

Labor Attrition between South Africa's Public and Private Health Sectors:

A Mixed-Methods Case Study of KwaZulu-Natal Dietitians

by

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### **Abstract**

The South African health care system has a highly inequitable distribution of human and financial resources. The private sector only serves 28-38% of the population but has 59% of medical specialists. Applying the concept of job satisfaction as a mediator of labor attrition, the study aims included (1) evaluating the factors influencing choice of workplace amongst clinical dietitians, and (2) analyzing the policy implications for improving labor retention.

This cross-sectional study employed a mixed-methods design, including job satisfaction surveys (N=66) and semi-structured interviews (N=7). The sample included public and private clinical dietitians in KwaZulu-Natal, South Africa. Data were analyzed using regression modeling and thematic content analysis.

The regression analysis revealed private dietitians to be 12.43 points happier than public dietitians on a 12-question job satisfaction survey (95% CI: 6.74, 18.13), after controlling for salary level, degree, job setting, time in current job, university, and specialty. The private sector offers perceived advantages in physical workplace, workday flexibility, and salary level. Government dietitians expressed more favorable professional relationships with dietetic and non-dietetic colleagues, feelings of value, and salary stability. Private dietitians were dissatisfied with income insecurity, colleague competitiveness, and marketing one's dietetic services. Public dietitians noted poor physical working conditions and limited promotion opportunities.

These findings suggest that retention strategies should target public sector staffing shortages, career pathing, and contract flexibility regarding working hours. Further research is needed to evaluate these findings on a national scale and assess the comparative feasibility, favorability, and impact of private contracting models across other allied health professions.

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**Table of Contents**

<b>Abstract.....</b>	<b>3</b>
<b>Acknowledgements .....</b>	<b>4</b>
<b>List of Tables .....</b>	<b>7</b>
<b>List of Figures.....</b>	<b>8</b>
<b>Acronyms and Technical Terms.....</b>	<b>10</b>
<b>Introduction.....</b>	<b>11</b>
<b>Context and Literature Review .....</b>	<b>13</b>
Historical Roots of the Health System Fragmentation .....	13
The Current Two-Tiered Health System .....	15
Human Resources for Health: Current Policy Initiatives .....	16
The Role of the Clinical Dietetics Workforce.....	18
Job Satisfaction: Drivers of Attrition and Retention .....	19
<b>Methods.....</b>	<b>23</b>
Overview .....	23
Study Population .....	23
Sampling Methods.....	23
Data Collection.....	24
Data Analysis .....	25
Limitations .....	26
<b>Findings.....</b>	<b>28</b>
Survey Response Rate.....	28
Demographics.....	29
Dietitian Job Satisfaction between the Public and Private Sectors .....	30
Aggregate Job Satisfaction. ....	30
Salary. ....	31
Promotion. ....	32
Knowledge, Skills, and Professional Development.....	33
Dietetic Colleagues.....	34
Non-Dietetic Colleague Relationships. ....	35
Communication. ....	36
Work Environment. ....	37

Nature of Work.....	37
Rewards of Job.....	38
Stress.....	39
<b>Analysis.....</b>	<b>40</b>
Financial Incentives and the Policy Implications.....	42
Social Workplace Incentives and the Policy Implications.....	44
Physical Workplace Incentives and the Policy Implications.....	45
Personal and Emotional Incentives and the Policy Implications.....	45
<b>Conclusion.....</b>	<b>47</b>
<b>Recommendations for Further Study.....</b>	<b>48</b>
<b>References.....</b>	<b>49</b>
Primary Sources.....	56
<b>Appendices.....</b>	<b>57</b>
Appendix A. Ethical Clearance.....	57
Duke Institutional Review Board.....	57
SIT Local Review Board.....	57
Appendix B. Recruitment Materials.....	58
ADSA Email Recruitment.....	58
Sample Telephone Script.....	58
Appendix C: Research Instruments.....	59
Interview Guide.....	59
Online Survey.....	61
Appendix D: Informed Consent Materials.....	65
Interview Informed Consent Form.....	65
Survey Informed Consent Form.....	67
Appendix E: Regression Model Diagnostics.....	68
Appendix F: Bar Charts for Each Job Satisfaction Question by Sector.....	70

**List of Tables**

1. Demographic characteristics of sampled KZN dietitians .....28
2. Aggregate job satisfaction model: Regression output from average of 100 imputed datasets .....30
3. Summary table of salient job satisfiers and dis-satisfiers by job satisfaction theme.....41

### List of Figures

1. Scatter plot between salary score and overall job satisfaction score by health sector.....	31
2. Residual plot for aggregate job satisfaction score by employment sector.....	68
3. Residual plot for aggregate job satisfaction score by salary level.....	68
4. Residual plot for aggregate job satisfaction score by employment location.....	68
5. Residual plot for aggregate job satisfaction score by length in current job.....	68
6. Residual plot for aggregate job satisfaction score by specialty practice.....	69
7. Residual plot for aggregate job satisfaction score by degree level.....	69
8. Residual plot for aggregate job satisfaction score by university.....	69
9. Bar chart of the job satisfaction frequency distribution for salary fairness.....	70
10. Bar chart of the job satisfaction frequency distribution for feeling appreciated by pay.....	70
11. Bar chart of the job satisfaction frequency distribution for promotion with good performance.....	70
12. Bar chart of the job satisfaction frequency distribution for promotion compared to another dietetics job.....	71
13. Bar chart of the job satisfaction frequency distribution for exposure and time for professional development.....	71
14. Bar chart of the job satisfaction frequency distribution for skill development in current job.....	71
15. Bar chart of the job satisfaction frequency distribution for relationship with dietitians.....	72

16. Bar chart of the job satisfaction frequency distribution for support from fellow dietitians.....	72
17. Bar chart of the job satisfaction frequency distribution for recognition from non-dietetic colleagues.....	72
18. Bar chart of the job satisfaction frequency distribution for non-dietetic colleagues' competence on one's workload.....	73
19. Bar chart of the job satisfaction frequency distribution for communication network.....	73
20. Bar chart of the job satisfaction frequency distribution for level of isolation.....	73
21. Bar chart of the job satisfaction frequency distribution for workplace comfort and human resource adequacy.....	74
22. Bar chart of the job satisfaction frequency distribution for professional guidelines and workload.....	74
23. Bar chart of the job satisfaction frequency distribution for meaningfulness of job.....	74
24. Bar chart of the job satisfaction frequency distribution for pride in job.....	75
25. Bar chart of the job satisfaction frequency distribution for recognition from patients.....	75
26. Bar chart of the job satisfaction frequency distribution for appreciation from patients.....	75
27. Bar chart of the job satisfaction frequency distribution for working hour predictability.....	76
28. Bar chart of the job satisfaction frequency distribution for patient load.....	76

**Acronyms and Technical Terms**

- ADSA..... Association for Dietetics in South Africa
- AHP..... Allied Health Professional
- CS.....Community Service, graduating dietitians must complete one-year internship to complete their training, known as the community service year, in which they are assigned to rural hospitals and other hospitals of high need
- DOH.....Department of Health
- HPCSA.....Health Professions Council of South Africa
- KZN..... KwaZulu-Natal
- MDT..... Multi-disciplinary team, typically composed of a range of doctors, nurses, and allied health professionals who provide complementary services to maximize patient care
- NHI..... National Health Insurance, the single-payer, national insurance system currently being implemented in South Africa in order to achieve Universal Health Coverage
- PHC.....Primary Health Care, a holistic approach to social medicine, which invariably incorporates promotive, preventative, curative, and rehabilitative services
- RD.....Registered Dietitian
- SDG..... Sustainable Development Goals, set forth in 2015 by the World Health Organization to guide the global development agenda between 2015-2030
- UHC..... Universal Health Coverage, a health care model in which all citizens can access available and appropriate health care services, without undue financial hardship

### **Introduction**

The South African health care system has a highly inequitable distribution of human and financial resources favoring the private sector (Coovadia, Jewkes, Barron, Sanders & McIntyre, 2009, 826). The human resource distribution reflects the early-career transition of many health practitioners and allied health professionals (AHPs) towards the private sector (Parker et al., 2012, 1412). In parallel, financial constraints enable only 28%-38% of South Africans to access private sector health care via medical aid and out-of-pocket costs (Econex, 2013, 18). For those with the financial means to purchase medical aid, premiums give the private sector financial resource pooling advantages. The mal-distribution is problematic for the equitability of health outcomes, as the public sector has a smaller workforce to support a larger population.

