Health provider incentives, such as pay-for-performance initiatives in selected health districts, aim to influence health provider behavior in the short run. However, little has been done to directly improve the job satisfaction of the country's health workers.

Job Satisfaction

Job satisfaction has been long recognized in other fields as instrumental for good employee performance. It is a concept that originated in the field of organizational behavior [31]. There is substantial literature on job satisfaction that includes various definitions of the concept of work satisfaction, its measurement, and its effects on job performance and outcomes, as well as its determinants. Below I present the working definition of work satisfaction that I will use throughout the study, the several ways of measuring satisfaction, the different theories of job satisfaction, and its challenges. Further, I discuss the role of satisfaction in general, and in the health care field in particular. I also present a brief review of the determinants of work satisfaction among health workers, and note the areas where my study can contribute to more knowledge on the concept.

Defining job satisfaction

Job satisfaction is one of the most scrutinized job attitudes in industrial and organizational psychology [32]; it has been studied extensively across many different fields. As expected, there are a multitude of different definitions for job satisfaction and it is difficult to select among them. Most researchers, however, agree that satisfaction is an attitudinal variable representing the overall assessment of one's job as experienced in the workplace [33-36]. Other researchers describe it as a pleasurable emotional state that a person feels towards his or her job. For instance, Spector defines it as the degree to which employees of an organization have a positive affect towards a job and its components [35, 37, 38]. Others, such as Shader et al., consider it to be a multidimensional variable essential for an employee's fulfillment at work [39]. Despite the multitude of definitions of the term, its most important element is how a person's attitude and beliefs may affect his or her workplace behavior. The existing theories of job satisfaction and its influence on worker performance and productivity are many, most of which have a strong human motivational theory component.

Methodological challenges to measuring job satisfaction

One of the most prominent and common theories of job satisfaction is Maslow's need hierarchy, which contends that human needs form a five-level hierarchy [40]. Specifically, it asserts that the fulfillment of psychological needs, such as the pay and benefits offered by an organization, must meet the employee's overall expectations. Once the psychological needs of the employee have been met, the next level of needs is how safe the employee feels in his/her environment, which also implies a sense of job security and/or having good organizational policies. The next level of hierarchical needs is the feeling of belonging to the organization, which is manifested by a positive relationship between colleagues and supervisors. Once the aforementioned needs have been met, the fourth level is the need to be appreciated and recognized within the organization. The final level is the self-actualization of the employee who is able to achieve his or her potential within the organization. Thus organizations trying to increase employee job satisfaction should begin by meeting these basic employee needs.

Another prominent theory is the job characteristic model [41]. This theory contends that job satisfaction occurs when the work environment focuses on intrinsically motivating characteristics. It further asserts that five core dimensions of a job lead to several different psychological states, one of which is job satisfaction. The five core dimensions of job satisfaction include: skill variety, task identity, task significance, autonomy, and feedback. Thus, according to this theory, organizations trying to improve employee job satisfaction should focus on improving these five core job dimensions.

A third theory of job satisfaction is the dispositional approach, which states that an individual has a predisposition to being either satisfied or not, which remains more or less constant over time. This theory focuses more on personality traits of individuals, and therefore provides little opportunity for organizations to increase the level of work satisfaction among their employees, since satisfaction is believed to be entirely determined by personal traits.

Finally, the fourth prominent theory of job satisfaction that is common and that will be used in this research is the Herzberg dual-factor theory [41]. The Herzberg theory argues that job

dissatisfaction and satisfaction are two separate and unrelated phenomena [42]. It suggests that just because an employee is not dissatisfied does not mean that he or she is satisfied. It is known as the dual-factor theory because it argues that there are two sets of factors that either enhance satisfaction or hinder it. These are motivators or intrinsic factors, and de-motivators or extrinsic and hygienic factors. Intrinsic factors, when in place, create high motivation and high satisfaction for in the employee. These factors range from recognition to promotion and career advancement, and when met they elicit high levels of motivation and job satisfaction. On the other hand, hygienic or extrinsic factors such as pay, working conditions, company policy, and job security need to be present to prevent employee dissatisfaction, so that employees do not become demotivated. The presence of good hygienic factors is important because they move employees closer to a neutral position, and closer to satisfaction. Herzberg maintains that making improvements to both of these factors leads to job satisfaction and might increase motivation.

Measuring job satisfaction can be done using three types of methods: the single question, the global measurement, and the facet measurement. The single question method asks respondents how satisfied they are with their job. Respondents usually answer using either a yes-no response, or a 1 to 5 rating response from *"dislike my job very much, dislike my job, neither dislike/ nor like"* to *"like somewhat"* or *"like very much"*. The global measure finds a general score based on several questions regarding pay, working conditions, and career opportunities. It combines scores on different questions or items to determine a global score for satisfaction. On the other hand, facet measurement asks questions pertaining to different themes or areas of a job such as pay, promotion, supervision, and coworkers, and presents a score for each of these facets. For instance, the Minnesota Satisfaction Questionnaire (MSQ) is a 100-item questionnaire that measures 20 subscales of job satisfaction as well as intrinsic and extrinsic subscales of job satisfaction. In addition, the combining of scores from different facets gives an overall score on job satisfaction.

In general, many researchers discourage the use of a single item to measure job satisfaction, due to its low reliability especially when using the yes-no response. Scarpello and Campbell find that using the global measure with a 1 to 5 rating performed better than using a yes-no response [43]. Either way, most researchers tend to use a multi-item measure in which overall job satisfaction is usually defined as the sum of the facets [44], even though the relationship might not be straightforward in the sense that the sum of the parts might not be equal to the whole (Scarpello & Campbell). However, one of the advantages of using a multi-item measure is the ability to focus specifically on those facets that seem to elicit greater satisfaction or dissatisfaction from respondents [45].

While there are many questionnaires that measure job satisfaction, researchers need to evaluate the reliability and validity of the questionnaire when they are considering deciding which to use. In reviewing job satisfaction measures in the literature, van Saane and colleagues assessed 29 commonly used questionnaires, and found that only a quarter of the measures had good reliability and validity [46]. Their research concluded that while many job satisfaction questionnaires were available only a few, such as the Job Description Index (JDI) and the MSQ, had adequate validity and reliability, with JDI outperforming most other questionnaires[46] (More on the MSQ in Chapter 3.)

The role of satisfaction and its effects on job performance, burnout, and patient outcomes

Across many fields, it has been asserted that worker satisfaction leads to better performance and/or productivity [8, 47]. Job satisfaction and performance have been studied since the 1930s in industrial organizational psychology, beginning with the Hawthorne studies [48].Various studies have attempted to analyze the relationship between job satisfaction and performance, and have come up with ambiguous conclusions. For instance, one meta-analysis of nine studies showed little association between job satisfaction and performance [49]. The Vroom study also estimated that worker satisfaction levels had no more than 2 percent in output variance [50]. However, Locke and Herzberg suggested that there may be a relationship between employee satisfaction and interest in work, pay, achievement, and recognition [34, 42].

Faced with these inconclusive results, the Judge et al. literature review explores the link between job satisfaction and job performance [32]. They conducted a meta-analysis of 312 datasets with a sample size of over 54,000 and concluded that there was a moderate association between job satisfaction and job performance. They also reviewed Iaffaldano et al.'s meta-analysis, which found no correlation between job satisfaction and performance [51]. Judge and his colleagues concluded that the study by Iaffaldano et al. was flawed and had used a series of assumptions that are known to give spurious results in meta-analyses, erroneously concluding that there was no relationship between job satisfaction and job performance. In addition to the Judge et al. study, Petty et al. found a greater and more consistent correlation between overall job satisfaction and performance than previously noted [52].

In general, the studies exploring the effects of job satisfaction on performance were correlational studies. The only study that attempted to evaluate the causal link between satisfaction or happiness and productivity (performance) was a randomized control study led by Oswald and colleagues [53]. Their study found that happiness had a positive effect on productivity, which suggested that satisfaction or happiness with one's job should have a positive effect on one's performance. Other studies have found that dissatisfaction conditional on wage affected non-cooperative behavior, shirking, and lower levels of effort –all of which contribute to lower levels of performance (references).

Despite the lack of strong evidence of a link between satisfaction and performance/productivity, managers of health care and other organizations are eager to understand the relationship between satisfaction and performance. In health care organizations, the delivery of high-quality patient care is an important outcome of performance. With the shortage of health workers globally, there has been more human resources for health research in recent years to understand how to retain health workers and provide better care to patients. Health worker job satisfaction is one of the mechanisms that can provide researchers and the international community with the leverage to retain and motivate health workers [8, 54].

Early studies and the few that have recently been done on health worker satisfaction and dissatisfaction, indicate the importance of this variable in explaining health worker behavior and patient care. Melville and colleagues [55] showed in a study conducted in England and Wales that providers who were less satisfied with their jobs were more likely to prescribe drugs known to cause adverse reactions among patients. These studies also showed that physicians with low

levels of job satisfaction were more likely to let ancillary staff write prescriptions without proper supervision. Drug prescription is directly related to quality of care, as it is often one of the procedures most closely complementing direct nurse and physician medical care. Another study related to medical care provision that was conducted in the United States showed that highly satisfied physicians were more likely to exhibit high adherence to standards when treating patients [56].

Nurse-patient interactions are also an important determinant of good quality of care. In their in-depth 4-to-5 month observational study of nurses working in psychogeriatric wards, Robertson and his colleagues measured quality of care and showed that nurses who were highly satisfied were more likely to provide high levels of care such as feeding, toileting, and being attentive to their patients, compared to nurses reporting low satisfaction [57]. Choi et al. echoed these findings more recently when investigating registered nurse (RN) workgroup satisfaction and patient falls in acute care hospital units [58]. They discovered, after controlling for staffing, that RN work satisfaction was inversely related to accidental patient falls. This latter study also corroborated the study led by Alvarez and colleagues, which, while finding no correlation between overall job satisfaction and patient falls, did find that job satisfaction subscales, such as physicians-RN interaction and decision-making, showed significant positive correlation with patient fall rates [59]. Once again, the overall evidence seems to suggest that health care provider satisfaction is very possibly linked to better health outcomes and care of patients. These studies demonstrate the importance of job satisfaction among providers for both provider-patient relationships and quality of care.

Additionally, in another study conducted in the United States among a subset of primary care teams in hospital settings, multilevel analyses indicated that teams with a high aggregate of job satisfaction ratings were more likely to have high values of quality care, as measured by both process and intermediate outcomes [60]. Based on their findings, they raised the question of how to find ways to improve job satisfaction to increase quality of care. Their concern about improving job satisfaction will be addressed in the next part of this section, which focuses on the determinants of job satisfaction among health workers.

Another important variable to consider in studying job satisfaction is the link between job satisfaction and burnout. Burnout is usually a stress-reaction between caregivers and their recipients. It is defined as a symptom pattern with three dimensions— a feeling of emotional exhaustion, depersonalization, and low personal accomplishment [61]. Work-related stressors such as emotionally demanding patient contacts, time pressure, hard working conditions, understaffed and high workload are factors leading to burnout among health workers [62, 63]. Research has found, in general, that burnout lowers the care and professional attention given to clients of human service professionals such as nurses, teachers, and others [63, 64]. Further, the quality of care may be affected when nurses are burned out. In their large cross-national investigation from eight countries in 53,846 nurses, Poghosyan et al. (2010) found that higher levels of burnout, as measured by the Maslach Burnout Inventory (MBI), were associated with lower reported quality of care by nurses [65]. They concluded that reducing nurse burnout may be an important strategy for improving nurse-rated quality of care in hospitals, and quality of care, in general. The association between job satisfaction and burnout by Kalliath et al., also indicated that job satisfaction is vital when considering burnout. In their study, they used MBI to

measure burnout among nurses, and found that job satisfaction had a significant negative effect on burnout. This suggests that higher levels of satisfaction are associated with lower level of burnout, and that satisfaction tends to play a vital role in alleviating burnout among nurses.

Determinants of satisfaction

Although job satisfaction is influenced by many factors, Hayes et al. and other researchers have argued that these factors can be categorized in three main groups [66]: (1) those characteristics that an employee brings with him or her to a job, defined as intra-personal characteristics; (2) inter-personal factors, which describe relationships or interactions between employees and others; and (3) extra-personal determinants that relate to factors over which nurses or employees have no influence, and which include factors such as policies and organizational climate. Hence, we have personal-level characteristics, intra-level characteristics, and contextual or organizational-level characteristics, all of which have been described in the literature as affecting the level of job satisfaction among nurses. Due to the similarities between intra- and interpersonal factors in the literature, I regroup these into one category to end up with two broad categories. Below I provide support from the literature on how contextual or organizational factors and inter-personal factors affect job satisfaction.

Organizational or extra-personal factors of job satisfaction can be as diverse as salary or organizational management policies, providing an environment conducive to the quality of work and life. These factors have been considered contributors to job satisfaction in both quantitative and qualitative studies. In their most recent update on job satisfaction among hospital nurses in acute care settings, Lu et al. found a series of extra-personal variables related to job satisfaction among nurses [37]. Their review listed, among others, the factors that determine job satisfaction. In particular, they found that organizational variables such as working conditions, staffing, self-growth and promotion, professional training, opportunities for advancement, job promotion, praise, recognition, and remuneration all contributed to nurse satisfaction at work. Among other factors, they also found that challenging tasks and greater responsibility in their work routines were factors in nurses' levels of satisfaction. The review by Blegen et al. focusing on job satisfaction among nurses reported that work environments in which supervisors and subordinates communicate with each other, and in which individuals were involved in the decision-making process, increased nurse satisfaction [67].

Also, organizational values such as vertical and horizontal participation contributed to higher satisfaction levels. Furthermore, in their multi-site cross-sectional surveys in hospitals across the United States, Canada, and England, Aiken et al. found that organizational attributes such as adequate nurse staffing and organizational/managerial support for nursing are factors that reduced nurse job dissatisfaction and burnout [68]. They reported that nurses working in hospitals with weak organizational support, as measured by the Nursing Working Index, were twice as likely to report being dissatisfied in their jobs. They also showed that staffing levels predicted nurse job satisfaction, but ceased to be statistically significant when controlling for organizational support. Other studies that corroborated these findings included Tzeng et al., Tovey et al., Adamson et al., and Nolan et al.[69-72]. In addition to these organizational factors, hospitals' budgetary constraints were also shown to lower levels of nurse job satisfaction by

impacting the availability of supplies and equipment [73]. Budgetary constraints would be categorized as organizational in nature, since it is reasonable to infer that hospitals with lower budgets are less able to provide comparable working environments for their nurses, making nurses less satisfied with their environments.

Following the same reasoning, in their meta-analysis and theoretical model of nurses' satisfaction and management interventions, Blegen et al. found that organizational commitment, communication with peers, fairness, routinization, and the locus of control and autonomy had a small to moderate correlation, ranging from 0.2 to 0.5, with job satisfaction [67]. Studies conducted by Chu and his colleagues had the same results [74], corroborating Blegen's findings on the role that routinization and co-worker support play in nurse job satisfaction. Their results suggested that routinization had a negative association with job satisfaction, while co-worker support had a positive one. In an another study, conducted among Canadian nurses, Knoop et al. reported that organizational commitment, which refers to identification with and commitment to the organization's goals and mission, was also determined to be a factor in explaining nurse job satisfaction, with a correlation coefficient of 0.64 [43]. Fang's study reached the same conclusion as Blegen and Knoop regarding the importance of organizational policies in hospitals [75].

Although these studies were conducted mainly in higher-income or industrialized countries, the few studies conducted in low- and lower-middle-income and sub-Saharan African countries found similar organizational characteristics to be sources of work satisfaction among nurses there. Consistent with other studies, Alemshet Y et al., in their cross-sectional study of 145 nurses in South Ethiopia, concluded that job satisfaction was low: close to 50% of health workers surveyed reported dissatisfaction with their jobs. Nurses listed low salary, insufficient training opportunities, and inadequate human resources as the primary reasons for their dissatisfaction. The 2009 Hagopian et al. study on job satisfaction and morale in the Ugandan health force also reported that Ugandan health personnel are neutral about their overall job satisfaction [76]. Their study confirmed that working conditions, facility infrastructure, and successful management-workforce interaction/camaraderie should be explicit policy strategies implemented to strengthen the nation's healthcare resources.

In the same manner, in South Africa, an investigation by Selebi revealed that nurses were experiencing low satisfaction with both the motivational (recognition, independence, and creativity) and the hygienic aspects (working conditions, job security and, remuneration) of their jobs [77]. In Malawi and Afghanistan, research by Fogarty et al. on job satisfaction and health workers produced the same result [78]; their sample of nurses in Malawi showed that job satisfaction correlated positively with all four facets of work environment evaluation: recognition, training opportunities, being paid an appropriate salary, and safety in the workplace. However, it is interesting that Asegid's study of nurses in South Ethiopia found benefit and salary subscales not to be predictors of overall job satisfaction, but that satisfaction with work environment and group did correlate with job satisfaction [79]. Other studies conducted in sub-Saharan Africa have also highlighted contextual factors, such as poor remuneration and poor working conditions and the HIV/AIDS epidemic, as influencing job satisfaction [80, 81].

Inter-personal factors also affect job satisfaction. Utriainen et al. reported in their systematic review that human relationships with co-workers, feelings of togetherness or cohesiveness,

interaction and communication, team work, social climate, and peer support were all correlated with hospital nurses' job satisfaction [38]. The latest review by Lu et al. corroborated Utrianien's conclusions, finding that worker interactions were a critical factor in job satisfaction. Factors such as relationships with patients, co-workers, and managers were predictors of job satisfaction in many developed countries [82].

Although the majority of studies on nurse job satisfaction have been conducted in developed countries, some studies from the region's least developed countries have also found that inter-personal relationships were also associated with job satisfaction. One such study conducted in a lower-middle-income country that focused on correlations of inter-personal relationships is the Jayasuriya and colleagues' study conducted in Papua-New Guinea. The authors investigated the role that relationships among nurses play in work satisfaction [83]. Their study reported that inter-personal relationships, such as work climate and supportive supervision, were the most important determinants of job satisfaction. Hagopian's study also found that among the Ugandan health workforce, a lack of camaraderie was a significant factor in nurse dissatisfaction, and suggested that policies strengthening this aspect of the social climate in the workplace should enhance job satisfaction [76].

Finally, as previously mentioned, the last dimension of nurse satisfaction to be discussed are the individual, or intra-personnel variables. Individual-level variables are known as demographic variables but can also include individual characteristics such as tenure, age, gender, education, marital status, and in some instances number of children. Research in developed countries showed somewhat conflicting results in assessing the correlation between demographic variables and nurse work satisfaction. Lu's systematic review found that demographic or personal characteristics were weakly correlated with job satisfaction in nurses [82]. Specifically, variables such as age, years of experience, and educational level had only a slight relationship with job satisfaction. However, Hayes' review concluded that nurses' age, educational preparation, and individual coping strategies influenced satisfaction [66]. Furthermore, they found that baby boomers were on average more satisfied with pay and scheduling than nurses born in later years, and working longer in one specific unit contributed to higher levels of satisfaction. It should also be noted, however, that although Hayes' review found overall evidence that age and educational level influenced job satisfaction, other sources, such as Penz et al., for instance, concluded that age did not play a significant role in explaining job satisfaction [84].

Evidence from studies conducted in both low- and lower-middle-income countries, including sub-Saharan African countries, has shown that demographic variables play a role in explaining the variance in work satisfaction among nurses and health workers. Munyewende's research on the role of practice environments in job satisfaction in primary care health clinic nursing in South Africa found that age and tenure affected job satisfaction [85]. Their work suggested that the job satisfaction of clinic nursing managers declined as nurses aged. Nabirye et al. also reported that less experienced nurses reported higher levels of job satisfaction when compared to nurses with more experience [86]. Interestingly, the study also found that nurses with no children reported higher levels of satisfaction than those who had children. Further, Blaauw et al. also suggested, in their comparison of Tanzanian, Malawian, and South African nurses, that job satisfaction levels were higher in the over 50 age group compared to nurses under 30, although gender, marital status, and type of health facility did not correlate with job satisfaction [87]. Hagopian et

al. find no effect of gender on overall satisfaction, although age is positively associated with job satisfaction [76].

Bridging the gaps

In both low- and higher-income countries, the current evidence on determinants of job satisfaction among nurses can be categorized into three main groups: the intra-personal characteristics, which are comprised of demographic variables such as age, tenure, and number of children; the inter-personal factors related to the relationships between nurses and their peers or patients, such as cohesion of nurses and communication between peers; and finally, contextual variables of the work environment or extra-personal variables which are related to organizational policies of clinics and may include remuneration, promotion, and training opportunities. As reported, many studies on the determinants of nurse satisfaction in higher-income countries either do not focus on demographic variables, or produce conflicting results for their role in determining nurse satisfaction. The evidence in low- to lower-middle-income countries suggests that demographic variables such as age, number of children, and job tenure might be important variables to consider when measuring job satisfaction among health workers, specifically nurses and midwives, in these low resource settings. Globally, the role of intra- and inter-personal characteristics seems to be validated in both settings. The evidence in both high- and low-income countries shows that organizational and contextual variables of the work environment alike play a salient role in nurse satisfaction. Organizational policies and working conditions are factors that contribute significantly to the job satisfaction of nurses.

My review also reveals that there is still work to be done on determining the sources of work satisfaction among nurses, and especially midwives, in developing countries. There are no studies in low-income settings focused on sources of midwives' job satisfaction. Current studies on determinants of job satisfaction are overwhelmingly focused on nurses in industrialized and middle-income countries. Only a handful of studies have been conducted on nurse satisfaction in African countries, and even those are biased toward the Anglophone African countries. To date, systematic reviews of the sources of job satisfaction have only included research done in industrialized countries. Evaluations on the work satisfaction of African nurses and midwives are noticeably absent. I did not find any research conducted in Bénin that attempted to quantify the satisfaction level of nurses or midwives; and finally, to the best of my knowledge, there are no studies that use a model to assess the importance of the different types of factors affecting job satisfaction. Investigating the determinants of job satisfaction and dissatisfaction among the health workforce in Bénin would yield invaluable information to administrators in managing the country's scarce healthcare resources. In the next chapter, I discuss the analytical methods I will use to determine the sources of work satisfaction among a sample of health workers in Bénin.

3. Data & Methods

To address the research questions described previously, I used a 2-staged design. In the first stage, I relied on a secondary dataset compiled from a broader World Bank project. This dataset forms the basis of my structured quantitative data. In the second stage I conducted semi-structured interviews to better understand how health workers thought and felt about their jobs. Below, I have divided this chapter into two sections corresponding to the two stages.

Stage 1: Quantitative Methods

Structured quantitative data

The data were collected as part of a larger research project on a Results Based Financing (RBF) program in ten selected health districts. The project was financed by The World Bank and the government of Bénin. The pilot project was motivated by the relatively high maternal mortality rate experienced by the country despite substantially increased access to health clinics and healthcare. The government realized that despite the influx of additional funds into the health system, the expected health outcomes had not materialized, and therefore suspected that health personnel or health worker performance might be suboptimal. The RBF was designed to improve behavior in both the demand-side (patient) and the supply-side (health provider) factors of maternal health care. Specifically, on the provider side, the RBF encourages better nurse-patient relationships and improved quality of care. It also seeks to reduce staff absenteeism and to improve the management of both equipment and drug inventories, and to curtail drug theft by staff. The RBF mechanism poses several questions: 1) Does paying for results, or paying more for results, have any effect on mortality rates? 2) Does management autonomy strengthen the impact of the RBF policy? 3) What is the relationship between RBF and health worker motivation? What is the relationship between RBF and corruption? To answer these questions, the RBF mechanism was piloted in 2011 and is, at the time of writing, still underway. Baseline data were collected on 250 functional health centers in ten health districts. These are the baseline data that will be used to address my first two research questions: what is the level of satisfaction among health workers in these health districts, and what are the predictors associated with job satisfaction among nurses and midwives?

Sampling

The ten health districts sampled from Bénin's 34 health districts were chosen based on low indicators of both antenatal care and assisted deliveries, compared to the national average, as well as on the higher prevalence of poverty and the lower presence of non-government health care providers in these districts compared to the rest of the country. Within these ten health districts, all functional health facilities with health personnel and utilized by inhabitants in the catchment area were included in the survey. In total, 251 health facilities were surveyed. Within

each health center, up to seven health workers were randomly selected for inclusion, for a total of 1149 health workers, a sample group that included physicians, nurses, midwives, technicians, and auxiliary nurses.

Data collection

The project used multiple data collection questionnaires to obtain information about 251 health centers, as well as information on the 1149 physicians, nurses, midwives, technicians, and auxiliary nurses working there. I describe each of these questionnaires below:

Health clinic data: Several questionnaires were used to collect data from clinics and health districts. A general assessment of each district was performed by surveying the coordinator of each health district and his or her team. Information was collected on the general characteristics of the district, its healthcare resources, and the health coordinator's responsibilities regarding supervision of the health centers. Additionally, each health facility was surveyed to obtain information on its administrative and financial organization. Data were gathered by questioning health facility managers, by direct observation of the premises, and from inspection of each facility's drug inventory. The goal of administering these surveys was to evaluate the resources of the facilities – their existing equipment and budgets, and their supervisory and managerial organizations.

Individual-level data: Surveyors who had extensive training with survey protocol administered questionnaires orally to up to seven health workers in each clinic, resulting in a sample of 1149 health personnel. The survey was divided into the following domains of interest: the demographics of the health workers, their education and professional training, their tenure, the number of hours worked per day, official remuneration received, moonlighting activity (remunerated activities outside of their health clinics), extrinsic and intrinsic motivation, organizational engagement, and job satisfaction. Job satisfaction was measured with the Minnesota Satisfaction Questionnaire (MSQ). The MSQ long form is a validated instrument consisting of 100 items, 5 items per facet. The facets are labeled: ability utilization, achievement, activity, advancement, authority, company policies and practices, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, social status, supervision-human relations, supervision-technical variety, and working conditions.

A short form of the MSQ questionnaire is available and was chosen because the short form is easier to use and only takes 5 to 10 minutes to administer. It is comprised of 20 items with one item per facet each representing either an intrinsic or an extrinsic item on the questionnaire (Weiss et al. 1967). The French-language version was used in this setting. Items are presented in the form of questions that make up the subscales (intrinsic or extrinsic scales) listed above. Respondents in this study were read each statement and asked to assess on a five-point Likert scale (1 = "very dissatisfied with this aspect of my job;" 2 = "dissatisfied with this aspect of my job;"3 = "neither dissatisfied nor satisfied with this aspect of my job;" 4 = "satisfied with this aspect of my job;" and 5 = "very satisfied with this aspect of my job"). Twelve of the 20 questions are designed to measure intrinsic satisfaction, and six questions to measure extrinsic satisfaction. The remaining two questions are used when measuring general job satisfaction by measuring all 20 items.

Data analysis

Each of my research questions requires a separate analysis plan. The methods that I applied included a univariate and a bivariate analysis, a multilevel analysis, and a qualitative analysis of my semi-structured interviews. Below I provide the details of my analysis for each of my research questions.

Univariate analysis

To determine the levels of satisfaction among health workers, I conducted a univariate analysis. I derived a score for each subscale of work satisfaction using the MSQ questionnaire. This analysis provided an assessment of the variation between the different scales of job satisfaction. Subgroup analysis of the level of satisfaction among health workers (as nurses, midwives, and auxiliary nurses) was also performed providing a description of the various levels of job satisfaction. This produced a situational analysis of job satisfaction scales among health workers in the sample of health clinics.

Bivariate analysis

After analyzing the variation in the sample using univariate analysis, I used a bivariate analysis of the data to assess the correlation between job satisfaction and other possible determinants of satisfaction. Here, I looked at any evidence of an empirical relationship, positive or negative, between the outcome variable and other factors based on theoretical grounds. The goal was to discover and verify any association with other variables and assess the strength of such associations. I used ANOVA analysis to determine relationships.

Multilevel analysis

To find the determinants of satisfaction at the individual and health facility level, I used a multilevel method to take advantage of the nested structure of my data –the health workers are nested within health facilities. A hierarchical or multilevel model with two levels was therefore used to explore the variation at each level. Multilevel or hierarchical models are used to account for the effect of contextual variables and to acknowledge the fact that individuals are nested within organizational units [88]. Using the Ordinary Least Squares (OLS) regression would have led to unreliable estimates of the effect of explanatory variables, since health workers in the same health facility might share similarities, and hence the independence assumption of OLS regression would have been violated. The multilevel model takes into account the within-group variability at the lower level as well as the between-group variability at the higher level. The multilevel method also assessed the importance of contextual variables in explaining the variation in job satisfaction among health workers. I focused on estimating the variance at each level and understanding how the variances are related to the explanatory variables. In effect, variation in the dependent variable was shared between variation at the individual-level and the clinic-level.

As mentioned, the multilevel model focused on two-level models in which individual-level data were represented in level-1 units and were nested within clinics representing level 2. The level-1 model established how health worker-level predictors relate to satisfaction scales. At level 2, each of the regression coefficients in the level-1 model, including the intercept, were predicted

by health facility characteristics. The details of the model and its specifications were assessed based on theoretical and practical considerations. The multilevel linear model on level 1 takes the form

$$Y_{ij} = \beta_{0j} + \beta_{1j} X_{ij} + e_{ij} \text{ (Eq.1)},$$

where Y_{ij} is the outcome variable—a satisfaction score of individual i in health centers j (j=1,.., 251 health centers)—and β_{0j} is the intercept of the jth health center and the mean satisfaction score for the j health center, after controlling for a series of characteristics X_{ij}, at the lower level, X_{ij}, with; β_{1j} indicates the strength of the association of X_{ij}. The error term or residual e_{ij} represents the residual at level 1, and is assumed to be normally distributed with a mean of zero and a constant level-1 variance. The level-2 model specifies how the level-1 coefficient calculated in equation 1 varies across the j health centers. Here, the intercept, $\beta_{0j}\beta_{0j}$, is predicted by health facility-level predictors. I use health center variables to explain variation in the mean satisfaction scores [the intercept in Eq. 1]. In this manner, I determine which characteristics predict why some health centers have higher satisfaction scores than others. I can also determine how much of the variation in job satisfaction is explained by contextual variables and individual-level variables.