The private sector's historically-rooted workforce advantage has important implications for South Africa's ability to achieve universal health coverage (UHC). In 2015, the United Nations set forth UHC as a primary target of the Sustainable Development Goals (SDG's) in SDG3, which is directed at achieving "good health and well-being" (United Nations, 2015). In order to achieve UHC, the World Health Organization (WHO) has envisioned and promoted a holistic reorientation of health systems using health system strengthening. The WHO emphasizes the need to improve resource equitability, including the quality, accessibility, acceptability, and productivity of the health care workforce (World Health Organization, 2014, iv, 39).

In developing a holistic health system, South Africa has committed to implementing a comprehensive National Health Insurance (NHI) system, which aims to "provide access to quality, affordable personal health services for all South Africans based on their health needs, irrespective of their socioeconomic status" (Department of Health, 2015, 1). The 2015 South African White Paper on National Health Insurance acknowledges the mal-distribution of health

practitioners as a key target for improving the existing disjointed system (Department of Health, 2015, 15). While there is an abundance of evidence recognizing the mal-distribution of health practitioners, there is a paucity of literature examining *why* this attrition exists. There must be a sustained commitment to reorienting incentive structures to uncover, and respond effectively to, the underlying drivers of the mal-distribution of human resources for health.

In order to provide insight into this issue, this research addresses the following question: What are the factors influencing clinical dietitians' choice of workplace between the public and private health care sectors in KwaZulu-Natal, South Africa? This research evaluates both the reasons dietitians choose to stay in the public sector and the drivers of attrition away from the public sector, towards the private sector. As the government aims to achieve UHC via a NHI model, clinical dietitians are a useful health practitioner to evaluate, as dietitians operate at every level of South Africa's primary health care (PHC) system. The retention of South Africa's small nutrition workforce is particularly critical, as the country experiences an epidemiological transition to lifestyle-induced, non-communicable diseases (Shisana et al., 2014, 74). Here, job satisfaction—which has been discussed extensively in behavioral economics and organizational psychology literature—is drawn upon as a mediator of labor retention and attrition (Spector, 1997, 2). Using quantitative and qualitative analysis of job satisfaction differences between public and private sector dietitians, this research aims to produce relevant policy insights for the implementation of public sector retention strategies in the NHI system.

## Context and Literature Review

### Historical Roots of the Health System Fragmentation

South Africa's health care system and health outcome disparities are underpinned by the historical legacy of inequitable resource allocation and health system fragmentation across racial, economic, and geographic lines (Coovadia et al., 2009, 825). In the late colonial period and apartheid era, health disparities intensified due to the racial segregation of health care facilities and the expansion of migrant labor to mines and urban centers with poor sanitation and overcrowding (Coovadia et al., 2009, 820). Apartheid's legislative segregation and social engineering exacerbated inequities and health system fragmentation through the formation of ten *Bantustans*. Independent health departments were constructed within each *Bantustan* to administer services, though these racially constituted administrations were poorly organized, geographically isolated, and chronically under-resourced (Surender, 2014, 2). Public sector health expenditure varied dramatically, ranging from R23 per person in Lebowa (*Bantustan* in the northern Transvaal) to R200 in the Natal and Cape provinces (McIntyre, 1990 in Coovadia et al., 2009, 825). The racial fragmentation of health care delivery and inequitable resource allocation exacerbated growing health outcome disparities by race, particularly amongst poverty-related diseases. These diseases remain prevalent in black populations, due to worsening living conditions and socioeconomic inequality (Coovadia et al., 2009, 823).

The fragmentation of South Africa's health system was compounded by rapid privatization in the late apartheid period (Coovadia et al, 2009, 826). Price (1989) suggests that privatization was a product of politico-economic policy efforts of the apartheid state and the international, neoliberal influences via structural adjustment programs (124). Privatization aimed to curb rising state expenditure, under the assumptions that private provision was more efficient,

cost-effective, and of “superior” quality (van Rensburg & Fourie, 1988, 2-3). As a result, the number of for-profit hospital beds nearly doubled between 1988 and 1993 (Coovadia et al., 2009, 826). These hospitals catered primarily to the white population, given their economic means to pay for medical aid (Price, 1989, 127). Private sector expansion accelerated in the early post-apartheid era with the introduction of the Growth, Employment, and Redistribution (GEAR) strategy in 1996. GEAR reflected the macroeconomic pressures of privatization and fiscal austerity to reduce the budget deficit (Stuckler, Basu & McKee, 2011, 167).

Privatization, paired with chronic public sector under-resourcing, produced large disparities in human resource and financial allocation between sectors. In 1994, the private sector “absorbed nearly 60% of annual health expenditure but covered only 13% of the population” (Surender, 2014, 4). At this time, “62% of general doctors and 66% of specialists were in private practice” (Rispel & Behr, 1992 in Coovadia et al., 2009, 826). To make matters worse, in the 1990’s, health practitioner attrition to the private sector was exacerbated by the distribution of voluntary severance packages to government practitioners, as a mechanism of “right-sizing” (Ncholo, 2000, 98). Right-sizing intended to achieve an appropriately-sized public service via purposeful resource reorganization. Facing increasingly constrained budgets, African National Congress (ANC) management of human resources for health has since been characterized by “workforce redundancy and vacancy freezes, ‘shortages’, graduate unemployment and cuts in education and training provision” (Department of Health, 2011 a, 72). While the health system is now organized with nine provincial health systems centralized under the DOH (Surender, 2014, 3), the enduring legacy of resource mal-distribution and fragmentation remains inherent across racial, economic, and geographic lines.

### **The Current Two-Tiered Health System**

The inequities in human resource distribution and in funding allocation continue to permeate the structures of South Africa's modern health care system. In 2015, South Africa's total expenditure on health composed 8.5% of total gross domestic product (GDP), with 4.1% of GDP spent on the government sector, and 4.4% of GDP spent on the private health care sector (Department of Health, 2015, 17). Medical aid premiums give the private sector large financial advantages, such that 51.8% of current health expenditure in South Africa is within the private sector (WHO Global Health Observatory, 2016).

The distribution of health expenditure is problematic, given affordability barriers to purchasing medical aid. According to the 2016 General Household Survey, only 17.4% of South Africans are medical aid beneficiaries (Statistics South Africa, 2017, 24). The enduring disparities in medical aid enrollment are still largely apparent by race. Comparatively, 72.2% of whites and only 10.5% of Africans report having medical aid (Statistics South Africa, 2017, 25). An additional segment of the population utilizes the private sector via out-of-pocket costs. In total, the private sector serves only 28%-38% of the population (Econex, 2013, 18). In other words, 28%-38% of the population is producing and receiving 51.8% of health care expenditure. This sector inequity underpins the DOH's current call for universal health coverage via a NHI model. In theory, NHI would enable greater risk-pooling and income cross-subsidization through the establishment of a single NHI fund, rather than fragmented funding mechanisms for each sector, as in the current tiered system (Department of Health, 2015, 1, 60).

The private sector also has a disproportionate, and increasingly inequitable, allocation of human resources. Data estimate that 59% of specialists worked in the private sector in 2013 (Econex, 2013, 18). Given that all health practitioners are trained in the public sector, and many

begin their careers in rural internships in public hospitals, the distribution reflects the high, early-career attrition of health workers away from the areas of highest need (Ashmore, 2013, 2). The resulting under-staffing poses a threat to maintaining a high quality of care in the public sector (Surender, 2014, 6), and for South Africa's ability to achieve universal health coverage.

### **Human Resources for Health: Current Policy Initiatives**

Post-apartheid health policy has targeted the mal-distribution of human resources for health. There is wide recognition of the mal-distribution across the fragmented, two-tiered health system, as well as “along rural-urban, primary-tertiary, and poor-rich lines” (van Rensburg, 2014, 2). In 1994, the first phase of post-apartheid health system reform was characterized by the reorganization of the health system under a centralized Department of Health (DOH) with nine provincial health departments (Coovadia et al., 2009, 828). In 1997, Primary Health Care (PHC) was adopted as the cornerstone of South African health policy in the “White Paper for the Transformation of the Health System in South Africa” (Department of Health, 1997, 1). PHC—as set forth in the Alma Ata Declaration in 1978—utilizes a holistic approach to social medicine, which incorporates promotive, preventative, curative, and rehabilitative services (Phillips, 2014, 1874). The adoption of PHC intended to broaden access for marginalized and under-resourced populations, by reorganizing health service delivery to the district level (van Rensburg, 2014, 4).