In the model for level 2, the intercept with the level-1 model becomes the outcome and is predicted by health facility-level characteristics. The equation for level 2 takes the form:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} Z_j + u_{oj} \text{ (Eq.2)},$$ where γ_{00} represents the grand mean, and Z_j is a series of covariates measured at the higher level, where coefficient γ_{01} is the coefficient of association of health centers; u_{oj} is the residual at the higher-level and is normally distributed $u_{oj} \sim N(0, \tau_{00})$ where τ_{00} is the variance across health facilities. In this manner, the level-2 equation allows for the varying intercept to be accounted by (Z_j) and the unobserved heterogeneity (u_{oj}). Combining these two equations, I was able to simultaneously estimate the effects of contextual and individual-level characteristics. The model can be written as a single regression by substituting Eq.2 into Eq.1 to produce:

$$Y_{ij} = \gamma_{00} + \beta_{1j} X_{ij} + \gamma_{01} Z_j + + u_{oj} + e_{ij} \text{ (Eq.3)},$$
where u_{oj} represents the unobserved heterogeneity across health facilities and e_{ij} represents the level-1 error.

Stage 2: Qualitative Methods

Sampling

To ensure that I interviewed a diverse sample of healthcare workers, for example, healthcare workers who worked in a wide range of environments, I intentionally identified two high- and two low-quality health districts, and within each of these health districts identified two high and two low-quality health centers. To identify the two best and the two worst health districts, I relied on a quality score index that the World Bank project had assigned to each of its ten districts. The quality score index was based on the project team's observations of district health facilities for general cleanliness and availability of items such as trash bags, and other essential equipment. I used a similar strategy to select the health centers to visit within each district. To

maximize the variance among the health centers, I selected the two health centers with the highest and the two health centers with the lowest quality score index, to end up with 16 health centers. I visited each of these centers and conducted face-to-face interviews with at least two attending nurses, midwives, and auxiliary nurses. Ultimately, I interviewed 30 health workers.

Data collection

To elicit descriptions of their work experiences from healthcare workers, as well as suggestions for ways to improve their own performance, I used semi-structured interviews which are ideal for: (a) allowing respondents to steer the interview toward areas they consider most important and to describe their experiences in their own words; and (b) maintaining enough standardization across interviews so that comparisons can be made. The topics covered were: quality of healthcare; quality of services during prenatal, perinatal, and postnatal care; and the needs of nurses and midwives. Samples of the questions asked are: What are your needs generally and in particular for pregnant women who visit your clinics? What would you like to see improve? What are particularly challenging aspects of your job? To manage my field notes, written notes were taken during each interview as no health workers wanted to be recorded. These notes were then coded and analyzed to identify themes related to satisfaction of nurses and midwives through thematic analysis.

Data analysis

The semi-structured interviews were performed and notes were taken from each health worker interviewed. These were transcribed verbatim and corrected after each interview to maximize clarity. To gain insight and knowledge from the data gathered, I used thematic analysis to determine patterns and themes. The analysis was done for each individual question. The initial codes in my notes were generated using a hybrid method involving a data-driven inductive approach and the deductive a priori template of codes approach. Since I already had a theoretical framework (Herzberg theory) applied to the study, it seemed logical to use a template for coding, as it could provide details of some aspects of the interviews. However, to determine other themes that might not follow my theories, I also coded the data without trying to fit into a specific coding frame. After all notes were coded and collated, all codes were sorted into potential themes and were organized into overarching themes. During the final stage of the analysis, I structured my data into final themes, and data-extracted specific quotes to support themes that I had found.

This section reviewed my analysis plan for my study. In Chapter 4, I will apply factor analysis to validate the instrument used to measure work satisfaction among health workers. In Chapter 5, I will discuss health worker characteristics; Chapter 6 and 7, respectively, present my quantitative and qualitative results. In chapter 8, I will discuss my findings, and how they relate to other research in the field. And in Chapter 9, I will lay out the implications of this study for several stakeholders such as the Ministry of Health, the clinical or hospital administrators, and the international development organizations.

4. Understanding Satisfaction

As indicated in Chapter 2, I used the Minnesota Satisfaction Questionnaire (MSQ) short form in my study, of the many available instruments, to measure satisfaction among health workers. Although the MSQ has been validated in other settings, it has not been validated in Bénin. The goal of validating an instrument is to ascertain whether the instrument measures what it sets out to measure. To do that, I used an analytical method called factor analysis. This section presents the results of this method.

Factor Analysis of the Short form Minnesota Satisfaction Questionnaire

The 20-item MSQ Short form is rated on a 5-point Likert scale (1 - "very dissatisfied with this facet of my job", 2 - "dissatisfied with this facet of my job", 3 - "can't decide if I am satisfied or dissatisfied with this facet of my job, 4 - "satisfied with this facet of my job" and 5 - "very satisfied with this facet of my job"). Item responses can then be summed or averaged to create a total score - the lower the score, the lower the level of job satisfaction. The MSQ short form includes 20 of the 100 original items that constitute the 20 subscales of job satisfaction. Thus, the 20 questionnaire items correspond to the items that frequently measure general or overall satisfaction. The scale measures two distinct components of job satisfaction in addition to general satisfaction: intrinsic job satisfaction, which measures feelings about the nature of the job tasks, and extrinsic job satisfaction, which measures feelings about external aspects of the job. Historically the MSQ has good reliability and construct validity [46]. It has been validated in previous studies, but there is no research to date that has validated and studied its reliability among health workers in Bénin.

Factor analytic approach

Exploratory Factor Analysis of the MSQ short form has been previously validated in high-income countries and some upper-middle-income countries such as South Africa [45, 46, 89, 90]. However, it was necessary to validate the instrument in Bénin, since it has never before been used here. To determine the structure of the MSQ short form to be used in Bénin, I used factor analysis. This is a statistical method that assesses the underlying dimensions of observed variables in the data set. It identifies the factor structure by measuring the underlying dimensionality of a scale [91]. The observed variables creating the dimensions are called factors.

There are two types of factor analysis: confirmatory factor analysis (CFA) and exploratory factor analysis (EFA) [91, 92]. CFA imposes a factor structure onto the sample and the pattern of factor loads in advance, whereas EFA does not have any a priori hypothesis which variables measure a latent variable [93]. EFA is exploratory in nature and attempts to uncover the factor structure of the instrument using a dataset. The smallest set of variables that can explain the correlation among a set of variables is kept, provided that the factor measuring the underlying dimensions is recognized by theory or experts.

In this sample, the MSQ short form was validated for an underlying latent variable—job satisfaction. The questions answered are: does the multi-item instrument (MSQ) measure a single construct, and are its items internally consistent? Since no a priori underlying structure is imposed onto the instrument, EFA will be used to establish the underlying latent variables of the MSQ short form questionnaire.

Participants

Participants consisted of midwives, nurses, and auxiliary nurses from 251 health clinics in Bénin. In total, 1149 participants were interviewed by fieldworkers. Hard copies of the (MSQ) short form questionnaire were administered to health workers. The original MSQ items in English are show in Table 4 below. Items 1, 2, 3,4,7,8,9,10, 11, 15, 16, and 20 are intrinsic items (in bold). Items 5, 6, 12, 13, 14, and 19 are extrinsic items. Items 17, 18 (in italics) are used with the other 18 items to derive an overall job satisfaction score.

Table 4. The Minnesota Satisfaction Questionnaire Short form Items

Items[*]
1.Being able to keep busy all the times
2.The chance to works alone on the job
3. The chance to different things from time to time
4.The chance to be somebody in the community
5.The way my boss handles his/her workers
6.The competence of my supervisor in making decisions
7.Being able to do things that don't go against my conscience
8.The way my job provides for steady employment
9.The chance to do things for other people
10.The chance to tell people what to do
11.The chance to do something that makes use of my abilities
12.The way company policies are put into practice
13.My pay and the amount of work I do
14.The chances for advancement on this job
15.The freedom to use my own judgment
16.The chance to try my own methods of doing this job
17.The working conditions
18.The way my co-workers get along with each other
19.The praise I get for doing a good job
20.The feeling of accomplishment I get from the job

*Items in bold are intrinsic items, items in regular font are extrinsic items, and items in italics are used to derive an overall score in additions to intrinsic and extrinsic items

An exploratory factor analysis (EFA) was conducted to summarize the underlying factor structure of the MSQ, in order to determine the number of latent constructs underlying the 20 items. The data was first inspected for any missing responses and outliers. Missing responses represented 4% of the sample. There were no outliers.

The factorability of the scale was assessed by calculating the correlation matrix of the items and seeing how many items had a correlation above 0.3, which is considered a medium association [94]. In addition, a Kaiser-Meyer-Olkin (KMO) result above 0.6 would indicate the suitability of the data for factor analysis. Given that items on the MSQ were measured on a Likert-type scale, a polychoric correlation factor analysis was performed. This is more suitable to the data since standard factor analysis assumes that variables are continuous and normally distributed [95, 96]. For ordinal data or a Likert-type scale, the superiority of polychoric factor analysis has been demonstrated [97].

Once the sample was evaluated for factor analysis suitability, EFA was conducted based on best-practice guidelines [98]. Specifically, given the theory and the evidence, factor extraction was conducted with parallel analysis using principal axis factoring, which reduces the distributional assumptions of the data [99]. In addition, Kaiser criteria (eigenvalues greater than 1) were used simultaneously with parallel analysis. This method corrects for potential error in the sample by comparing the correlation matrices of the raw sample to that of a random simulated dataset to extract the number of factors. The sample's eigenvalues are thus compared to eigenvalues from the random set. Factors are retained when their eigenvalues are greater than the random set eigenvalues [100].

Next, oblique rotation was performed, assuming correlations among factors. Upon inspection of rotated factors, loading factors of less than 0.4 were eliminated (loading less than 0.4 suggests a weak relationship with factors) [100]. Some researchers suggest that at least three items should be loading on each factor for robustness of the analysis [101-103]. The root mean square error of approximation (RMSEA) was also evaluated with values lower than 0.06, and showed a better model fit [104].

Practically, the labeling of factors after extraction is subjective and inductive, and based on researcher definition [94]; however, since this scale has been generally accepted for the last several decades in other settings, my labeling followed standard practices of previous studies. Data were analyzed using R and the library psych.

Results

Although EFA uses regular Pearson correlation to derive the correlation matrix, these methods assume that data are measured on an equal interval scale and that a linear relationship exists between the variables. These assumptions are usually violated when an ordinal rating scale is used, as is the case here. Since items on the MSQ are ordinal, the polychoric method, which does not assume a normal distribution of the data, was used. Table 5 presents the polychoric correlation matrix among items of the MSQ. I indicate several items that had a correlation above 0.3, implying that factor analysis was appropriate. The KMO measure of sampling adequacy was 0.76, an additional indication that factor analysis was suitable for this dataset.

The parallel analysis alone revealed 3 factors for which the raw eigenvalues of the sample exceed those of the random dataset. After further investigation, only two factors had eigenvalues greater than 1. This was also corroborated by the two-factor structure of the MSQ (intrinsic and extrinsic), as expected. Once the number of retained factors was determined, exploratory factor analysis was conducted with principal axis factor and oblique rotation. Table 5 shows factor loadings greater than 0.3. Matsunaga regards this cut-off as an important factor for selecting variables that load onto a factor [105]. In the simple structure, items 4, 9, 10, 11, 16, 18, and 20 loaded on factor 1, and items 5, 6, and 12 loaded on factor 2. The factor solution accounts for a total of 41% of the variance in items. The communalities of the items were also acceptable, except for item 16, which had a low communality of 8%. The communality of a variable indicates how much of the variance in each of the original variables is explained by the factors. High communalities are seen as desirable in exploratory factor analysis [106]. In our sample, the reliability of items that loaded on factors 1 and 2 respectively was 0.71 and 0.81, a result that indicates a strong reliability among items. The RMSEA for the factor analysis with two factors was 0.058 with a 95% CI (0.047-0.068), and the Tucker-Lewis-Index (TLI) was equal to 0.94, all indicating a good fit to my factor structure.

In the original MSQ short form questionnaire, items 1, 2, 3, 4, 7, 8, 9, 10, 11, 15, 16, and 20 were associated with intrinsic satisfaction. In my analysis, items 4, 9, 10, 11, 16, 18, and 20 were labeled intrinsic aspects of the MSQ. My results included many of the original items that measure intrinsic satisfaction, although my sample had 7 items (versus 12) to explain the intrinsic aspect of the MSQ (See Table 6). The fact that items 1, 2, 3, and 17 did not load onto either factor 1 or 2 might indicate that the wording of these items was not inherently understood, in this particular setting. Elsewhere, in his revision of the subscales of the MSQ short form, Hirschfield found that only items 3, 7, 4, 9, 11, 16, 18, and 20 captured the intrinsic satisfaction of the subscales, whereas only items 5, 6, and 12 formed the nucleus of measuring the extrinsic aspect of the MSQ [107]. Therefore my results are not substantially different, since Hirschfield found that the original version of the scale allowed fewer items to be used to describe both the intrinsic and extrinsic subscale. Given these results, I consider that items loading on factor 1 measure the underlying dimension of intrinsic satisfaction in my sample. For the extrinsic satisfaction subscale, my analysis shows that items 5, 6 and 12 load on factor 2 and thus measure the underlying dimension of the extrinsic aspect of the MSQ. The original extrinsic satisfaction of the MSQ includes items 13, 14, and 19 in addition to the above. However, as Hirschfield determined, items 5, 6, and 12 are the nucleus of the extrinsic satisfaction subscale [107].

In summary, I found that the MSQ items load onto two latent variables: intrinsic and extrinsic satisfaction. The number of items in either the intrinsic or the extrinsic scale in our data set differs from the original MSQ questionnaire. However, correlation between my intrinsic and extrinsic scores using items found in the factor analysis and in the original MSQ is high (0.80 and 0.86 respectively). Thus, going forward in my analysis, the original number of items from the MSQ questionnaire will be used to calculate the intrinsic and extrinsic scores.

Table 5. Polychoric correlation matrix of the Minnesota Satisfaction Questionnaire items

	item1	item2	item3	item4	item5	item6	item7	item8	item9	item10	item11	item12	item13	item14	item15	item16	item17	item18	item19	item20
item1	1																			
item2	0.19	1																		
item3	0.05	0.08	1																	
item4	0.15	0.26	0.13	1																
item5	0.12	0.16	-0.09	0.18	1															
item6	0.16	0.21	-0.02	0.27	0.76^a	1														
item7	0.09	0.2	0.08	0.35^a	0.12	0.21	1													
item8	0.23	0.11	-0.06	0.14	0.16	0.21	0.09	1												
item9	0.17	0.15	0.19	0.47^a	0.24	0.24	0.37^a	0.06	1											
item10	0.12	0.13	0.16	0.38^a	0.06	0.13	0.12	0.17	0.32^a	1										
item11	0.18	0.19	0.07	0.36^a	0.15	0.21	0.27	0.22	0.31^a	0.28	1									
item12	0.2	0.16	0.02	0.25	0.52^a	0.48	0.16	0.28	0.26	0.15	0.23	1								
item13	0.08	0.02	0.15	-0.04	0.06	0.08	-0.18	0.12	0.01	0.06	0.06	0.09	1							
item14	0.14	0.1	0.11	0.01	0.13	0.18	0.04	0.32^a	0.04	0.08	0.14	0.24	0.19	1						
item15	0.07	0.2	0.1	0.18	-0.07	0.01	0.09	0.11	0.14	0.31	0.25	0	0.1	0.03	1					
item16	0.12	0.2	0.23	0.13	-0.01	0.02	0.07	0.08	0.14	0.28	0.14	0.09	0.19	0.12	0.4^a	1				
item17	0.13	0.12	-0.02	0	0.19	0.2	0.02	0.19	0.03	0.03	0.07	0.25	0.08	0.18	-0.05	-0.02	1			
item18	0.21	0.15	0.05	0.38^a	0.3^a	0.35	0.34^a	0.13	0.39^a	0.33^a	0.23	0.23	-0.04	0.12	0.11	0.13	0.09	1		
item19	0.22	0.23	0.05	0.41^a	0.35^a	0.38	0.17	0.26	0.23	0.25	0.25	0.37^a	0.08	0.17	0.05	0.07	0.1	0.23	1	
item20	0.17	0.11	0.09	0.28	0.12	0.17	0.18	0.13	0.38^a	0.31^a	0.21	0.24	-0.01	0.09	0.16	0.11	0.01	0.22	0.19	1

[a] : correlations above 0.3

Table 6. Results of factor structures of the Minnesota Satisfaction Questionnaire short form

Items	Factor loadings[a]		Communality
item4	**0.673**		**0.442**
item9	**0.649**		**0.431**
item10	**0.668**		**0.372**
item11	**0.477**		**0.233**
item16	**0.334**		**0.089**
item18	**0.479**		**0.322**
item20	**0.492**		**0.231**
item5		0.987	0.878
item6		0.811	0.688
item12		0.486	0.350

Items in bold are intrinsic items, items in regular font are extrinsic items
Note: Items with rotated loading values of <.3 are suppressed. [a]Matrix: Polychoric correlations. [b]reliability α calculated with polychoric matrix. RMSEA: 0.056 and TLI: 0.94.