Despite the reorganization and strengthening of the public health care system through PHC, the human resource distribution remained strikingly unchanged between sectors (van Rensburg, 2014, 5). While there is variation by province and profession, the historical distribution continues to favor the private sector (Department of Health, 2011a, 28; Econex, 2013, 18; van Rensburg, 2014, 6). Unfortunately, evidence and monitoring of this distribution is not consistent across professions. There is a fair body of research evaluating general practitioners

(GPs), dentists, nurses, and pharmacists (Department of Health, 2011a, 28-30). Across these professions, the data reveal high levels of attrition towards the private sector.

In order to tackle the inequitable distribution of health practitioners, the post-apartheid Department of Health has initiated policy including: *A National Human Resources for Health Planning Framework* (Department of Health, 2006), the *Human Resource Strategy for the Health Sector: 2012/13-2016/17* (Department of Health, 2011a), the *National Health Insurance Plan* (Department of Health, 2011b, 2015), and the *National Development Plan 2030* (Department of Health, 2012). The policies have included a myriad of retention and redistribution strategies including: contracting of health practitioners—principally GPs—into the public sector, allowing dual-practice and moonlighting between sectors, encouraging public-private partnerships, and introducing a compulsory community service (CS) year for new graduates (van Rensburg, 2014, 9). While such strategies offer a promising vision of redistribution, “it remains a crucial question whether the notorious policy-implementation gap (or plan-action disconnect) could be effectively bridged” (van Rensburg, 2014, 8). Further, inconsistent evaluation has restricted insight into their expansion to other health professions.

The upcoming NHI system envisages wider implementation of health contracting models to enable greater cross-subsidization between the private and government sectors. In one pilot of government contracts for private GPs during the 2013/14 financial years, approximately 34,330 patients received health services via 152 contracted GPs; further, the contracting contributed to a significant reduction in waiting times and improved service access for catchment populations (Department of Health, 2011b, 34). Preliminary analysis of private GP satisfaction with these contracts has indicated generally high interest, though low uptake has been attributed to miscommunication, misunderstanding, and perceptions of poor working conditions, low

remuneration, and non-flexible contracts (Hongoro, Funani, Chitha & Godlimpi, 2015, 77). This type of evaluation is critical if such contracting models are set to be expanded in the NHI system. These findings highlight the importance of communicating with practitioners about various incentives and what they actually could benefit from out of these contracting arrangements.

Given the narrow scope of the GP pilot, there is limited insight into the anticipated uptake of contracts across other health professions, particularly amongst AHPs. Rather than applying a one-size-fits-all contracting model for all health professions, this research aims to offer insight into public retention and contracting strategies more specific to AHP's. To do so, this research examines the job satisfiers and dis-satisfiers relevant to clinical dietitians' choice of workplace. The analysis aims to uncover the drivers of labor attrition in the dietetics population, such that effective contracting models and retention schemes can be constructed and funding for health system strengthening can be more purposefully allocated to enhance public retention.

### **The Role of the Clinical Dietetics Workforce**

This research targeted clinical dietitians for a number of reasons. First, the public sector dietetic workforce is small. Currently, the Health Professions Council of South Africa (HPCSA) database counts 3,018 active, registered dietitians (RDs) in South Africa. While the number of RDs technically falls within the recommended density set by the Manila report (Delisle et al., 2017, 385), the workforce remains highly inequitable between sectors. Between 2002 and 2010, the estimated total number of government dietitians and nutritionists in South Africa grew from 262 to 763 (Department of Health, 2011a, 22). Thus, government dietitians reflect only a small subset of the total number of dietitians. Given that the public sector serves 84% of South Africa's population (Mayosi, 2014, 1346), there are strong incentives to retain and expand the public sector dietetic workforce.

Secondly, in the South African context, AHPs—and dietitians, in particular—are pivotal as South Africa continues to transition towards a holistic PHC system funded through a NHI pool (Department of Health, 2011b, 32). A PHC-based system requires the efficient and equitable allocation of AHPs to support health service delivery across primary, secondary, and tertiary levels of care. The dietetics workforce is essential for realizing a PHC system, as nutrition services are inherently fundamental to holistic well-being and improving one's standard of living (World Health Organization, 1978, 2; Department of Health, 2012, 28).

Finally, nutritional support is needed to address South Africa's current epidemiological transition to lifestyle-induced, non-communicable diseases. High blood pressure and diabetes are reported in 16.5% and 5% of the 2012 population, respectively (Shisana et al., 2014, 74). South Africa is facing a “quadruple burden of disease,” including poverty-related diseases, non-communicable diseases, HIV/AIDS, and violence and injury (Coovadia et al., 2009, 820). Clinical dietitians are integral to the delivery of care across this full disease burden. In hospitals, clinical dietitians are integrated into pediatrics, pre-natal care, ICU, eating disorders, HIV/AIDS, oncology, and cardiovascular wards, amongst others (Public 1, *Personal Interview*, 2017). As demand for nutrition services increases, additional research is needed to support the management and distribution of the dietetics workforce between health sectors.

### **Job Satisfaction: Drivers of Attrition and Retention**

There is a growing body of literature related to the drivers of labor retention and attrition between health sectors. Job satisfaction has frequently been applied as both a “conceptual and empirical determinant of retention” in the workplace (Ashmore, 2013, 2). This discourse sits at the interface of policy development for the management of human resources for health and theories within organizational psychology and behavioral economics.

Locke defines job satisfaction as “the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values” (Locke, 1969, 316). Herzberg's two-factor theory of job satisfaction and Maslow's Hierarchy of Needs postulate that the fulfillment of needs produces a certain intrinsic level of positive satisfaction. Maslow's Hierarchy proposes that individuals have an innate tendency towards growth and self-actualization (Maslow, 1954 in Huitt, 2007, 2). Herzberg's theory goes further to suggest that there are both intrinsic, internal motivators such as achievement, recognition, responsibility, and characteristics of work, as well as extrinsic hygiene factors, including salary, job status, job security, supervision, and consistent job policies that mediate overall job satisfaction levels and subsequent job performance (Mackenzie, 2008, 4). In policy formulation, this two-factor model provides a simplistic framework for controlling job dis-satisfiers.

In understanding the conceptual linkage between needs fulfillment and satisfaction, job satisfaction can then be understood in terms of its relationship with theories of labor turnover and retention, which are grounded in behavioral economics, psychology, and sociology (Mueller & Price, 1990, 331). Conceptually, the linkage between job satisfaction and workplace retention or attrition aligns directly with economic and psychological principles that purport that if one is more satisfied with one's job and thus has higher utility, then one is more likely to stay (Tett & Meyer, 1993, 259). The job satisfaction framework has increasingly been utilized in the body of literature surrounding human resources for health. Job satisfaction has been a mechanism to understand high staff turnover, intention to leave, organizational commitment, health work motivation, burnout, absenteeism, and stress in health systems (Blaauw, 2013, 128). In the South African context, Mafini and Dlodlo (2014) found a strong correlation between job satisfaction and organizational commitment amongst public sector health workers (10).

In surveying the existing literature in South Africa, there has been some recent growth in the body of literature related to the drivers of attrition and retention among medical personnel, although this research is primarily concentrated in a few professions. To date, this research has examined general public health professionals (Haskins, Phakathi, Grant & Horwood, 2017; Hatcher, Onah, Kornik, Peacock & Reid, 2014; Mafini & Dlodlo, 2014), medical specialists (Ashmore, 2013; Ashmore & Gibson, 2015), histopathologists (Ruggunan & Singh, 2013), nurses (Coetzee, Klopper, Ellis & Aiken, 2013; Delobelle et al., 2011; George, Atujuna & Gow, 2013a; George, Gow & Bachoo, 2013b; Pillay, 2009; Khamisa, Peltzer, Illic & Oldenburg, 2017), and human resource management (Longmore & Ronnie, 2014).