5. Characteristics of Health Workers and Health Centers

In this chapter, I summarize the main attributes of my sample, and derive health worker satisfaction scores on overall, intrinsic and extrinsic satisfaction. I show the distribution of responses to the Minnesota Satisfaction Questionnaire short-form, and also assess the relationship between all the three satisfaction scales and health worker characteristics.

Characteristics of Health Workers

The participants in this study were health workers sampled from a total of 251 health centers of three different types: public, private, and church-run. On average, between 1 and 5 health workers from each health center were interviewed using the MSQ short form to determine their levels of satisfaction. Considering that more than 90 percent of the health centers sampled were public, I decided to limit my study to public health centers. In addition, only nurses, midwives, and auxiliary nurses were included in my sample, even though technicians and other employees were interviewed. Table 7 presents some of the respondent characteristics.

Of the participants, 69.8% are female. The mean age is 35.6 years with a standard deviation of 8.3; and the mean tenure is 7.9 years with a standard deviation of 5.8. In terms of education, the majority of participants (52%) had a primary education; most of the participants in this group were auxiliary nurses or non-qualified health workers. Thirty-nine percent of participants had a secondary education first cycle, and only 9% of respondents had a secondary second cycle or greater education. 49 % of the total number of participants in the survey were qualified health workers, i.e., nurses and midwives, all of whom had attended either the National Nursing School of Bénin or the National Medico Social Institute, both of which train nurses, midwives, social workers, and laboratory and other health technicians[you've got this again below – repetitive.] The majority of health sector employees in the study were recruited under a special government program called "Social Measures;" these health workers made up 36% of the sample. The next group were the temporary employees at 25%, followed by permanent government employees at 17%, then contractors hired by the health facilities at 19%, and, finally, community health workers, who accounted for 3% of the sample.

Table 7. Respondent characteristics and overall, intrinsic, and extrinsic mean job satisfaction scores.

Characteristics	N	%	Job Sat. Score (SD)	Intrinsic Sat. Score (SD)	Extrinsic Sat. Score (SD)
Age (Categorical)					
18-29	231	24.68	72.72(8.9)	3.85(0.48)	3.21(0.77)
30-39	439	46.90	73.53(9.5)	3.93(0.52)	3.22(0.76)
40-49	190	20.30.41	74.01(8.9)	3.95(0.51)	3.28(0.74)
50+	76	8.12	76.09(9.5)	4.09(0.52)	3.26(076)
Gender					
Male	277	29.59.2	74.88(9.31)	4.00(0.51)	3.27(0.73)
Female	659	70.41	73.11(9.31)	3.90(0.51)	3.22(0.77)
Education					
Primary School	490	52.35	73.779(9.41)	3.87(0.53)	3.35(0.72)
Secondary 1°	365	39.00	73.75(9.21)	4.00(0.49)	3.15(0.76)
Secondary 2 and more°	81	8.65	73.32(8.80)	4.02(0.48)	2.87(0.81)
Job Tenure					
0 to 2 years	77	8.123	71.12(9.21)	3.82(0.50)	3.11(0.78
3 to 5 years	200	21.37	72.32(9.45)	3.84(0.49)	3.18(0.80)
6 to 10 years	373	39.85	73.56(9.09)	3.91(0.52)	3.26(0.73)
11 to 15 years	186	19.87	75.34(8.71)	4.05(0.47)	3.30(0.79)
More than 15 years	100	10.68	75.35(9.99)	4.06(0.57)	3.25(0.73)
Job Type					
Midwives	141	15.06	72.16(9.03)	3.98(0.50)	2.95(0.76)
Nurses	324	34.62	73.95(9.24)	4.01(0.47)	3.13(0.80)
Auxiliary Nurses	471	50.31.8	73.87(9.35)	3.86(0.53)	3.38(0.70)

Status of Employees

Permanent government employees	156	16.67	74.87(9.14)	4.11(0.46)	3.09(0.82)
Community health workers	28	2.99	77.14(8.82)	4.05(0.53)	3.61(0.70)
Contractual employees under Social Programs	334	35.68	74.10(9.93)	3.97(0.51)	3.26(0.75)
Contractual clinics employee	182	19.44	72.91(9.93)	3.88(0.53)	3.21(0.79)
Temporary Employees	235	25.13	72.30(8.55)	3.78(0.48)	3.26(0.70)
Overall	936	100	73.63(9.28)	3.93(0.51)	3.23(0.76)

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Overall, Intrinsic, and Extrinsic Satisfaction Among Health Workers

The Minnesota Satisfaction Questionnaire (MSQ) includes three subscales of satisfaction—intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. This section examines the level of these three scales among health workers by using the 20-item MSQ. Two of the scales included in the MSQ follow Herzberg's theory on work satisfaction: 1) intrinsic items which represent motivating factors, and 2) extrinsic factors or de-motivators, dissatisfying or hygiene factors. Thus, in addition to evaluating both scales of work satisfaction, I also derive the overall level of satisfaction by combining the intrinsic and extrinsic items of the MSQ with the two remaining MSQ items. In this section, therefore, I estimate and describe the three types of satisfaction scales in my sample.

Results

Health workers were asked to rank all 20 items of the MSQ short-form on a 5-point Likert scale. The possible responses to individual items ranged from 1 to 5, defined respectively as 'very dissatisfied' (1), 'dissatisfied' (2), 'neutral' (3), 'satisfied' (4), and 'very satisfied' (5). The distribution of the responses is displayed in Table 8. The table gives an overview of the aspects of nursing work and the clinic environments with which health workers are most satisfied and dissatisfied. The frequency distribution shown in Table 9 indicates that the highest-ranked responses are on the intrinsic aspects (shown in bold) of nursing work. A high proportion (80-95%) of health workers reports being either satisfied or very satisfied with the intrinsic aspects of their jobs. In contrast, the least satisfying elements of nursing work are the extrinsic factors such as compensation, career advancement, and working conditions. The data show that 60-90% of health workers are dissatisfied with these extrinsic aspects of their work.

Table 8. Distribution of responses in percentage on the 20-item MSQ

Items	VD	D	N	S	VS
18.The way my co-workers get along with each other	0.4	1.8	0.2	18.4	79.3
7.Being able to do things that don't go against my conscience	**3.4**	**2.1**	**0.8**	**15.5**	**78.3**
9.The chance to do things for other people	**0.5**	**1.1**	**0.1**	**20**	**78.3**
20.The feeling of accomplishment I get from the job	**1.7**	**4**	**0.4**	**26.9**	**67**
4.The chance to be somebody in the community	**0.9**	**2**	**2.6**	**28.8**	**65.6**
10.The chance to tell people what to do	**1.6**	**8.4**	**1.7**	**29.5**	**58.8**
11.The chance to do something that makes use of my abilities	**5.9**	**10.6**	**0.3**	**29.9**	**53.3**
19.The praise I get for doing a good job	*6.8*	*13.9*	*2.5*	*29.3*	*47.5*
1. Being able to keep busy at all times	**9**	**14.7**	**0.5**	**31.3**	**44.6**
6.The competence of my supervisor in making decisions	*5.3*	*11.1*	*6.5*	*37.3*	*39.9*
8.The way my job provides for steady employment	**17.6**	**19.6**	**2.5**	**21.4**	**39**
5.The way my boss handles his/her workers	*9.9*	*12.6*	*3.4*	*36.1*	*38*
2.The chance to work alone on the job	**17.6**	**19.1**	**0.9**	**25.8**	**36.6**
12.The way company policies are put into practice	*9.8*	*17.7*	*2.6*	*33.6*	*36.3*
3. The chance to do different tasks from time to time	**15.2**	**21.5**	**3.5**	**33**	**26.8**

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Items	VD	D	N	S	VS
15.Having the freedom to use my own judgment	**20.9**	**25.5**	**1.8**	**26**	**25.8**
16.The chance to try my own methods of doing the job	**22**	**23.7**	**2.8**	**29.1**	**22.4**
14.The chances for advancement on this job	*33.8*	*25.7*	*6.5*	*19.5*	*14.7*
17.The working conditions	32.3	37.6	1	17.2	11.9
13.My pay and the amount of work I do	*72.3*	*18.3*	*0.6*	*4.9*	*3.8*

VD: very dissatisfied; D: dissatisfied; N: neutral; S: satisfied; VS: very satisfied
In bold: intrinsic items**;** *In italic: extrinsic items;* Sample Size=936

I also estimated the general, intrinsic, and extrinsic satisfaction of health workers. The extrinsic and intrinsic satisfaction calculations were measured by totaling up the respective items pertaining to each subscale of the MSQ short form. Twelve items were used to derive the intrinsic satisfaction, and 6 items were used to estimate the extrinsic satisfaction. Since the intrinsic scale is comprised of 12 items, possible scores range from 12 to 60. Likewise, for the extrinsic scale which is comprised of 6 items, the range of scores is from 6 to 30. To estimate the overall satisfaction, the sum of all the 20 items was used, and possible scores range from 20 to 100. Generally, the raw scores for the MSQ scale are converted to percentile scores using a normative data set, in my case, it should have been a data collected from nurses in Bénin. However, since no normative data for the MSQ exists for health workers in Bénin, raw response scores were converted to a percentile score following the Weiss et al. formula [45]. Weiss et al. proposed that a percentile score of 25 or lower is indicative of a low level of satisfaction. In contrast, a percentile score between 26 and 74 indicates an average or a moderate level of satisfaction, and a 75th percentile score suggests a high level of satisfaction.

The mean and the median scores of each item, in addition to raw scores for each MSQ scale of health workers, are displayed on Table 9. Working conditions, advancement, and compensation were the most de-motivating factors among health workers. The most satisfying factors were the intrinsic items on the MSQ. Health workers had high mean and median scores for intrinsic aspects of nursing work, such as social service, co-worker relationships, moral values, social status, achievement, authority, ability utilization, recognition, and supervision. Technical factors scored the highest, while advancement, working conditions, and compensation had the lowest levels of satisfaction mean and median scores. Health worker responses indicated a high satisfaction ranking for the intrinsic aspects of their work, validating earlier findings (shown in Table 8 in bold).

Table 9. Rank ordered average mean, median, and raw scores of the 20-item Minnesota Satisfaction Questionnaire

Items	Extrinsic or Intrinsic	Score (SD)	Median Score
9.The chance to do things for other people	**Social Service(I)**	**4.7 (0.5)**	**5**
18.The way my co-workers get along with each other	**Co-workers relationship**	**4.7 (0.6)**	**5**
7.Being able to do things that don't go against my conscience	**Moral Values (I)**	**4.6 (0.9)**	**5**
4.The chance to be somebody in the community	**Social Status(I)**	**4.6 (0.7)**	**5**
20.The feeling of accomplishment I get from the job	**Achievement(I)**	**4.5 (0.8)**	**5**
10.The chance to tell people what to do	**Authority(I)**	**4.3 (1.0)**	**5**
11.The chance to do something that makes use of my abilities	**Ability Utilization(I)**	**4.1 (1.2)**	**5**
19.The praise I get for doing a good job	Recognition(E)	3.9 (1.3)	4
6.The competence of my supervisor in making decisions	Supervision-Technical(E)	4.0 (1.2)	4
1. Being able to keep busy all the times	**Activity(I)**	**3.9 (1.4)**	**4**
5.The way my boss handles his/her workers	Supervision-Human relations(E)	3.8 (1.3	4
12.The way company policies are put into practice	Companies policies and practices(E)	3.6 (1.4)	4
8.The way my job provides for steady employment	**Security(I)**	**3.5 (1.6)**	**4**
2.The chance to work alone on the job	**Independence(I)**	**3.5 (1.4)**	**4**
3. The chance to do different things from time to time	**Variety(I)**	**3.3 (1.4)**	**4**
15.The freedom to use my own judgment	**Responsibility(I)**	**3.1 (1.5)**	**4**
16.The chance to try my own methods of doing my job	**Creativity(I)**	**3.0 (1.5)**	**4**
14.The chances for advancement on this job	Advancement (E)	2.6 (1.5)	2
17. The working conditions	Working Conditions	2.3 (1.3)	2
13.My pay and the amount of work I do	Compensation (E)	1.5 (0.9)	1

In bold: intrinsic items; *In italics: extrinsic items;* Sample Size= 936

In the sample, a 25th percentile score for overall, intrinsic, and extrinsic satisfaction are equivalent to raw scores of 67, 43 and 16, respectively; and the 75th percentile score corresponds

to raw scores of 81, 53 and 24. Therefore, 48% of health workers are classified as having an average or moderate level of overall satisfaction, 26% of health workers have a low level of overall satisfaction, and 26 % of health workers exhibit a high level of overall satisfaction. The proportion of health workers with a moderate level of intrinsic satisfaction is 48.3%. Twenty-two percent of health workers have low intrinsic satisfaction versus 26% with high intrinsic satisfaction. Finally, 48% of health workers have a moderate level of extrinsic satisfaction, 26% have a low level of extrinsic satisfaction, and 26% have high level of extrinsic satisfaction. These results indicate that, for the most part, health workers are moderately satisfied when measuring all three scales of satisfaction. However, about a quarter of all the health workers are dissatisfied in their overall, intrinsic, and extrinsic satisfaction.

Further examination of these results reveals some heterogeneity in the level of satisfaction among the different types of health workers. Table 10 clarifies these results and shows the level of satisfaction by type of health worker. As mentioned before, in Bénin, the health workforce is divided in two categories: qualified workers and non-qualified workers. Auxiliary nurses are non-qualified health workers, whereas nurses and midwives are categorized as qualified workers. As shown in Table 9, the proportion of non-qualified health workers or auxiliary nurses with high general and extrinsic satisfaction levels is higher than that of qualified workers. In contrast, more qualified health workers, such as nurses and midwives, derive a higher intrinsic satisfaction from their nursing work than non-qualified health workers. A Chi-square analysis showed that there was a significant difference between qualified workers and non-qualified workers in both intrinsic and extrinsic satisfaction; though non-qualified workers were more likely to have a high general satisfaction compared to qualified workers, although this difference was not significant.