In examining the qualitative differences in experiences of medical specialists, Ashmore (2013) found that, while the private sector offered greater financial incentives, career progression, and autonomy, the public sector offered more of a team environment, predictable working hours, academic opportunities, and an opportunity to feel “needed” (9). Pillay (2009) found that government nurses were chiefly dissatisfied with salary, workload, and resources, whilst private sector nurses were conversely only dissatisfied with pay and career development (7). Likewise, George, Gow, and Bachoo (2013) determined that government nurses were comparatively less satisfied than those in the private sector, largely due to differences in stress, workload, salary, human resources, staff-turnover, and working conditions (4).

Despite a considerable body of literature regarding nurses and the small handful of studies in other professions, there is a paucity of studies evaluating the drivers of attrition for AHPs. To the researcher’s knowledge, there are no studies addressing the factors influencing retention and attrition for dietitians in South Africa. Regarding job satisfaction of South African dietitians more generally, a 2007 cross-sectional survey found an overall job satisfaction score of

65.7%, translating to “slight job satisfaction” (Mackenzie, 2008, 45; Visser et al., 2012, 115-6). The methodology adopted a modified Job Satisfaction Survey (JSS) survey design, which spans across nine themes including pay, promotion, supervision, benefits, rewards, working conditions, coworkers, nature of work, and communication (Spector, 1997, 9). The data also revealed an anticipated 15% attrition rate to other professions between 2007 and 2012 (Mackenzie, 2008, 45; Visser et al., 2012, 116). Since that study’s data collection in 2007, research on South African dietitians has been scarce. Addressing this paucity of research is critical in order to inform labor management policies and prevent attrition from the profession altogether. Before resources are spent on retention strategies, research is called upon to evaluate what is driving attrition. Using a comparative job satisfaction approach, this study intends to provide critical insight into how existing incentive structures might be targeted and engineered to help improve the dietetic workforce distribution across South Africa’s public and private sectors.

## **Methods**

### **Overview**

This study employed a cross-sectional, mixed-methods research design. The study population consisted of all clinical registered dietitians (RDs) in KZN. Survey participants were recruited via telephone and email, using snowball and convenience sampling. Surveys were distributed via the Association for Dietetics in South Africa (ADSA) email list-serve, and through emails acquired through snowball sampling. Interview participants were recruited via telephone, using random and snowball sampling for private and government dietitians, respectively. Data collection employed an online survey questionnaire and semi-structured, in-depth interviews. Secondary literature was utilized to contextualize the qualitative insights.

### **Study Population**

The study population included all clinical RDs practicing in KwaZulu-Natal (KZN). The Health Professions Council of South Africa (HPCSA) database listed 389 active KZN RDs in April 2017. This figure was calculated by manually sorting through the database to exclude “suspended” and “erased” RDs, as well as active RDs completing their community service (CS) year or practicing outside KZN. The study population cannot be determined precisely, as the HPCSA registry includes industry, non-clinical, and unemployed RDs. Nevertheless, the HPCSA is a reliable source for names and qualifications of RDs, as all specialists are required to register with the HPCSA annually in order to practice in South Africa (Price & Weiner, 2005, 415).

### **Sampling Methods**

Survey participants were recruited via snowball and convenience sampling. Surveys were distributed to the Association for Dietetics in South Africa (ADSA) email list-serve (n=198) and to emails obtained via snowball sampling (n=42). The ADSA email recruitment script can be

seen in *Appendix B*. Snowball sampling was initiated by calling RDs off of professional websites and public databases. The survey base included 61.7% of KZN RDs.

Regarding interview recruitment, public interviewees (n=3) were recruited via snowball sampling to eliminate permission concerns over research in government hospitals. Private interviewees (n=4) were systematically sampled from RDs within a 50km radius of Durban, to increase the sample's representativeness. Each private sector dietitian was contacted telephonically, based on the sample recruitment script in *Appendix B*. Every 5<sup>th</sup> private sector dietitian within the 50 km radius was asked to participate in an interview until the target number (n=4) was reached. The target number of expert interviews reflects the time and resource constraints of the month-long research period in Durban, South Africa. The limitations and biases of these sampling methods will be discussed in the upcoming *Limitations* section.

### **Data Collection**

Data collection utilized mixed-methods, including surveys and interviews. Surveys [*Appendix C*] could be completed online in 25 minutes. The survey asked 20 demographic, education, and employment questions, followed by 20 job satisfaction questions. Job satisfaction questions were drawn from Mackenzie's 2007 survey of South African dietitians, which used an adapted version of Spector's Job Satisfaction Survey (JSS) (63-66). The JSS asks questions related to pay, promotion, supervision, benefits, contingent rewards, working conditions, co-workers, nature of work, and communication (Spector, 1997, 9). An additional theme of stress was identified in a qualitative study of South African medical specialists migrating to the private sector (Ashmore, 2013, 6) and incorporated via two questions. A 6-point Likert Scale was used throughout to ascertain a positive or negative response, as in Spector's JSS (Spector, 1997, 9).

The semi-structured, in-depth interviews followed an interview guide [Appendix C] and lasted 30-45 minutes. Interviews were conducted in English and audio-recorded with the interviewee's permission. Interviews were later transcribed to maximize data content. Interviews began with general, free-attitude questions about the dietitian's education, CS year, and employment. The interviewer then used a semi-structured, conversational approach to probe into the job satisfaction themes and motivations for switching sectors. The interview concluded with knowledge-based questions about the anticipated impact of the NHI system on dietitians.

### **Data Analysis**

Data analysis employed both quantitative and qualitative methods. Qualitative data were analyzed using thematic content analysis. The saliency of thematic findings was determined according to the researcher's judgment, based on frequency of mention and strength of argument. The most salient aspects were further described in relation to their policy implications.

Quantitative data were analyzed using R. During data capture, job satisfaction scores from the survey questions in conjunction with negatively-worded statements were reversed, such that people who disagreed with negatively worded statements and people who agreed with positively worded statements had high scores representing job satisfaction. Missing data values were next imputed using the MICE package in R. There were no systematic patterns of missing data, thus it was plausible to use imputation methods. Given the small nature of the dataset, imputation was favorable, as it was of interest to maximize the number of via survey responses for regression.

Given the inherent ordering of Likert responses, numerical equivalents (1-6) could be applied to the job satisfaction question responses. Using a step-wise, backwards selection approach, the numerically-coded job satisfaction responses were evaluated for internal reliability with Cronbach's alpha. Internal consistency was maximized by including 12 questions

(Cronbach's  $\alpha = 0.729$ ). The numerical Likert values of these 12 questions were summed to make an aggregate job satisfaction score, with potential values ranging from 12-72.

Aggregate job satisfaction was analyzed with a multiple linear regression model in R. The regression evaluated if employment sector is a significant predictor of aggregate satisfaction, after controlling for demographic, education, and job characteristics. Collinear variables were removed from the analysis. In order to avoid overfitting the model to the dataset, categorical variable levels were collapsed and potential interaction effects between employment sector and the other predictors were examined, but ultimately excluded. A summary of model diagnostics is included in *Appendix E*.

### **Limitations**

Due to non-random sampling, the data cannot be generalized to all clinical KZN dietitians. Non-random sampling was used due to the time constraints of the research period. Consequently, the sample had a disproportionate number of private RDs. Government RDs were less likely to be sampled due to in-country protocols prohibiting the use of government hospital channels for research without a formalized DOH research review. Conversely, private RDs could be contacted through professional websites where they market their dietetic services, providing much clearer contact channels. This convenience sampling method introduces sampling bias, for RDs with greater visibility might not be representative of all private clinical RDs in KZN. Perhaps those with higher visibility have firmer establishments within the dietetics practice, which positively influences their satisfaction. Thus, the results must be interpreted with caution.

This research utilized a cross-sectional design, relying upon dietitian's recollection of their job history and motivations for switching jobs. A longitudinal design might be more effective to evaluate workplace incentive structures over time, as they arise in a dietitian's career.

**Ethics**

This research protocol was approved by the Institutional Review Boards at Duke University [Protocol: E0084] and the School of International Training [*Appendix A*]. The survey and interview research instruments were associated with informed consent forms [*Appendix D*]. Participants were informed that participation was entirely voluntary and in their own personal capacity, rather than due to any obligation or institutional affiliation. In line with the in-country ethical guidelines, public dietitians were not contacted via public hospital channels, and rather through the ADSA database and snowball sampling. Informed consent was obtained prior to data collection, and interviewees were also asked for their consent to be audio-recorded. Recordings were deleted immediately after transcription.