Table 10. Distribution in percentage of health workers by level of satisfaction

Satisfaction Scales Scores	Type of health workers	
	Qualified workers	Non-Qualified workers
Low general satisfaction	52.0	48.1
Average general satisfaction	50.0	50.0
High general satisfaction	46.7	53.3
Low intrinsic satisfaction	38.5	61.5
Average intrinsic satisfaction	51.0	49.0
High intrinsic satisfaction	58.6	41.4
Low extrinsic satisfaction	67.0	33.1
Average extrinsic satisfaction	44.0	56.0
High extrinsic satisfaction	43.2	56.8

Bivariate Relationship Between Health Worker Characteristics and Satisfaction

ANOVA tests were used to assess significant relationships between the dependent and the independent variables. In my study, I examined associations between health worker characteristics and all three scales of satisfaction. Below, I present results from the ANOVA test performed

Results

To evaluate whether job satisfaction scores (general, intrinsic, and extrinsic satisfaction scores) differed across categories of health workers, I conducted ANOVA tests. I checked the validity of assumptions of ANOVA by performing normality tests which showed that all scores were normally distributed. The assumption of equal variance among different categories was tested with the Bartlett's test for equal variances, which were not statistically significant; I therefore assumed that each group of the independent variables had equal variance. Characteristics of health workers that were tested are shown in Table 11.

In addition to demographic variables (age, gender, tenure, and location), variables such as employee training within the last 12 months and no training were tested. Other variables included working conditions and amount of work reported by health workers. For general satisfaction, significant differences were found for age, gender, job tenure, employee status, and having received training within the last 12 months (Table 11). Male workers had a higher average satisfaction score than their counterpart female health workers. The bivariate analysis also suggests that overall satisfaction is affected by age. Health worker satisfaction seems also to depend on job tenure. No significant differences were found for education, or location (urban or rural) of health personnel for overall job satisfaction. Whereas significant differences were found for factors of age, training, and job tenure, significant differences in intrinsic satisfaction were only observed for gender, education, job type, employee status, working conditions, and self-reported amount of work (Table 11). For the extrinsic satisfaction score, gender, education, and having received training within the last 12 months showed significant differences.

Table 11. Analysis of variance examining general, intrinsic and extrinsic job satisfaction scores and health worker characteristics.

Characteristics	df	Overall Satisfaction			Intrinsic Satisfaction			Extrinsic Satisfaction		
		MS	F	P-val	MS	F	P-val	MS	F	P-val
Age (Years)	3	326.77	2.65*	0.04	1.6	6	<0.01	0.23	0.4	0.8
Gender	1	609.36	7.12**	0.004	2.2	8.3**	<0.01	8.8	15.3**	<0.01
Rural or Urban	1	289.57	2.4	0.07	0.07	0.30	0.58	9.67	16.99**	<0.01
Education	4	77.14	0.89	0.41	1.87	7.22**	<0.01	9.65	17.26**	<0.01
Job Tenure	5	398.1	4.7**	<0.01	1.7	6.8	<0.01	0.5	0.9	0.5
Employee Status	5	306.7	3.6**	<0.01	2.5	9.9**	<0.01	1.86	3.26*	0.01
Received training	1	405.3	4.7*	0.03	0.37	1.43	0.23	4.66	8.12*	0.01
Working_con	1	6843.41	86.68	<0.00	0.72	2.76	0.09	30.61	55.98**	<0.00
Amount_of work	1	2086.8	24.83	<0.00	4.34	16.84**	<0.00	8.86	15.54**	<0.00
Qualified Worker	1	49.46	0.57	0.45	4.83	18.76**	<0.00	21.26	38.19**	<0.00

*Significant at $p \leq 0.05$. **Significant at $p \leq 0.01$; Working_con (Too bad=1, Good=0); Amount_work (Too much =1, Normal=0); Qualified workers (Nurses and midwives=1, auxiliary nurses=0)

6. Multi-level Analysis

Material and Methods

As previously detailed, in addition to collecting information on health facilities and demographic variables, the Minnesota Satisfaction Questionnaire (MSQ) was administered to health workers employed in health facilities to assess their satisfaction. In each health facility, between 1 and 5 health workers were randomly selected to complete the MSQ. The objective of this section is therefore to assess the determinants of the three job satisfaction scales: overall, intrinsic, and extrinsic satisfaction. To do this, I take advantage of the nested structure of my data and utilize the multilevel level method analysis. This technique allows the differentiation between the effects of individual- and facility-level variables. This also allows me to find the amount of variance determined by each of the two groups of variables. As previously stated, I focus on the nurses, midwives, and auxiliary nurses in public health facilities, leading to 936 individual data in 223 health facilities.

Outcomes, predictors, and predictor transformation

Outcomes

The outcomes of this analysis are derived from the MSQ short form. With this questionnaire, I was able to derive three satisfaction outcomes—overall, intrinsic, and extrinsic satisfaction. For a thorough understanding of the predictive effect of both individual- and health facility-level variables on satisfaction, I conducted a separate analysis for each satisfaction outcome.

Predictors and predictor transformation

The individual- and health facility-level variables considered for the statistical analysis model are shown in Table 12. At the individual level, I studied the predictive effect of age, gender, tenure, education, type of employee (government employees, contractors, and employees contracted with social funds, as well as temporary employees), monthly salary, the average number of days worked per week, whether or not the health worker had attended training within the last year, health worker self-reported work conditions (whether they felt that their working conditions were adequate), and health worker self-reported work quantity relative to their ability (that is, whether they felt that the required amount of work was adequate to their ability). The variables at the health facility level were: the location (urban or rural), the presence of water and electricity, whether or not the facility's management style was decentralized, the bed-to-nurse ratio, and the number of health workers.

To account for contextual effects of the individual level variables, I assess the likelihood of cluster confounding by transforming individual-level variables. Cluster confounding arises when the individual-level regression of the outcome on a predictor is different than the level-2 (here, health facility) mean outcome on the mean of a predictor [108]. This is important as it informs the possibility of a contextual or compositional effect of a predictor on the outcomes. Thus to assess cluster confounding, per the literature, individual-level variables were transformed into

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within and between variables. I operationalized this transformation by demeaning each individual-level variable from its group mean, so that $X_{ij}^W = X_{ij} - \overline{X}_j$. The between variable is just the cluster-mean of the variable. One of the added advantages to this transformation is that the within variable and the between cluster random effect are uncorrelated, satisfying the assumption necessary to conduct a multilevel analysis that Cov (X_{ij}, μ_{0j}) =0. Categorical variables were not transformed, but they were entered as factor variables. The continuous facility-level (or level-2) variables were grand mean centered, and binary level-2 variables were left unchanged.

Table 12. Descriptive statistic of individual- and health facility-level variables.

Predictor Variables	Type of Variables	Mean or %	Standard Deviation	N
Gender (Male =1, Female=0)	Binary	29.6%		936
Age (years)	Continuous	35.8%	8.1	936
Tenure (years)	Continuous	8.0	5.8	936
Average number of days worked in a week	Continuous	4.7	1.6	936
Salary per month ($ 2011)	Continuous	100	55.7	936
Training last year (Yes=1, No=0)	Binary	57.6%	-	936
Amount of Work (Too much=1; Normal=0)	Binary	34.2%	-	936
Work Conditions (Too bad=1; Normal=0)	Binary	72.3%	-	936
No education	Categorical	0.5%	-	5
Primary Education	Categorical	51.8%	-	485
Secondary (1rst Cycle)	Categorical	39.0%	-	365
Secondary (2nd Cycle)	Categorical	7.2%	-	67
University and more	Categorical	1.50%	-	14
			-	
Government Employees	Categorical	16.7%	-	156
Social Funds Employees	Categorical	35.7%	-	334
Community Health Workers	Categorical	3.0%	-	28
Contractual Employees	Categorical	19.4%	-	182
Temporary Employees	Categorical	23.4%	-	219
Others Employees	Categorical	1.7%	-	16
Bed to Nurse Ratio	Continuous	1.5	1	934
Number of Employees	Continuous	13.0	15.6	936
Decentralization (Yes=1, No=0)	Binary	27.8%	-	936
Location Urban or Rural (Urban=1)	Binary	24.9%	-	936
Presence of Electricity (Yes=1, No=0)	Binary	60.7%	-	936
Presence of Water(Yes=1, No=0)	Binary	83.1%	-	936

Statistical analysis

Multilevel linear regression was used to model the variation in mean satisfaction of all three outcomes with a two-level hierarchical structure of 936 individual data (level 1) nested within 223 health facilities (level 2). The regression estimates were conducted using the maximum likelihood estimation. The model testing proceeded in 3 steps: the null model, the fixed-effect individual-level variable, and the facilities-level variables. The null model for a health worker i in a health facility j is represented by the equation:$Y_{ij} = \beta_{0j} + \varepsilon_{ij}$, where β_{0j} is the intercept and ε_{ij} represents the variation of a health worker's satisfaction within his or her health facility. For the facility-level or the level-2 regression, the variation in intercept with the null model is represented by the equation $\beta_{0j} = \gamma_{00} + \mu_{0j} + \varepsilon_{ij}$. This first step provided the amount of variation present in each of the outcome variables across level-2 or health facilities. The null model helps in calculating how much of the variance is shared between health facilities, and is called the Intra Correlation Coefficient. It represents the unexplained heterogeneity at the health facility level.

Once the ICC was calculated, the predictive effect of individual-level variables was assessed by including the level-1 variables in the model. This was done by including both within and between transformations of variables. Because there is no theoretical reason for the within facilities estimate to vary across health facilities, I only specified a random intercept model. Thus no random effects of level-1 variables or interactions were tested in my analysis. As a result, the effect of all individual-level variables was fixed as constant across all health facilities. Once the individual level variables were added to the model, the level-2 or facility variables were also added while controlling for level-1 variables. The results of this three-step process are shown in Table 13 for overall satisfaction as an outcome, Table 14 for intrinsic satisfaction, and Table 15 for extrinsic satisfaction.

Table 13. Multilevel regression model of overall satisfaction on selected individual-level variables and health facility-level variables.

	Null Model	Level -1: main effects									Level-2:main effects		
		Within-Facility Effects			Between-Facility Effects			Abs(Within-Between)					
Intrinsic Job Satisfaction													
Individual variables (level-1):Fixed effect		Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p
Constant	73.51	79.71	3.84	<0.01							-		
Gender		1.32	0.64	0.04	2.72	1.70	0.11	1.39	1.81	0.44	-		
Age		-0.06	0.05	0.15	0.04	0.11	0.68	0.11	0.12	0.32	-		
Tenure		0.24	0.07	<0.01	0.23	0.14	0.12	0.00	0.16	0.96	-		
Average _Days_Worked_Per Week		-0.40	0.36	0.27	-0.08	0.26	0.72	0.31	0.44	0.48	-		
Salary		0.00	0.00	0.40	0.00	0.00	0.37	-	-	-	-		
Received Training last year		2.09	0.64	<0.01	0.83	1.25	0.50	-	-	-	-		
Amount of work		-2.40	0.71	<0.01	-3.18	1.15	<0.01	0.78	1.36	0.56	-		
Working Conditions		-5.16	0.72	<0.01	-7.28	1.38	<0.01	2.01	1.56	0.18	-		
Secondary education 1st Cycle		-0.16	0.73	0.82	-	-	-	-	-		-		
Secondary education 2nd Cycle+		-0.82	1.12	0.45	-	-	-	-	-		-		
Social Funds Employees		-0.43	0.93	0.64	-	-	-	-	-		-		
Community health workers		2.46	1.83	0.18	-	-	-	-	-		-		
Contractual Clinic Employees		-1.76	1.04	0.09	-	-	-	-	-		-		
Temporary Employees		-3.31	1.15	<0.00	-	-	-	-	-		-		
Health Characteristics Variables (level-2)		-	-	-									
Urban		-	-	-							-1.66	1.15	0.15
Electricity Presence		-	-	-							1.34	0.81	0.09
Water Presence		-	-	-							1.27	0.97	0.18
Decentralization		-	-	-							1.46	0.79	0.06
Bed to nurse ratio		-	-	-							-0.08	0.36	0.81
Number of employees		-	-	-							-0.04	0.03	0.17
Variance components (random effects)		-	-	-									
Residual (Sigma)	66.84	58.21											
Intercept (Tau)	19.29	11.91											
N		935											

Results

Overall Satisfaction as the outcome variable

The result of the null model (model without predictors) revealed that the ICC for overall satisfaction among health workers was 22.4%, suggesting that 22.4% of the variation in overall satisfaction occurred at the health facility level (see Table 13). In addition, the likelihood ratio test supports the random intercept model over a pooled method such as the ordinal least square (OLS) approach. This test showed strong evidence of a health facility effect on the overall satisfaction outcome, so that significant unobserved heterogeneity existed at the health facility level that could explain the variation in satisfaction among health workers.

When the effects of individual-level variables were included in the null model, the ICC dropped from 22.4% to 19.2%. Hence, the individual level variables only explained 3.2% of the unobserved heterogeneity across health facilities. My results showed that for a given health worker, being male was associated with a higher mean in overall satisfaction; the increase in mean satisfaction was 1.32 units and was statistically significant at the 0.05 level. Tenure also exhibited a positive effect on overall satisfaction (0.23, p= <0.01), indicating that the mean difference in overall satisfaction between two health workers from the same health facility who differed in their tenure by one year was 0.24 units.

A high positive association in overall satisfaction outcome was observed with health workers attending a training during the last year. Comparing two health workers employed in the same health facility, having training within the last year resulted in an increased mean overall satisfaction of 2.1 units, significant at the 0.05 level.

Individual-level variables that had a negative association on overall satisfaction were self-reported amount of work, self-reported work conditions, and employee status. Health workers who reported that they felt their work was beyond their ability had an average 2.40-unit decrease in mean overall satisfaction compared to those who did not feel that their workload exceeded their ability. The results were similar for health workers responding that their working conditions were inadequate. Health workers who felt that their working conditions were poor experienced a mean decrease of 5.16 units in overall satisfaction. This decrease is statistically significant at the 0.05 level.

At the 10 percent level, health workers employed as contractors were more likely to experience a mean decrease in satisfaction of 1.76 units compared to employees hired by the government as public servants. Temporary employees fared worse compared to government employees, as their mean decrease in overall satisfaction was 3.31 units and was significant at the 0.05 level. The average number of days worked, the education of health workers, and their salary did not predict overall satisfaction. In addition, none of the variables exhibited cluster confounding, so the within effect of the variables was similar to their between effects.

The effects of health facilities variables are shown in Table 5.2. There were few variables significant at the 10 percent level. Across facilities, having electricity in a health facility increased the mean overall satisfaction by an average of 1.34 units. Decentralization was also significant in predicting overall satisfaction; health facilities with a more decentralized style of

management had a mean increase in overall satisfaction of 1.46 units. Health facilities located in urban areas had an average decrease in satisfaction of 1.66 units; however, this decrease was not large enough to be significant. In addition, neither the presence of water, nor the number of employees in a health facility, nor the nurse-to-bed ratio, seem to explain the variance in overall satisfaction level results.

Despite controlling for both individual and health facility-level variables, a considerable amount of unexplained heterogeneity remained across health facilities. The current model was only able to explain 5.4% of the variance in overall satisfaction observed. Thus, 14 percent remain to be accounted for by other factors.

Intrinsic satisfaction as the outcome variable

The same steps were implemented for intrinsic satisfaction as an outcome; these results are shown in Table 14 below:

Table 14. Multilevel model of intrinsic satisfaction on selected individual-level and health facility-level variables.