Regarding privacy, participants were informed that they could answer each question as they chose and were entitled to skip any questions. The survey input was designed to allow participants to skip questions and self-determine response lengths. As data collection involved expert interviews about non-sensitive topics, there were no risks of harm. In order to protect the privacy and anonymity of participants, interviews were conducted in private offices and other locations of convenience.

Regarding anonymity, participants remained anonymous throughout the research collection, analysis, and reporting process. The survey questions were purposefully designed to limit any direct or indirect identification. All data were reported in aggregate. All hospital and workplace names were excluded from the data reporting. In accordance with IRB guidelines, all data and consent forms will be kept and safeguarded for a five-year period. No data will be shared with other researchers or professionals, and the data will not be used in any future research. Participants were informed that the results would contribute to two written reports.

## Findings

### Survey Response Rate

The survey was distributed to 240 RDs in April 2017. There was a 21.7% initial response rate (n=52), which increased to 27.5% following an email reminder. After removing duplicates and unfinished surveys (<75% complete), 62 responses were included in the regression analysis. Overall, 66 surveys were analyzed, comprising 17.0% of KZN RDs (N=389) [Table 1].

Table 1.

Demographic characteristics of sampled KZN dietitians (N=66)

<b>Age</b>	<b>#</b>	<b>%</b>	<b>Salary</b>	<b>#</b>	<b>%</b>
20-29	20	30.3	<R39 999	12	18.2
30-39	34	51.5	R40 000- R79 999	1	1.5
40-49	6	9.1	R80 000-R119 999	3	4.5
50-59	1	1.5	R120 000- R159 999	6	9.1
60-69	3	4.5	R160 000- R199 999	2	3.0
NAs	2	3.0	R200 000- R239 999	6	9.1
			R240 000- R279 999	12	18.2
<b>Gender</b>	<b>#</b>	<b>%</b>	R280 000- R319 999	6	9.1
Male	2	3.0	>R320 000	13	19.7
Female	64	97.0			
			<b>Setting</b>	<b>#</b>	<b>%</b>
<b>University</b>	<b>#</b>	<b>%</b>	Urban	57	86.4
Free State	2	3.0	Rural	8	12.1
Limpopo	1	1.5	NAs	1	1.5
North-West	3	4.5			
Pretoria	6	9.1	<b>Sector</b>	<b>#</b>	<b>%</b>
Stellenbosch	9	13.6	Private Hospital	19	28.8
UCT	3	4.5	Private Non-Hospital	35	53.0
UKZN	38	57.6	DOH (Public Hospital)	15	22.7
UWC	1	1.5	Other	4	6.1
Other	3	4.5			
			<b>Degree</b>	<b>#</b>	<b>%</b>
<b>Expertise</b>	<b>#</b>	<b>%</b>	Bachelors	10	15.2
General	13	19.7	Postgrad	32	48.5
Mix	28	42.4	Honors	15	22.7
Specialty	23	34.8	Masters	88	12.1
NAs	2	3.0	Doctorate	1	1.5

## Demographics

Respondents were predominantly female (97.0%, n= 66), with a mean age of 33.9 (n=64). The majority of respondents had a postgraduate qualification, such as a postgraduate diploma (48.5%, n=32), honors (22.7%, n=15), masters (12.1%, n=8), or doctorate (1.5%, n=1). Sampled dietitians had worked in their current job for 5.5 years, on average (median= 4.0 years). Respondents were predominantly employed in urban or semi-urban settings (86.4%, n=57). Regarding sector of employment, 22.7% of respondents were working for the Department of Health in public hospitals (n=15), 28.8% of respondents had appointments in private hospitals (n=19), 53.0% worked in private practice (n=35), 4.5% were working in a non-clinical DOH dietetics roles such as education or nutrition administration (n=3), and one respondent was working in both the DOH and the private sector. Only 50.0% of respondents reported having a fixed employment contract, likely due to the high proportion of respondents in private practice, where one is often self-employed. Overall, the median salary was found to be between R200 000 and R239 999 per annum, although amongst full-time employees, the median salary was found to be between R240 000 and R279999. Lastly, 34.8% of dietitians envisioned themselves staying in the same clinical job over the next five years (n=23), 48.5% intended to work in a different job as a dietitian (n=32), and 16.7% were planning on leaving the dietetics profession (n=11).

Given the nature of the sampling methods, these demographic variables must be interpreted with caution in relation to their generalizability to the population of dietitians in KZN. Nevertheless, there appears to be fairly high concordance with the representative survey of dietitians from 2007 (Mackenzie, 2008, 26), particularly in relation to age, gender, location of work, years in current job, and hours of work (full time versus part time).

**Dietitian Job Satisfaction between the Public and Private Sectors**

**Aggregate Job Satisfaction.**

The regression model revealed that employment sector is a statistically important predictor for measuring overall job satisfaction ( $\alpha=0.01$ ). Private dietitians are 12.43 points happier (95% CI: 6.74, 18.13) than government dietitians on the 12-question aggregate job satisfaction scale, after controlling for salary level, current job length, university, degree level, specialty, and setting [Table 2]. Given that the sample’s scores ranged from 25-67 points, a 12.43 point difference reflects a substantial jump in job satisfaction between sectors. Histograms comparing job satisfaction by sector for each individual question are found in Appendix F.

Table 2.

Aggregate job satisfaction model: Regression output from average of 100 imputed datasets

$$JSS\_Aggregate \sim Sector + CurrentJob\_Mths + UniversityKZN + Degree\_Level + Specialty + Setting\_Urban + Salary, data = dl$$

	Est	SE	t	Df	Pr(> t )	lo 95	hi 95
<b>(Intercept)</b>	41.40	5.05	8.20	49.34	9.02e-11	31.25	51.54
<b>Public Sector</b>	-12.43	2.84	-4.39	48.75	6.16e-05	-18.13	-6.74
<b>CurentJob_Months</b>	-0.01	0.02	-0.43	47.70	6.67e-01	-0.04	20.02
<b>University_UKZN</b>	1.42	3.46	0.41	42.57	6.83e-01	-5.56	8.40
<b>Degree_Postgrad</b>	-0.69	4.54	-0.15	44.68	8.80e-01	-9.84	8.45
<b>Degree_Honours</b>	1.73	3.34	0.52	49.52	6.07e-01	-4.98	8.44
<b>Degree_MastersPhD</b>	7.67	4.10	1.87	47.70	6.74e-02	-0.57	15.90
<b>Specialty</b>	4.57	2.59	1.77	42.83	8.47e-02	-0.65	9.80
<b>Setting_Urban</b>	3.36	3.64	0.92	45.63	3.61e-01	-3.97	10.70
<b>Salary_Lower</b>	-3.42	2.18	-1.57	45.50	1.23e-01	-7.80	0.96

Dietitians had a strong passion for the profession, with 62.9% of dietitians reporting his or her passion for dietetics as a chief reason for choosing his or her current job. When asked about one’s initial motivation to study dietetics, the interviewees reported a passion for food, an

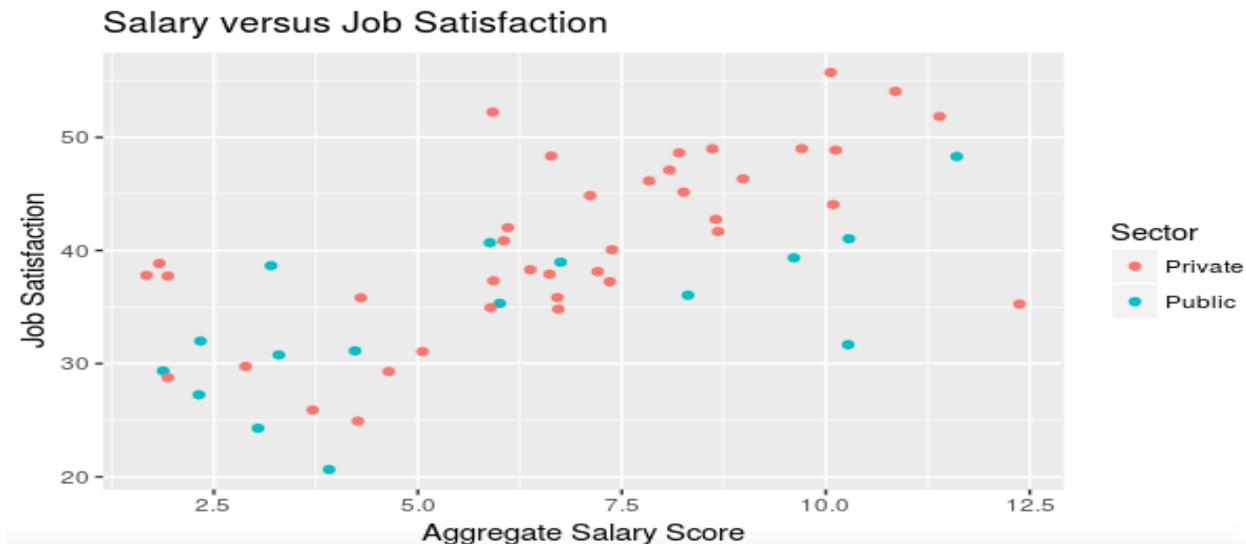
interest due to personal experience, and a desire to help people. There was not a statistically significant difference in listing passion by sector ( $\chi^2 = 0.444, df = 1, p\text{-value} = 0.505$ ).

**Salary.**

Government dietitians expressed strong, negative perceptions of government salary levels. The government salary model, however, was viewed quite favorably. As one participant described, “I enjoyed that you did not need to bill patients in order to see them. You could see as many patients in a day as possible and receive a set salary” (Respondent 20, 2017). Although they favored the security of government salaries, the income security came at the cost of a less flexible work schedule, which wasn’t as favorable for some. The aggregate variable for salary—which was composed of the summation of the two salary-based question scores—showed a moderate, linear relationship ( $r=0.654$ ) between salary and aggregate job satisfaction [Figure 1].

Figure 1.

Scatter plot between salary score and overall job satisfaction score by health sector



In the private sector, dietitians perceived salary levels to be higher and more lucrative.

However, the quantitative data did not indicate private salary levels to be statistically higher.

Dietitians were also highly dissatisfied with the private sector salary model. As one private dietitian described,

“I think private can be a bit tricky because one month you could have business and other months it’s not as busy as you want it to be. So you aren’t guaranteed how much you are going to make in a certain month. So, it is taking a risk because you would have certain expenses as well. And you would like to think that your income would be more stable after a certain time, not less [stable]” (Public 3, *Personal Interview*, 2017).

Similarly, 33.3% of private sector dietitians indicated aspects of the salary model as their least favorite aspect of their current job, including 26.2% who were concerned with the uncertainty of private sector salaries, and 7.1% who were dissatisfied with the level of pay. Private sector salaries are contingent upon how much work is available and what medical aid is willing to pay, making salaries variable by month. Salary improvement is only possible by capturing additional clinical work or moving out of the clinical profession into industry.

### **Promotion.**

Across all themes, government dietitians were most dissatisfied with opportunities for promotion. Government dietitians indicated significant limits to “career pathing.” Government dietitians reported:

“I did try to stay on [after my CS year]. I actually did write a motivational letter to the HR department to keep me on. But they responded that government doesn’t having any funds, so they are freezing the posts. There were supposed to be 6 dietitians. But when I left, there were two permanent dietitians.” (Public 3, *Personal Interview*, 2017).

“I am currently the acting head/highest position dietitian and have been motivating for the HOD<sup>1</sup> for over 10 years with no luck. There is no career pathing at our facility... It is difficult to motivate for posts, as an organogram that was established in 2009 is laughed at by HR because there are also no funds to fill these posts” (Respondent 6, 2017).

“I just found it was really difficult to grow because you would literally be on the same level as the new dietitians who were only 1st year out of commserv.” (Private 1, *Phone Interview*, 2017).

“In order to qualify for a higher post, you needed to be there for 3 years. And I had been there for 3 years. And I had enough experience and they were just not bringing up higher posts.” (Public 1, *Personal Interview*, 2017).

Limited promotion opportunity has a cyclical effect, as “the ones in the higher positions are usually there for as long as they can, because the salaries are more” (Private 4, *Personal Interview*, 2017).

For private dietitians, formalized “promotion” isn’t as applicable a concept. Dietitians are typically self-employed or operate independently in private facilities. Rather than promotion to a higher title as in government hospitals, private dietitians aim to capture additional clinical work.

### **Knowledge, Skills, and Professional Development.**

There was no statistically significant difference between sectors for “building one’s skillset” as a motivating factor for one’s job ( $\chi^2 = 0.946$ ,  $df = 1$ ,  $p\text{-value} = 0.331$ ). The structure of professional and skill development takes a hands-on, learn-by-doing approach. As one

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<sup>1</sup> Head of Department

dietitian aptly noted, “There was lots that we were thrown into” (Private 1, *Phone Interview*, 2017). This approach appeared prominently in public hospitals, particularly during the CS year. 44.9% of dietitians indicated the high level of learning as their favorite aspect of the CS year. One dietitian described the CS year as a “sink-or-swim scenario” (Respondent 61, 2017). In comparing training, one private dietitian noted that the public hospitals provide more skill development because one “experiences so much more because you have to work in different areas” (Private 1, *Phone Interview*, 2017).

Formalized training is limited in both sectors, unless paid for out-of-pocket. Arguably, the flexibility of private sector workdays makes attending formal workshops more feasible. Some public dietitians (12.5%) expressed frustration over the limited opportunity to attend trainings. In the private sector, dietitians (4.8%) liked being able to do research on new dietetic trends that they could integrate into their practice.

### **Dietetic Colleagues.**

Professional relationships with other dietitians varied considerably, though relationships tended to fare better in the public sector. In general, government dietitians were described to be more supportive towards other RDs than private dietitians. Private dietitians were described as territorial, competitive, stingy, and dishonest. In more detailed accounts, private dietitians stated:

“It’s awful. The politics and the drama. The dietitians don’t want to work together in private practice, especially in KZN...It is more that, ‘All the business is for them’ and ‘It is their hospital’” (Private 4, *Personal Interview*, 2017).

“It’s quite difficult to get into those hospitals because dietitians are very territorial...They will say, ‘No this is my hospital. Why are you interfering? Why

are you poaching patients? ... At the end of the day, people just want to make a living and there's simply not enough work" (Private 1, *Phone Interview*, 2017).

Despite some accounts of private sector territorialness, a different private dietitian stated:

"I know there is a lot of competition in some cases. But we actually have a phenomenal relationship... We pick up workloads when the other is feeling a little swamped. We are very professional in sharing referrals if we feel that the other is better suited for that patient" (Private 3, *Phone Interview*, 2017).

Mentorship varied by hospitals of different sizes and locations. 22.4% of respondents expressed frustration over the lack of guidance during their CS year in rural areas. Conversely, government dietitians frequently mentioned mentorship as a key job satisfier in relation to current employment. Mentorship wasn't mentioned by private sector dietitians.

### **Non-Dietetic Colleague Relationships.**

The professional status of dietitians and inclusion within multi-disciplinary teams (MDTs) varied substantially between sectors. When included within MDTs, government dietitians found public doctors to be "inclusive and respectful" (Respondent 6, 2017). This enabled dietitians to be included earlier on in their patient's care. However, the degree of MDT inclusion varied by hospital. During the CS year, 10.2% of dietitians indicated feeling a lack of respect from hospital management and other practitioners. One interviewee attributed lack of respect to the limited establishment of dietetics departments; in these hospitals, nurses and doctors had learned to provide nutrition services without dietitians.

High staff-turnover in government hospitals created additional work doing "in-servicing to communicate and remind doctors of dietetic services" (Private 1, *Phone Interview*, 2017).

Government dietitians also expressed dissatisfaction in working with government hospital matrons, who were “stuck in the system” (Public 1, *Personal Interview*, 2017).

Private dietitians indicated having a lower professional status than government dietitians, though status varied widely by facility. Some private dietitians reported experiencing substantial recognition and referrals from doctors. More commonly, however, private dietitians reported having “to sell yourself to every doctor and nurse and hospital just to get work” (Public 1, *Personal Interview*, 2017). Marketing one’s professional services to doctors was commonly indicated (11.9%) as the least favorable aspect of private sector work. Dietitians also revealed that non-dietetic practitioners will sometimes attempt to play the role of the dietitian. This practice has adverse effects on the number of dietetic referrals, as well as on patient care.