	Null Model	Level-1: main effects									Level-2: main effects		
Intrinsic Job Satisfaction		Within-Facility Effects			Between-Facility Effects			Abs(Within-Between)					
Individual variables (level-1): Fixed effect		Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p
Constant	3.92	4.16											
Gender		0.08	0.04	0.03	0.17	0.1	0.07	0.09	0.1	0.4	-	-	-
Age		-0.01	<0.001	0.04	0	0.01	0.94	0.00	0.00	0.43	-	-	-
Tenure		0.02	0.00	0.00	0.02	0.01	0.02	0.00	0.01	0.68	-	-	-
Average _Days_Worked_Per Week		-0.00	0.01	0.93	-0.04	0.02	0.05	0.04	0.03	0.11	-	-	-
Salary		-0.00	0.00	0.92	-0.00	0.00	0.77	0.00	0.00	0.81	-	-	-
Received Training last year		0.09	0.04	0.02	-0.02	0.07	0.83	0.10	0.08	0.21	-	-	-
Amount of work		-0.10	0.04	0.01	-0.15	0.07	0.01	0.04	0.08	0.54	-	-	-
Working Conditions		-0.06	0.04	0.15	-0.10	0.08	0.21	0.04	0.09	0.65	-	-	-
Secondary education 1st Cycle		0.08	0.04	0.07	-	-	-	-	-	-	-	-	-
Secondary education 2nd Cycle or more		0.12	0.06	0.06	-	-	-	-	-	-	-	-	-
Social Funds Employees		-0.08	0.05	0.11	-	-	-	-	-	-	-	-	-
Community health workers		0.03	0.10	0.77	-	-	-	-	-	-	-	-	-
Contractual Clinic Employees		-0.15	0.06	0.01	-	-	-	-	-	-	-	-	-
Temporary Employees		-0.27	0.07	<0.01	-	-	-	-	-	-	-	-	-
Health Characteristics Variables (level-2)													
Urban		-	-	-	-	-	-	-	-	-	-0.04	0.07	0.56
Electricity Presence		-	-	-	-	-	-	-	-	-	0.06	0.05	0.18
Water Presence		-	-	-	-	-	-	-	-	-	0.02	0.06	0.80
Decentralization		-	-	-	-	-	-	-	-	-	0.07	0.05	0.11
Bed to nurse ratio		-	-	-	-	-	-	-	-	-	-0.01	0.02	0.47
Number of employees		-	-	-	-	-	-	-	-	-	-0.00	0.00	0.18
Variance components (random effects)													
Residual (Sigma)	0.21	0.18											
Intercept (Tau)	0.05	0.04											
N	936		935										

The null model for intrinsic satisfaction as an outcome showed an ICC of 21.4%, also indicative of the amount of unobserved heterogeneity present at the facility level. The predictive effect of the individual variables for intrinsic satisfaction showed that males had an average 0.08-unit higher ($p < 0.05$) mean intrinsic satisfaction than female health workers, although this is a very small effect.

There was also a small within effect of age, so that the mean difference in intrinsic satisfaction between two health workers at the same health facility who differ in age by one year was -0.006, significant at the 0.05 level. Tenure had both a within and a between effect of 0.02 units, significant at the 0.05 level. Health workers who had received training within a year had an average 0.09-unit higher intrinsic satisfaction, significant at the 0.05 level. Those who self-reported that their amount of work was beyond their ability and those who ranked their working conditions low had decreases, respectively, of 0.10 and 0.06 units on intrinsic satisfaction; both of these effects were significant at the 0.05 level.

The effect of education in predicting intrinsic satisfaction was also significant at the 10 percent level. Compared to health workers who only had primary education, those who finished the 1st and 2nd cycles of their secondary education or more were, on average, more likely to have greater intrinsic satisfaction of 0.07 units and 0.12 units respectively.

Compared to government employees, temporary employees were more likely to have lower intrinsic satisfaction. On average, temporary employees had a 0.27 unit lower mean intrinsic satisfaction compared to government employees, which was significant at the 0.05 level. Similarly, contractual employees had an average 0.15 unit lower mean intrinsic satisfaction, also statistically significant at the 0.05 level.

Although the average number of days worked in a week had a predictive effect at the health facility level, it had a small between effect, so that as the average number of days worked by health workers increased in a facility, their mean intrinsic satisfaction decreased by 0.04 units; this was marginally significant at the 0.05 level.

None of the health facility variables predicted intrinsic satisfaction of health workers. There was still much unexplained variance in intrinsic satisfaction. After controlling for both individual and facility level variables, the ICC was 19%, so that my variables were only able to explain 2% of the observed variance in intrinsic satisfaction.

Extrinsic satisfaction as the outcome variable

The effect of individual and facility variables on extrinsic satisfaction is shown in Table 15. The null model showed that unobserved heterogeneity across health facilities was 16.2%. Among the individual-level variables, health workers who received training within the last year had an average increase of 0.18 units in mean extrinsic satisfaction, a finding statistically significant at the 0.05 level. The amount of work beyond their ability reported by the health workers also showed a within and a between effect, both significant at the 0.05 level; the difference between them was insignificant, indicating there was no clustering effect. Health workers who reported that their work was beyond their ability had an average mean decrease in extrinsic satisfaction of 0.18 units. There was also a between health center effect of 0.23, so that as the proportion of health workers in a health facility self-reporting more work than their ability increased, the mean

extrinsic satisfaction of that health facility also decreased by 0.23 units. These findings were similar for health workers dissatisfied with their working conditions, which likewise showed a within and between effect that had statistically insignificant differences. Health workers not satisfied with their work conditions had a mean decrease in extrinsic satisfaction of 0.29, statistically significant at the 0.05 level. The between effect was -0.50 units and was also significant at the 0.05 level.

Education was negatively associated with extrinsic satisfaction; the negative association increased as the level of education increased. Specifically, compared to health workers who had primary education, health workers who finished their 1^{rst} secondary cycle had a mean decrease in extrinsic satisfaction of 0.11 units (p=0.08); health workers with the next level of education (secondary 2nd cycle and more) had an average decrease of 0.36 units (p=0.001) in mean extrinsic satisfaction.
It is also interesting to note that neither salary, nor the average number of days worked, could predict extrinsic satisfaction.

Employees categorized as community health workers were more likely to experience higher extrinsic satisfaction compared to government employees. They had a mean of 0.31 unit higher extrinsic satisfaction level than government employees, and this result was significant at the 0.05 level.

With respect to health facility-level variables, facilities located in urban areas had a lower mean extrinsic satisfaction (0.19), on average, than those in rural areas, with significance at the 0.05 level. The presence of water in health facilities increased mean extrinsic satisfaction of the facility by 0.16, significant at the 0.05 level as well. The style of management, the number of employees, and the bed-to-nurse ratio did not have a predictive effect on the mean extrinsic satisfaction of health facility workers, nor is the presence of electricity associated with extrinsic satisfaction.

Analogously to my other findings, my model is only able to account a small proportion (5%) of the variance in extrinsic satisfaction.

Table 15. Multilevel regression model of extrinsic satisfaction on selected individual level variables and health facilities level variables.

Extrinsic Job Satisfaction	Null Model	Level -1: main effects									Level-2:main effects		
		Within-Facility Effects			Between-Facility Effects			Abs(Within-Between)					
Individual (level-1) : Fixed effect		Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p	Coef.	(SE)	p
Constant	3.23	3.45											
Gender		0.06	0.06	0.26	0.09	0.14	0.49	0.03	0.15	0.83	-	-	-
Age		0.00	<0.01	0.80	0.00	0.00	0.6	0.00	0.00	0.71	-	-	-
Tenure		0.00	0.01	0.24	0.00	0.01	0.98	0.00	0.01	0.62	-	-	-
Average _Days_Worked_PerWeek		-0.02	0.02	0.39	0.01	0.03	0.62	0.03	0.04	0.36	-	-	-
Salary		-0.00	0.00	0.14	-0.00	0.00	0.24	0.00	0.00	0.81	-	-	-
Received Training last year		0.18	0.06	0.00	0.14	0.10	0.17	0.04	0.11	0.72	-	-	-
Amount of work		-0.18	0.06	0.03	-0.22	0.09	0.01	0.04	0.11	0.69	-	-	-
Working Conditions		-0.29	0.06	<0.01	-0.50	0.11	0.00	0.20	0.12	0.11	-	-	-
Secondary education 1st Cycle		-0.11	0.06	0.08	-	-	-	-	-	-	-	-	-
Secondary education 2nd Cycle or more		-0.36	0.10	<0.01	-	-	-	-	-	-	-	-	-
Social Funds Employees		0.10	0.08	0.21	-	-	-	-	-	-	-	-	-
Community health workers		0.38	0.16	0.02	-	-	-	-	-	-	-	-	-
Contractual Clinic Employees		0.02	0.09	0.81	-	-	-	-	-	-	-	-	-
Temporary Employees		-0.03	0.19	0.61	-	-	-	-	-	-	-	-	-
Health Center Characteristics Variables (level-2)													
Urban		-	-	-	-	-	-	-	-	-	-0.19	0.08	0.04
Electricity Presence		-	-	-	-	-	-	-	-	-	0.08	0.06	0.20
Water_presence		-	-	-	-	-	-	-	-	-	0.16	0.08	0.04
Decentralization		-	-	-	-	-	-	-	-	-	0.10	0.06	0.11
Bed to nurse ratio		-	-	-	-	-	-	-	-	-	0.00	0.03	0.75
Number of employees		-	-	-	-	-	-	-	-	-	-0.00	0.00	0.46
Variance components (random effects)													
Residual (sigma)	0.09	0.05											
Intercept (Tau)	0.48	0.43											
N	933												

7. Qualitative Results

In this chapter I present results of the qualitative analysis conducted on a sample of health workers. To understand their experiences and to elicit their responses on how they could be better served, I interviewed a sample of workers in two types of selected health centers: low- and high-quality health centers (see details of my sample selection methodology in Chapter 3). In total, I visited 16 health centers, and interviewed an average of 2 health workers in each center. Only 3 of the sampled urban clinics, and none of the rural health centers in my study, had attending physicians; the rest of the urban and all of the rural health centers were run by nurses and/or midwives.

While I did not examine every one of the sampled health centers in equal detail, they varied noticeably in cleanliness, which was one of the factors used to calculate the quality index of health centers. Some health centers were clearly more orderly than others. Some were very old and even run down, and some lacked electricity or readily available running water during my visit. In one case, I had to wait for two hours to take a small boat to visit a health center located in a remote area, where the only personnel present was a midwife who had brought her two year old toddler to work.

During the time in which I visited health centers, some were participating in a pay-for-performance program. Thus, survey questions range from the pros and cons of the current situation, to improvements the health workers thought could increase their satisfaction and productivity with their nursing work. As described earlier, I analyzed the interview notes using thematic analysis.

Results

Health workers interviewed in both types of health centers (low- and high-quality) offered a rich narrative of their nursing work experiences. Their accounts describe their environments and illustrate how they could potentially be helped to provide better quality care. These semi-structured interviews provided a platform for health workers to discuss necessary characteristics for improved nursing environments in order to increase their satisfaction and motivation, which would lead to overall improved performance and health outcomes. The themes that emerged from the discussion were common to most of the health workers surveyed, regardless of the quality of their health centers. Five themes were identified from the semi-structured interviews: (a) pay and career advancement, (b) work environment, (c) work conditions, (d) leadership, and (e) organizational policies. In the following section, I discuss findings related to each of the aforementioned topics by considering the concepts that they cover.

Pay and career advancement

This theme covers topics related to health worker careers and compensation, and examines the relative importance of career advancement and professional education, remuneration, and recognition of their work. It also takes into account job security of auxiliary nurses and recognition of their work.

Training opportunities and career advancement: This sub-theme captured respondents' feelings of discontent with ongoing professional development. The majority of nurses, midwives, and auxiliary nurses talked about the need to be better skilled at their jobs by participating in continuing education courses. Health workers specified that training opportunities would ensure that they were up to date on best standards of practice which would inevitably increase their competency.

Training opportunities were not rare, additional probing revealed that often the same nurses or midwives in a clinic were repeatedly chosen to participate. Since these sessions were held outside of the health centers, the chosen health workers were expected to disseminate the lessons learned to their colleagues. However, the expected diffusion of knowledge rarely actually took place because health personnel were overwhelmed with work.

To make sure that I understood what they meant, many health workers added that though they possess skills, frequent refresher programs nudge them to become more skilled. As one nurse explained, "*We need refreshers on good practices, and learn new ways to do clinic acts, so that we do not fall into negative habits that affect quality care ... we need to know if there are better ways of doing things we learned 15 years ago.*" Later, the same nurse noted how helpful the pay-for-performance project was because a technical team that included a physician gave them advice on how to better follow new guidelines from the MOH. She declared "*We are very motivated and happy because we know that we are doing clinical acts as we should.*"

Job security: Auxiliary nurses were the only type of health workers who were unsatisfied with their job categories. Most of them were worried about being laid off because they were working under contract. While they provide valuable help, auxiliary nurses are not considered public servants, are seldom contracted as public servants, and do not have permanent appointments with the MOH. All auxiliary nurses are classified as unqualified personnel. Given such conditions, they are always worried that they might lose their jobs.

Recognition: Nurses and midwives stationed in underserved areas talked about receiving recognition and encouragement from their supervisors. Recognition came in all sorts of forms, from being selected to get extra training, to having supervisors inspect and acknowledge their work. Another type of recognition mentioned was receiving praise. Receiving accolades from their district supervisors would make them feel valued and cared for. One male nurse recounted how pleased he was to receive a letter a few years ago from his district manager, thanking him for all the work he had been doing. During the interview, he shared his letter with me, saying that he felt such gestures should be common: receiving praise made him work harder because he knew that his efforts were appreciated.

Remuneration and rewards: Interestingly, basic remuneration was not directly mentioned by most respondents, and the few who did mention it were mainly health workers stationed in underserved areas. Even so, they mentioned it as an incentive for their willingness to work in remote areas, far away from their families. They felt that they deserved incentives for their willingness to work in such areas. Nurses noted that, unlike teachers who worked in underserved and remote areas, no incentives were provided to health workers. Most nurses felt that working

in harsher conditions justified additional pay benefits as stipulated by the MOH. However, health workers recruited by the MOH do not always get these benefits. As a male nurse explained, "*We are not supported by our ministry, we don't have any benefits for working in harsh conditions like teachers are… teachers are treated better, they get many perks for working in underserved areas.*"

Another type of remuneration mentioned were monetary rewards or incentives for achieving certain outcomes. Health workers involved in the pay-for-performance scheme stated that there was a definite joy in knowing that a reward was given if you had performed well. As a nurse said, the anticipation of a reward motivated them further. However, many nurses also mentioned that it was the attention they got that was more motivating than the reward. "*It is not only about the money, it is the feeling that they care for us, and that they want us to do well.*"

Work environment

Work environment- based topics included workload and time for administration tasks as well as clinical duties. Sub-themes included the availability of a qualified support team to help with the workload and maintenance. Task organization and requirements also revealed themselves to be issues during interview note coding, as were supervision and monitoring of procedures. Below, I provide more details on respondents' views.

Workload: For a health facility to run effectively, activities such as clinical duties, patient-centered and administrative tasks, and workspace maintenance (regularly and consistently keeping the clinic clean) must be performed. Many health workers complained about the amount of work they were required to accomplish. Most were overwhelmed with administrative and clinical duties. Particularly in busy health centers, nurses felt that they could not always be sure to provide the patients with optimum care because they were working around the clock. Furthermore, nurses frequently asserted that their work days were so filled with paperwork for donors and the Health Ministry that they could not always give patients their full attention or provide timely treatment.

In addition to other work-related issues, nurses complained about health staff shortages. As one nurse exclaimed, "*I cannot be everywhere all at once, if they do not send a qualified nurse to help me, I am going to leave this place… I am tired.*" Another nurse said: "*Being alone is hard.*" Many nurses also lamented that some health centers were ill-equipped when it came to nurse support. The same nurses also noted that, "*Health centers in Porto-Novo are not like ours … there, nurses don't have anything to do for hours because there are so many of them, why don't they come help me here?*" Most nurses wished for more qualified nurse support to help with the workload. The problem of staff shortage was mentioned in many health centers, but especially among nurses visited in the northern, more rural parts of the country.

On another issue closely related to the workload theme, most nurses and midwives asked for hospital custodians to be hired to perform indoor cleaning and maintenance. They shared that they were very often required to perform maintenance work, such as cleaning bathrooms, sweeping, or cleaning windows. They recognized the importance of such work, but they complained that it took away from the nursing work for which they were trained.

Monitoring and supervision: Health workers asked for more monitoring and supervision, at more regular intervals. They contended that monitoring and supervision by either an attending physician or an obstetrician for midwives could improve their work, and help them provide quality care. They explained that greater control by their supervisors/superiors could determine that they were performing according to standards. Auxiliary nurses did not mention supervision by a physician or a gynecologist, probably because they are already directly supervised by nurses or midwives. Nurses and midwives, on the other hand, explained that increased supervision would ascertain whether health workers were performing correctly; and, that increased supervision helped them stay on track and organize themselves better.

One nurse gave an example of how she is now able to track pregnant women better because her hospital administrator suggested additional ways for her to trace and follow up with pregnant women. Another nurse was dissatisfied with the performance of her supervisor: "*After they (hospital administrators, or coordinators) give us directives, I want a monitoring and evaluation of these directives, so that I can do better, and know what I am doing wrong ...they just load things on us ... and they don't even check to see if we got it... it is the same criticisms all the time but they don't help us resolve these issues by monitoring us or give us the means to do so.*" Another nurse described the disrespect with which his supervisor berating him during his infrequent supervision.

Task specifications and requirements: Another issue that came to light during interviews that health workers felt to be important by health workers was the communication of task specifications and requirements. They explained that they enjoyed working when they clearly knew their roles. They asserted that knowing their responsibilities and their tasks facilitated their work. Midwives mentioned that misunderstandings were less of a problem when all team members had well-defined tasks. This topic was mentioned frequently by staff working in groups of two or more nurses or midwives, but was also mentioned in health centers where only one nurse or one midwife was employed. In one of the latter cases, one female nurse revealed that task requirements helped her prioritize and focus on what is important. Another nurse mentioned the following about her new manager, "*I like this new manager, now everyone knows what her task is, so even if the manager is gone for a meeting, there are no more surprises… we each know our role and we can perform them.*" She added: "*I feel better when things are organized.*"

Work conditions

This theme is related to nurses' descriptions of their work environments. During the interviews, I asked what could be done to improve their work environment to their satisfaction. This theme analyses factors that were recurrent during our discussion, such as the presence of electricity or water, resource adequacy, health facility infrastructure, and school availability for their children.

Presence of electricity and water: There were many complaints about the scarcity of electricity and water, especially in health facilities located in rural or remote areas. Health workers objected to working under these conditions. Although the MOH had provided the health facilities with generators, health workers reported that this equipment was not always functional because the generators frequently broke down and the funding to repair or replace them always

ran low. One midwife said that at times they had to hold flashlights in their mouths to deliver babies, which was not easy on either the midwives or their patients as they could not always see very well. That same nurse said that at night, "*you cannot even see where the health center is, and here in Aguégués, patients do not want to cross the river in the middle of the night to go to a dark hospital, and we can't reach them either.*"

Other health centers lacked running water in the faucets. In these health centers, all health workers interviewed spoke about how convenient it would be if faucets were functional. While many health centers had a central tap where workers could get water, one midwife said that this meant that they rationed water because fetching water was an additional burden.

       Resource adequacy: This was the most common topic mentioned by all nurses, midwives, and auxiliary nurses interviewed, regardless of the quality of their health centers. All health workers expressed disappointment that the resources to properly accomplish their work were deficient. They were disappointed because the shortage of medicines and functional equipment negatively impacted their work. For instance, one midwife said that the hospital lacked a sonogram, so they had to send patients to town to obtain a sonogram in private clinics, which meant that they sometimes lost patients. They also lamented the absence of sufficient personal protection equipment such as goggles and gloves.

Some mentioned the lack of equipment for sterilization, resulting in them having to boil small implements and equipment in order to sterilize them. Many nurses deplored the lack of incinerators for disposing of biohazard materials. One midwife voiced her discontent about not having enough delivery kits, "*There are not enough delivery kits, I do not want to run between deliveries and sterilize materials because there is not enough time; so sometimes I have to ask women to buy their own kits whereas we should provide them for free.*" Another midwife shared with me that she needed more speculums: "*We have some; I am not saying we do not, but we need more so that we are not worrying about sterilizing so often.*"

Still, on the subject of resources, nurses in remote areas criticized the lack of transportation in emergency situations when they needed to send patients to referral hospitals. They mentioned that often no ambulances were available when they needed to refer a patient to a hospital, which meant that the patient's relatives had to find their own transportation.

       Infrastructure: All nurses surveyed complained about the state of infrastructure directly related to both their work environments and their living conditions. They said that their working spaces were tight and did not always conform to hospital norms, and that the buildings were old and derelict. In some instances, during the interviews, auxiliary nurses and midwives showed me ceilings that were falling down upon their work stations. They deplored the lack of hospital renovation and planning for infrastructure rehabilitation, making it difficult to work professionally. In many health centers, nurses said that additional rooms were needed for consultations, and that the facilities lacked on-call rooms. They articulated that even patients lacked space, making patient privacy very difficult. They expressed the desire for newer buildings or the renovation of old ones, to create functional rooms for both patients and staff work areas to provide more professional facilities. Midwives also pleaded for additional delivery

rooms and for the renovation of old ones, describing the current conditions of the delivery rooms as deplorable.

School availability for health workers children: Nurses, and midwives employed in underserved areas expressed their dissatisfaction with the lack of local schools. They conveyed their plans to leave these areas soon because their children needed to attend school, and there were none available at these stations. Even when their children were younger than school age, health workers could not bring them to live in these remote areas because there was no available childcare or family member to help. One midwife stationed in a remote rural area said, "*I need to be close to my children; my supervisor is great, I love working for him, but next year I will ask to be deployed elsewhere. I have a good reason.*" Many health workers also mentioned that although they were married, their partners were far away, which took a toll on their relationships. They asked that family reunification issues and policies to allow partners to work in closer proximity be addressed by the MOH.

Leadership

This theme encompassed matters such as leadership support, and organizational policy such as deployment.

Leadership support: Many health workers were exasperated with the leadership of the MOH, health district coordinators, and hospital administrators. They believe that despite suboptimal working conditions, they would be more satisfied if their leaders (hospital administrators, and the MOH) were more supportive. One male nurse in a remote area said, "*We know that what we are asking is feasible, there is money… they're just not supportive. They don't care about us. They just drop us here and expect us to fix everything….There is a lack of planning on their parts.*" The health workers' idea of a good leader is one who is able to enhance their performance by being better organized, a planner and implementer. Another male nurse explained that "*In Bénin we have a lot of laws, good laws, but it is the implementation that is lacking, there is no leadership.*"

Direct leadership by hospital administrators was also mentioned. In one high-quality health center, a nurse complimented her hospital administrator for his leadership skills. She said: "*Dr. XX [hospital administrator] changed the house, he is very rigorous. Dr. XX made us understand how important our work was. But he also showed us how to be better organized, and how to track ourselves and our work. He is never late to work, he is the first to arrive and he also consults patients. Since his arrival, the health center is clean and I like working and coming here. I am really proud to be stationed in this health center.*" The same nurse communicated her ideal of leadership, "*It is all about the leader,*" she said, "*If leaders are bad, employees will not be motivated to do their best.*"

Deployment: The majority of health workers stationed in remote and underserved areas, especially nurses and midwives, protested the MOH's policies concerning deployment. They believe that the policies are not fair. They felt that employees stationed in remote or rural areas were usually those who did not have ties to the government. According to their statements, health workers with close ties to the government were rarely stationed in remote or underserved

areas because they lobbied not to be sent to such areas. Some health workers interviewed at health centers in rural areas suggested that a system of three-year rotations should be implemented , a system that would ensure that all health workers have a similar experience by the end of their careers, which would be more equitable. They added that such a system is and has been in place for years for military personnel, and could also be implemented for health personnel.

In the interviews, health workers demonstrated their commitment to doing their jobs well. However, they also complained about various issues. Their protests are symptomatic of employees who are not motivated because of the lack of career path or personal growth and promotion opportunities, and the absence of recognition for the work they are accomplishing. As the Herzberg theory points out, the motivation factors such as promotion opportunities, recognition, and achievement are causes of satisfaction, and lead an employee to exert effort to achieve the goal of the organization. Thus, if these factors were present among health workers, they would be more intrinsically motivated.

In addition to health worker complaints suggesting that more motivational factors are necessary to improve their performance, health workers seem to be dissatisfied with their work conditions, organizational policies, the quality of supervision, and their leadership. Although according to the Herzberg theory these factors do not contribute to motivate employees, they are de-motivators and cause dissatisfaction. Because they are de-motivators, they act to lower the intrinsic motivation of the employees. Thus, the causes of dissatisfaction among health workers also need to be taken into consideration. As the day-to-day leaders of clinics, health workers want their facility to be well-maintained, and they want to be given sufficient resources to do their jobs. Likewise, they want the leadership above them to implement practices that are conducive to good working conditions. In general, health workers want an environment that provides them with opportunities for both their families and themselves. They also want to be treated fairly with either decent wages or rewards, and to have the same chances as other government employees of being deployed to rural or remote areas.

8. Discussion

In this section, I discuss findings of all the questions of my study, relate my findings to other studies when possible, and offer explanations for them.

Discussion
Nurses, midwives, and auxiliary nurses make up the largest portion of any health workforce, and are a critical factor for its success [109]. They play a pivotal role in the health system because they often provide the first line of care. Their behaviors and practices are of crucial significance to the delivery of quality healthcare. Satisfied health workers are more likely to act in ways that prevent adverse outcomes for their patients [60, 110]. Maintaining nurse and midwife work satisfaction is one way of ensuring that their performance and actions contribute to the primary goal of any national health system, which is to improve the health of its population[111].

In my dissertation, I explored the concept of job satisfaction among nurses, midwives, and auxiliary nurses in Bénin, where maternal mortality and morbidity, a proxy for the effectiveness of a health system, are high. I asked three questions: (1) what is the current level of satisfaction among health clinics in Bénin; (2) what are the determinants of job satisfaction at both the individual and the facility level; and (3) how do health workers describe their work environments. My study supplements the limited literature on predictors of health worker job satisfaction in sub-Saharan African countries.

To answer my first question, I use the Minnesota Satisfaction Questionnaire (MSQ) Short Form instrument, which measures three scales of job satisfaction. I ascertain its validity in Bénin with factor analysis before deriving the levels of satisfaction in my sample of health workers. I find that health workers in my study are more satisfied with the intrinsic factors of their nursing work than with the extrinsic parts, supporting the Herzberg theory that intrinsic characteristics of work are the source of satisfaction and extrinsic elements are de-motivators, or the basis for dissatisfaction [42]. These results are similar to research done in both industrialized and low- to middle-income countries [112]. Specifically, I found that health workers in Bénin were not satisfied with their remuneration, which has also frequently been reported in other studies [113-116] . In sub-Saharan Africa, Rouleau found that midwives in Senegal were satisfied with morale and job security but dissatisfied with work environment and remuneration [117]. Research in South Africa also shows that nurses were more satisfied with the intrinsic aspects of their work and dissatisfied with their pay, the resources available to them, and their career opportunities and workload [81].

The level of overall satisfaction is moderate among most health workers. My findings show that 48% of health workers have moderate overall satisfaction, 26% exhibit low overall satisfaction, and 26% of health workers experience a high level of overall satisfaction. My analyses of their intrinsic and extrinsic satisfaction reveal that approximately 48% are both extrinsically and intrinsically satisfied. The proportion of health workers with low intrinsic satisfaction and those with high intrinsic satisfaction, are also both 26%. Finally, the proportion of health workers

exhibiting high extrinsic satisfaction also equaled the number showing low extrinsic satisfaction, at 26% each. It is difficult to compare these initial results with the outcomes of other studies because most studies utilize different instruments to measure satisfaction, and do not assess the level of extrinsic and intrinsic satisfaction separately among participants. Besides, only very few studies on satisfaction levels have been conducted at all in sub-Saharan African countries; and no data exist on the levels of extrinsic and intrinsic satisfaction among health workers there. Still, my results are qualitatively similar to other studies that show that professional nurses are more satisfied with intrinsic facets compared to extrinsic features of their work.

The differences in the average levels of the three scales of satisfaction, however, masked important heterogeneous effects between nurses or midwives and auxiliary nurses. Auxiliary nurses had on average a lower level of intrinsic satisfaction and higher extrinsic satisfaction than nurses and midwives. These results were statistically significant. Auxiliary nurses showed even higher levels of overall general satisfaction than their counterparts, although this result was not statistically significant. One explanation for these differences might be the lower level of education of auxiliary nurses. More educated health workers have higher expectations for the extrinsic aspects of their jobs and so are more dissatisfied if these expectations are not met, even though they have higher intrinsic satisfaction due to their higher education levels. The literature reflects a conflict on the question of the effect of education levels on satisfaction [118]; Ingersoll et al., Rambur et al., and Blegen et al. all report a positive association between job satisfaction and higher education levels , whereas Robinson et al. and Shields et al. reported that lower levels of education correlated negatively with job satisfaction [119, 120]. These studies focused solely on overall satisfaction, which is a combination of extrinsic and intrinsic satisfaction. Further inquiry into the effect of education on different subscales of satisfaction may specify which of these subscales are correlated with education, to resolve the conflicting results studies found on the association of education and work satisfaction.

In my second research question, I address the issue of which individual- and facility-level factors correlate with job satisfaction. I take advantage of the nested structure of the data and carry out a multi-level analysis, investigating predictors of all three satisfaction scales (overall, intrinsic, and extrinsic). My results show that predictors of job satisfaction can be categorized into two main areas: individual, and organizational or facility-level characteristics. These findings were similar to Hayes' review on the determinants of job satisfaction among nurses, which found that inter-personal, intra-personal, and extra-personal characteristics all influence job satisfaction [66].