### **Communication.**

Teamwork helped enhance communication in government hospitals. As discussed earlier, dietitians greatly favor inclusion in MDTs. MDTs were the second-most favorable aspect of the CS year (22.4%), behind skill development (44.9%). MDTs enabled dietitians to “go up to any patient that they felt needed dietetic intervention and see them, without a doctors' referral” (Public 3, *Personal Interview*, 2017). As a result, “doctors, here, use us a lot more than [dietitians] are used in the private sector, especially in the ward setting” (Public 2, *Personal Interview*, 2017).

Private dietitians reported being somewhat lonely and missing the mentorship and communication of government work. One former private dietitian reported, “It was very hard to find a doctor because they were so busy. And, if they did refer a patient, they didn’t necessarily want feedback from you” (Public 1, *Personal Interview*, 2017). This anecdote reveals inherent communication barriers about patients.

**Work Environment.**

Public and private sector dietitians reported markedly different work environment satisfaction, favoring the private sector. Strong job dissatisfaction amongst public sector dietitians was influenced by strong, negative perceptions of the public sector's physical workplace, including human resource shortages and physical infrastructure. Survey responses from this theme reflected the largest spread in satisfaction across all questions between sectors.

Resource availability was referenced as the least favorable aspect of the CS year (22.4%). Dissatisfaction in the public work environment was discussed regarding financial resources (37.5%), staff shortages (25%), professional guidelines governing duties (25%), cleanliness (12.5%), and high patient volumes (18.8%). The dissatisfaction with the physical work environment in the public sector was closely tied with feelings of inadequately being able to control patient outcomes, which created an emotional burden. The availability of private sector resources positively impacted the time for and types of nutrition services that could be offered to provide "proper patient care" (Respondents 38, 55, 2017).

**Nature of Work.**

There appeared to be a wide variety of clinical cases in both sectors, with larger hospitals seeing more specialized clinical cases. Private dietitians generally see more uncontrolled cases due to poor diet compliance, resulting in chronic diseases of lifestyle including diabetes, high cholesterol, and high blood pressure. As one dietitian stated, "You end up pretty much doing overweight counseling, diabetic counseling, high-cholesterol counseling... You're lucky if you get a kid or if you get an ICU patient" (Public 1, *Personal Interview*, 2017). As a result, private clinical work can sometimes become monotonous. Other private dietitians noted favoring the freedom to work in a specialized area. One caveat to this benefit is that the nature of the

competitive, oversaturated market means that dietitians might have to take on cases outside his or her specialized area in order to earn a living.

Public sector dietitians comparatively see more cases involving protein energy malnutrition, HIV, and TB, which added diversity and complexity to the work. The patient profiles and clinical case diversity keep dietitians interested in government hospital work.

### **Rewards of Job.**

The rewards of one's job thematically resulted from recognition from patients and feelings of value by helping disadvantaged populations. One government dietitian stated, "The patients and the community were so friendly and respectful, and it was a pleasure to work with them" (Respondent 6, 2017). Conversely, private dietitians (11.9%) expressed frustration over ungrateful, non-compliant patients. Private dietitians disliked "difficult clients" (Respondent 12, 2017) and "working hard on diet plans that are seldom followed closely" (Respondent 58, 2017). In the free-response survey questions, there were no negative patient accounts from government dietitians and no positive patient accounts from private RDs.

Government dietitians were additionally motivated by working with disadvantaged populations. One public sector dietitian stated, "There is so much more gratitude from helping the person who has nothing, than helping the person who has everything and doesn't really want to be helped themselves" (Public 1, *Personal Interview*, 2017). 24.5% of respondents mentioned the satisfaction from helping disadvantaged communities during their CS year. One important nuance is the emotional strain resulting from feeling unable to support those in need. Regarding their pediatrics experience in a government hospital, a dietitian reported: "It was starting to affect me emotionally to see the malnutrition and the social issues, because even if you can help someone, they keep coming back, and you weren't getting good results" (Private 4, *Personal*

*Interview, 2017*). In the private sector, 11.9% of dietitians reported the personal rewards of striving to help people successfully meet nutritional goals.

### **Stress.**

Private dietitians overwhelmingly (59%) liked the flexibility to set their own schedule and maintain a work-life balance. As the majority of KZN dietitians are female, many dietitians emphasized time flexibility for family purposes. Conversely, private dietitians frequently reported stress over income security, which was compounded by the “oversaturated” workforce (Public 3, *Personal Interview, 2017*). Dietitians indicated an additional pressure to market their services, as it is their own business. In probing into the favorability of the proposed NHI contracting model, private dietitians indicated they would consider applying for a contracted post. The favorability of the contracts was conditional, such that “dietitians are not restricted to being only contracted within those hospitals, [but] are able to do some private work on the side” (Private 3, *Phone Interview, 2017*).

In the public sector, dietitians noted an overwhelming number of patients. As alluded to earlier, the diverse patient profiles in government hospitals did sometimes create an emotional burden for dietitians. These feelings are exacerbated by strict screening guidelines that dictate when resources can and cannot be given to patients. The inflexibility of the public workday schedule was also reported as a principal barrier to working in government hospitals. Other reported barriers included demographic hiring requirements and expectations of low compensation.

### **Analysis**

The findings revealed strong interrelationships within four larger branches driving labor attrition: financial, social workplace, physical workplace, and personal incentives. The saliencies of satisfiers within these branches were determined based on frequency of mention, statistical significance, and strength of argument, according to the researcher's judgment, as proposed in Ashmore's methodology (2013). *Table 3* summarizes the saliency of the job satisfiers and dissatisfiers by sector, according to the financial, social, physical, and personal/emotional branches. The subsequent analysis discusses the saliency analysis in relation to secondary literature and their relevant policy implications for labor retention.

Table 3.

*Summary Table of Salient Job Satisfiers and Dis-satisfiers by Job Satisfaction Theme**Key: +/- (Low Salience), ++/- - (Moderate Salience), +++/- - - (Strong Salience)*

<b>Theme</b>	<b>Public Satisfiers</b>	<b>Public Dis-satisfiers</b>	<b>Private Satisfiers</b>	<b>Private Dis-satisfiers</b>
<b>Salary</b>	Set salary ++	Low salary - -	Perception of higher	Income insecure - - -
	Benefits +	Inflexible contracts -	income opportunities ++	Low salary - - Overhead costs -
<b>Promotion</b>		Understaffed, yet posts unavailable - - -		Promotion only outside clinical practice -
<b>Professional/Skill Development</b>	Clinical variety +++ CS training +++	Time for formal skill development -		
<b>Dietetic Colleagues</b>	Mentorship +++ Team dynamic ++	No mentorship if department not established - -	Referral-sharing in larger hospitals +	Territorial practice politics - - -
	<b>Non-Dietetic Colleagues</b>	High staff turnover limits continuity - Lack of respect - -	Develop professional doctor relationships +	Marketing services - - - Lack of respect - -
<b>Communication</b>	Integration within MDTs +++	Language barriers in CS year -		Working along can be isolating -
<b>Work Environment</b>		Staff shortages - - - Resource limits- - - Admin duties -	Time/resources+++ Facilities ++	
<b>Nature of Work</b>	Patient profiles diverse ++		Ability to work in field of interest ++	Lifestyle diseases - - Monotonous -
<b>Rewards of Job</b>	Feeling of value and gratitude +++	Emotional strain of being unable to help -	Satisfaction seeing patient progress ++	Poor patient compliance - -
<b>Stress</b>	Standard protocols and guidelines +	Work can be overwhelming -	Flexibility in work hours +++	Workforce oversaturated - -

### **Financial Incentives and the Policy Implications**

Dietitians across both sectors were dissatisfied with remuneration and promotion. Public dissatisfaction about promotion was highly pronounced and appeared as a major “push” factor away from government work. The level of dissatisfaction is congruent with both nurses (George, Gow & Bachoo, 2013, 4; Pillay, 2009, 3) and medical specialists (Ashmore, 2013, 4).

Despite dissatisfaction over government salaries and promotion, dietitians favored the government salary payment model—which offers set salaries—over the private sector payment model, which creates concerns over salary certainty and job security. In a study of Gauteng health practitioners, researchers found a statistically significant relationship between perceived job security, job satisfaction, and organizational commitment (Mafini and Dlodlo, 2014, 10). Drawing upon these findings, the “certainty” aspect of government work could help incentivize and “pull” private dietitians to work in the public sector. These nudging and pulling strategies reflect how behavioral economics principles can enhance the marketing of retention strategies to dietitians, without raising the cost.