The individual- and intra-personal level predictors of overall satisfaction were age, gender, tenure, type of employees, and self-reported measures of workload and working conditions. Male nurses were more likely than female nurses to have higher mean overall satisfaction. Each additional year of work in a health facility increased the health worker's overall satisfaction. These results are similar to the findings of some other studies, although in the literature the effects of gender and age are inconsistent. A study conducted by Blaauw et al., contrasting the overall satisfaction of nurses in Malawi, South Africa, and Tanzania, showed that female health workers were less satisfied than their male counterparts [121]. In addition, tenure was positively correlated with overall satisfaction, so that each additional year spent in a health facility was associated with a higher level of overall satisfaction. In general, the research is inconclusive on the effect of demographic variables on job satisfaction. Studies conducted in Botswana and

Ethiopia found that higher age and longer tenure had a positive effect on overall nurse satisfaction, in keeping with Hayes's review [79, 122]. However, Lu et al.'s review on the determinants of job satisfaction among nurses found that demographic variables such as age and years of experience showed only weak correlation with job satisfaction [82]. In my study, age and tenure were both associated with overall satisfaction, further suggesting that comparative research on satisfaction is necessary, as culture, political factors, and expectations may vary between countries. Education level had no predictive effect on overall satisfaction in my analysis, unlike studies that found that the role of education in satisfaction is ambiguous [118]

Temporary and contractual employees were significantly less satisfied with their jobs than government employees. This is probably due to the lack of job security that contractors have, as they are not permanent civil servants. In Bénin, permanent public servants have a job for life and are rarely laid off; in the literature, job security is also known to significantly affect the job satisfaction of nurses [70, 123].

Analogous results were also found of the effect of demographic and intra-personal variables on intrinsic satisfaction. Male health workers had a higher intrinsic mean satisfaction than female health workers; and tenure had a positive effect on intrinsic satisfaction. There is a very small significant effect of age so that older health workers have slightly lower intrinsic satisfaction. Education also has a significant effect on intrinsic satisfaction. Non-qualified workers who have only a primary education are less intrinsically satisfied than to those who have a high level of education. However, the positive association of education and intrinsic satisfaction disappears for non-qualified health workers with a university degree, though their sample size is small. The negative effect of their contractual or temporary situations on intrinsic employee satisfaction still persists, so that temporary health workers experience a significant decrease in intrinsic satisfaction compared to government employees. It is difficult to compare my results to other studies, since to the best of my knowledge, there are no other studies focusing on the determinants of intrinsic or extrinsic satisfaction. Intrinsic satisfaction is a motivator, according to the Herzberg theory. People with high intrinsic satisfaction are more likely to exert greater effort to perform better [42]. The strong effect of education level on intrinsic satisfaction is noteworthy, as is the demotivating effect of job insecurity. It is difficult to increase employees' intrinsic satisfaction because it is a satisfaction that they derive from their own work. Thus, knowing the characteristics that may affect intrinsic satisfaction could guide hiring practices, to select those individuals who are more likely to be highly motivated.

Age, gender, and tenure do not have any predictive effect on extrinsic satisfaction, although higher education levels are negatively correlated with extrinsic satisfaction – increasing education decreases extrinsic satisfaction. Remuneration and working conditions are two possible drivers of this outcome. Health workers with more education may expect better pay and working conditions, which would raise their expectations. When these expectations are not met, nurses will be less satisfied with the extrinsic aspects of their work. Community health workers were also more likely to be extrinsically satisfied than government employees.
Other factors found to affect satisfaction were training opportunities, the amount of work, and working conditions. Health workers who attended several training sessions within a year reported a high overall satisfaction, and also increased intrinsic and extrinsic satisfaction. This result has been confirmed in other studies. Health workers in both low-to-middle-income

countries and high-income countries have reported greater satisfaction when given education or training opportunities; these findings support Herzberg's theory that career advancement is correlated with satisfaction. In addition, health workers attending training opportunities in Bénin are also more likely to be extrinsically satisfied. The monetary rewards (an extrinsic facet) given to those who attend training in Bénin might be the cause of this result. As expected when health workers self-reported that they had too much work and that their working conditions were suboptimal, both their overall satisfaction and their extrinsic satisfaction levels decreased. Self-report of suboptimal working conditions did not affect intrinsic satisfaction, further corroborating Herzberg's assumption that working conditions are a factor affecting extrinsic satisfaction and not intrinsic satisfaction.

Interestingly, the amount of remuneration received by health workers did not predict any of the satisfaction scales. Salary was not a predictive factor of overall, intrinsic, or extrinsic satisfaction. Although this result is somewhat surprising, it is not entirely unexpected. Both qualitative and quantitative data have shown that although health workers may not be satisfied with their remuneration, this is not the primary cause of their job satisfaction or dissatisfaction [33, 75, 124] as seems to be the case of health workers in Bénin. Chu et al.'s 2003 study among Taiwanese nurses of the causal model of job satisfaction determined that variables such as involvement, workload and resource inadequacy, social support, and promotion were all significantly related to job satisfaction -- except for pay; exogenous variables of health clinics explained 45% of the variance in job satisfaction [74]. However, there are other studies that show that pay and benefits are correlated with job satisfaction. For instance, the McNeese-Smith qualitative study found that staff nurse descriptions of job satisfaction list salary and benefits as contributing to job satisfaction [125].

In addition to exploring the predictive power of individual level variables, I tested the effect of six facility-level variables on the three satisfaction scales. These variables were: the location of the health facility (rural or urban), the bed-to-nurse ratio, the level of decentralization, the presence of electricity and water, and the number of health workers employed. I found that health facilities with a more decentralized management style had a higher average mean of overall satisfaction. In addition, the presence of electricity in a health facility increased the mean level of overall satisfaction of health workers in that facility. The location of a health facility, the presence of running water, the bed-to-nurse ratio, and the number of health workers employed did not predict overall satisfaction. Also, health facilities located in urban areas had an overall decrease in general satisfaction.

Predictably, none of the facility-level variables tested had an association with intrinsic satisfaction; this was foreseeable, since Herzberg's theory predicts that intrinsic factors or motivators are related to the factors of challenging work, a sense of achievement, advancement or growth of career, and recognition (Herzberg, 1966), rather than aspects outside or extraneous to the work. For extrinsic satisfaction, the finding suggests residential differences between health facilities located in urban versus rural areas. On average, health facilities in urban areas fare worse in extrinsic satisfaction, compared to those located in rural areas. One explanation for this is that living in rural areas confers some advantages; for instance, the cost of living is usually low compared to urban areas, although working conditions are usually more difficult. The presence of running water in health facilities was also positively associated with extrinsic satisfaction,

which is closely related to working conditions, important determinants of extrinsic satisfaction, according to Herzberg's theory. Other studies have also stressed that working conditions are critical for nurses' satisfaction.

My last question concerns the way health workers speak about their working environments. To gain a closer understanding of their views, I conducted a series of semi-structured interviews, asking which practices and factors could help to enhance their satisfaction with their nursing care work. The themes our discussions uncovered were very similar to the results of other studies conducted in both industrialized and low-income countries [126-128].

My findings indicated that career advancement, training, and remuneration were important factors that could potentially improve the satisfaction of health workers. Health professionals were interested in training opportunities that would give them greater competency. Salary was not directly mentioned as a potential factor to increase satisfaction; instead, the issue of remuneration in the form of incentives or rewards for working in disadvantaged areas was raised during the discussion. However, it is possible that during our discussions, health workers did not want to be perceived as materialistic, and so they did not explicitly mentioned salary as an important satisfying factor. They were however quick to state that increases in salary were always nice but that this was not the main issue in ensuring satisfaction at their work. Elsewhere, in India for instance, Peters et al. found that health workers rated "good working relationships," "environmental factors," and "good physical conditions" more important than income. Another study of Ghanaian health workers reported remuneration as the most dissatisfying factor [129]. Other topics cited were recognition for their work by their district supervisors or the ministry of health; especially when working in difficult conditions, health workers wanted some sort of recognition from their supervisors. This result corroborates other studies that show recognition is an important factor in explaining satisfaction [130, 131]. Auxiliary nurses were the only professionals who included job security as a factor that could increase their satisfaction. This latter result was expected due to the temporary contract nature of their employment, since auxiliary nurses are not always guaranteed employment, as government employees or civil servants are.

Another finding related to work satisfaction was the workload of health workers. Nurses were dissatisfied with their workload, monitoring and supervision, and task specification and requirements. The majority of the health workers interviewed felt that they were working around the clock due to unequitable distribution of health personnel. Their observations on the cause of high workloads were echoed by USAID, which found that maldistribution of the health workforce was a big issue in Bénin [10]. High workload has been studied as a factor that causes both low job satisfaction and burnout among health workers. Both qualitative and quantitative studies have found a negative relationship between high workload and job satisfaction [36, 66].The results from these studies mirrored findings in Bénin. However, Fako's research study in Botswana found that workload was not a predictive factor in explaining satisfaction. Botswanan nurses acknowledged the frequent staff shortages and high workload, but listed these two factors as the variables least affecting their job satisfaction or dissatisfaction [122].

In addition to reducing their workload, health workers in Bénin wanted increased supervision by their supervisors, and therefore less autonomy. This was an interesting result, as many studies in

developed countries and some in low-income countries have found that nurses, in general, place a high value on autonomy; in many studies, work satisfaction was found to increase as autonomy increased. Health workers also requested more and better information regarding task requirements and specifications at their jobs.

Another important issue that emerged from the interviews was the working conditions of health personnel. Decent physical working spaces, resource adequacy, and the presence of running water and electricity in health facilities were important issues that continuously came up during my interviews. Subjects described working conditions that affected their work in a negative way and that made them less likely to enjoy nursing.

Nurses also pointed out that there was a lack of leadership and policies from both the ministerial and the health facility-level administrators. These two factors contributed substantially to the low level of satisfaction. Nurses regarded leaders as implementers of change, as agents capable of executing policies that would provide environments more propitious for their nursing work. They also voiced disappointment with the lack of transparency surrounding their placements to various geographic/remote locations, and with the organizational policies leading to this situation.

Study Limitations
This study was conducted under some limitations that should be mentioned. First, the health districts chosen were located in disadvantaged areas, and so the results may not be applicable to all health facilities in Bénin. I only investigated health worker satisfaction in public health centers in the selected health districts. But there is also a proportion of health workers in Bénin who work in the private sector. Also, not all variables that could potentially explain the variance in job satisfaction scales were assessed. For instance, it would have been interesting to include a variable to measure the effect of resource inadequacy at the facility level. This was not possible as all the variables related to essential and adequate resources in my dataset either did not show any variation in health centers, or were missing altogether. Future research should consider using instruments such as the Nurse Work Index questionnaire, which also includes measurable organizational variables in the health care setting. Given the dearth of research from sub-Saharan African countries on satisfaction of health workers, investigating the determinants of satisfaction in these settings could inform policy. Moreover, determining the direct link between job satisfaction and improved performance of health workers in low-income settings would inform the debate on the association of these two factors.

9. Implications of findings

Ensuring the satisfaction of health workers should be a salient goal of any health organization. Nurses, midwives and auxiliary nurses are the largest group of health professionals who come into frequent direct contact with patients. Thus, their well-being, and more notably their work satisfaction, are paramount to the effectiveness of every health system. Reviews of the literature have confirmed the link between job satisfaction and motivation, quality of care, retention, absenteeism, and turnover, as well as performance, of health workers [36, 37]. Given the current human resources for health crisis in low and middle-income countries, symptoms of which are health staff shortages, high rates of absenteeism, and low worker motivation, it behooves health organizations in these countries to invest in interventions that will increase the levels of job satisfaction of their most important assets.

These interventions must be based on research capable of informing policy makers. The results of my study have several implications for decisions-makers such as the MOH, the country's hospital clinical administrators, and multilateral agencies. In the following section, I propose several recommendations and briefly describe the role of decision-makers in guaranteeing the attainment of higher levels of satisfaction among health workers.

Ministry of Health
The role of the MOH is to promote health through equitable access and quality of health care for all citizens. Its leadership and stewardship are essential for the achievement of this goal. Focusing on its health workforce presents one important way to ensure that quality of care can be accessed by all. There are many opportunities available to the MOH to increase its governance to improve health worker motivation and competence. I present some recommendations here that are directly relevant to the satisfaction of health workers:

1) To level out uneven distribution of health workers in rural areas and to alleviate the burden that health workers face in unstaffed rural areas, the MOH should consider:
- Implementing a compulsory service program with a maximum term of 4 years, with incentives for nurses and midwives
- Reviewing policies on the deployment of health workers to rural and remote areas following the compulsory service program term to ensure the equitable distribution of health workers throughout Bénin
- Providing additional incentives for health workers willing to relocate to remote and rural areas

2) Education was significant in explaining intrinsic satisfaction. The bivariate analysis showed that health workers who had a lower education level had lower intrinsic satisfaction. The MOH should ensure that the level of education attained by health professionals is superior. In addition, it should provide training to increase the skill of its health workers. The following recommendations are suggested:

- Increase the level of education prerequisite to attending a health training institution to the equivalent of a baccalaureate
- Require accreditation for all professional training institutions (private or public), and ensure that curricula correspond to the needs of the local context
- Provide regular refreshers and specific training programs to nurses, midwives, and auxiliary nurses to increase and maintain their competency and improve their skills

3) Leadership at the health facility and at the ministerial level was discussed during the interviews; health workers were disappointed with this facet of their work, citing lack of leadership to maintain buildings in working order. The quantitative results also indicated that when the level of the management at a health facility was participatory, health workers there were more satisfied. Therefore, in their health district and hospital manager hiring choices, the MOH should ascertain that whether candidates have adequate managerial capabilities to create strong workplaces that can engage and support health workers. In addition, because the MOH is the entity that provides guidance on large repairs and building maintenance in its health care centers, it should guarantee that funding will also be available for all such work. To accomplish both of these goals, the recommendations below are suggested:
- Provide managerial training courses in leadership, organizational support, and planning for all health district coordinators, and for all clinic administrators
- Strengthen management and accountability mechanisms for improved communication between health district coordinators, clinical administrators, and the MOH
- Support the rehabilitation and maintenance of buildings by adopting policies at the national level to guide and promote building maintenance

Clinic Administrators
Clinic administrators function in close proximity to both health workers and patients. These administrators are responsible for carrying out MOH policies that have major impact on both health personnel and patients. Their leadership, organization, and managerial capabilities need to be reflected in their day-to-day health facility planning and in their health worker management. In addition, they need to engage their employees so that goals and objectives can be achieved. Leadership qualities such as collaborative decision-making and the ability to match individual capacity to the required work are essential for success in these positions. Work capacity and health worker ability are important issues, as my quantitative finding show. Those health workers who reported having more work than they felt capable of doing had significantly lower levels of both overall and intrinsic satisfaction. My results suggest some possible actions that could be taken to improve worker effectiveness:
- Praise and recognition of good performance
- Solicitation of staff recommendations for their own productivity issues
- Improvement of the aesthetics of the work environments
- Improvement of organizational and leadership support and feedback in staffing and scheduling
- Monitoring and provision of supportive supervision and evaluation of measurable goals set by nursing staff

- Providing comprehensive operations standards for task requirements
- Improvement of strategic planning to include needs forecasts to be disseminated to the MOH
- Improvement of access to in-service training
- Improvement of the efficiency of both supply requisition and educational programs to provide healthcare workers with greater support on both fronts

Multilateral Agencies

International and multilateral aid organizations have recognized the need for Bénin to invest in human resources for health activities. Short-term, in-service training to health professionals has been organized mostly by multilateral institutions. However, long-term projects are needed to effectively tackle critical issues that are playing into the human resources crisis in Bénin. Many low-income countries lack the experience and the technical knowledge to assess and evaluate evidence-based policies capable of helping to solve these issues (WHO 2009). International and multilateral institutions, therefore, have a realistic opportunity not only to assist the MOH to design sustainable policies, but also to provide support for the entire Beninese health system. The following recommendations are suggested:
- Improve information systems for evaluating the health workforce
- Implement capacity-building activities for planning and organization within the MOH and the health district departments
- Assist with policy reform for health human resources, such as redesigning pay policies
- Provide relevant pre-service training for health workers, especially nurses and midwives

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