Contrary to common perception, reported salary was not a significant predictor of aggregate job satisfaction, nor did salaries differ by sector. This insignificance implies that salary-related labor attrition is more likely attributed to *perception* than actual monetary value. During the interviews, dietitians frequently expressed perceptions of greater private sector financial opportunity, which “pulled” them towards the private sector. This pulling effect has been observed amongst South African medical specialists (Ashmore, 2013, 5) and amongst physicians in a global meta-analysis on labor attrition between health sectors (El Koussa, Atun, Bowser & Kruk, 2016, 4). In relating these findings to the current analysis, there must be a concerted effort to target false perceptions about private sector salaries to improve public

retention rates. Changing perceptions will help slow the oversaturation of the private labor force. Oversaturation in the private clinical space is increasingly pushing dietitians towards industry, where salaries are perceived to be even more lucrative than the private clinical sector.

In order to improve perceptions of public financial opportunity, efforts should target “career pathing” for government dietitians. Dietitians frequently expressed concern over the lack of higher posts, causing their salaries to stagnate despite long tenures. Dietitians also referenced the inability to improve their skillset. Similarly, government nurses were significantly less likely to receive in-service training compared to private nurses (George, Gow, and Bachoo, 2013, 4). The lack of formalized training prohibits opportunities that could qualify dietitians for higher posts. In relating the lack of opportunities for promotion and salary advancement to Herzberg’s underlying theory of job satisfaction, the inability to advance has further effects on recognition, responsibility, and achievement from other colleagues (Maslow, 1954 in Huitt, 2007, 2).

In designing additional policies for promotion, retention strategies should target recent CS graduates. Dietitians generally expressed high satisfaction regarding their CS year (Visser et al., 2006, 10). However, dietitians also frequently noted a lack of dietetic posts for working beyond the CS year. In fact, two interviewees revealed having a sustained period of unemployment, despite their CS hospital dietetic departments being understaffed. As the DOH aims to improve the human resource distribution (Department of Health, 2015, 15), the DOH should improve opportunities for dietitians to stay on at their CS placement hospital, should they desire to. This strategy would help maximize the organizational commitment of young dietitians in rural government hospitals. This strategy could work in tandem with the NHI contracting scheme, by giving dietitians who are completing their CS year extra incentives to continue working—at least part-time—in government hospitals.

### **Social Workplace Incentives and the Policy Implications**

Social workplace incentives include professional relationships and communication networks with dietetic and non-dietetic colleagues. These relationships influence hospital team dynamics. The strong presence of MDTs and mentorship within government hospitals was incredibly salient to public satisfaction. This trend is consistent with findings from South African medical specialists who described the public sector offering “collegiality” and “camaraderie” (Ashmore, 2013, 6). Conversely, the private sector salary model appeared to make these team dynamics more limited. Mackenzie’s survey revealed reports of limited collegiality amongst dietitians and a lack of respect from non-dietetic colleagues in the private sector (2008, 47). Across other professions, this competitiveness was apparent in medical specialists (Ashmore, 2013, 6), though this trend was *not* apparent in a survey of nurses (Pillay, 2009, 5). According to the aforementioned salary framework explanation, it would make sense that nurses do not follow this trend; the nursing profession does not operate through the same model of referrals, due to the nature of nurses being the first point of contact for patients in medical settings.

In assessing the policy insights, it is imperative to uphold the favorability of public sector professional relationships. In expanding private dietitian contracting through the NHI system, one government dietitian expressed concern that contracted private dietitians won’t be integrated into dietetic departments in government facilities. The dietitian stated, “They might be here three times a week to see random patients, whereas the patients deserve continuity.” With this account in mind, it is advisable to run focus groups with government dietitians to evaluate how to integrate contracted dietitians into MDTs, in order to maximize efficiency and patient care.

### **Physical Workplace Incentives and the Policy Implications**

Physical workplace incentives strongly favor the private sector due to major resource differences. Resource incentives appeared to “pull” dietitians towards the private sector. In the literature, government hospital workplace dissatisfaction due to resources has similarly been observed among nurses (George, Gow & Bachoo, 2013, 4; Pillay, 2009, 5-6), histopathologists (Ruggunan & Singh, 2013, 7), and medical specialists (Ashmore, 2013, 5).

In order to improve staffing, the DOH must consider a reorientation of physical and financial resources. In South Africa’s National Development Plan of 2030, nutrition services were deemed fundamental to achieving holistic health care (Department of Health, 2012, 28). Thus, the frequent mention of understaffed dietetics departments represents a failure to fulfill this national commitment to nutrition. While increasing staff is extremely costly, the creation of additional posts would have vast benefits for patient outcomes. Hospitals would be able to handle a higher influx of patients and dietitians would, in theory, be able to spend more time communicating with patients to improve nutritional outcomes. Additional posts would also reduce the costs of understaffing, including high workload, stress, burnout, and low motivation.

### **Personal and Emotional Incentives and the Policy Implications**

Dietitians across both sectors commonly expressed their passion for dietetics. Only two respondents in the entire sample—including one from each sector—reported any level of dissatisfaction. Government dietitians additionally noted considerable satisfaction from helping disadvantaged and diverse populations. These findings are highly concordant with the qualitative findings of Mackenzie’s 2007 study of dietitians (Mackenzie, 2007, 28). In devising strategies to market NHI government contracts to private dietitians, the population base and clinical case diversity could be two elements to highlight.

As described previously, the government hospital patient profiles did sometimes create an emotional burden for dietitians. In relation to Herzberg's two-factor theory of job satisfaction (Maslow, 1954 in Huitt, 2007, 2), the paired emotional satisfaction of helping under-resourced patients and the related emotional burden from feeling unable to do enough reflects psychological aspects of job satisfaction as they are related to feelings of "achievement." Moreover, the implications of this intrinsic mediator of job satisfaction relate to the challenges of modifying the larger economic structural forces that shape resource allocation for patients. Given the high budgetary cost and political challenges, resource reallocation should be part of a longer-term national strategy to reduce inequities, though this is out of scope for the current analysis.

The job satisfaction derived from workday flexibility is congruent with findings of desire for autonomy in one's work day schedule amongst South African histopathologists (Ruggunan & Singh, 2013, 6). In order to incentivize private dietitians to reconsider government hospital work, NHI contracting schemes should offer a range of flexible contract options. These options should vary by time commitment, expected working hours, and on-call requirements. Instead of progressing linearly by number of hours worked, salaries and benefits should reward dietitians willing to engage in more government work. These contract options would need to be piloted amongst dietitians, as done in Hongoro et al.'s study with GPs (2015, 75). Pilot research will further help assess the expected uptake of contracts and modify them as needed.

### **Conclusion**

This project aimed to understand the factors driving choice of workplace amongst clinical dietitians in KwaZulu-Natal. In evaluating aggregate job satisfaction using regression modelling, private sector dietitians were found to be 12.43 points happier than public dietitians on the 12-question job satisfaction survey, after controlling for salary level, employment setting, time in current job, university, degree level, and specialty. Using a thematic analysis, government dietitians described attractive advantages related to interpersonal relations with dietetic and non-dietetic colleagues, personal feelings of value, and salary stability, though were highly dissatisfied by physical working conditions and career pathing opportunities. Private sector dietitians reported having advantages in relation to physical workplace resources, flexibility in work hours, and salary levels. Private sector dietitians reported being dissatisfied with income insecurity, the competitiveness of dietetic colleagues, and the burden of having to market one's dietetic services, which may be attributed to an oversaturation of dietitians in the private sector.

Long-term strategies to minimize the "push" factors from the public sector should target physical workplace conditions, staffing shortages, and career pathing opportunities. Shorter term strategies aiming to "pull" dietitians back to the public sector should market the public sector's diversified cases, stable work, and strong team dynamics. In order to improve the uptake of NHI contracts, contracts should include a range of flexible options that allow dietitians greater time agency. With flexible options, these findings indicate that private dietitians are likely to be interested in the contracting scheme. As retention strategies are piloted and implemented in the near future, evaluation should critically analyze roll-out feasibility, cost sustainability, profession-specific uptake rates, and the overall impact on patient care.

### **Recommendations for Further Study**

This research provides preliminary insight into the drivers of labor attrition and retention between health care sectors amongst clinical dietitians in KwaZulu-Natal. Given the non-random sampling methods, the findings from this research are not necessarily generalizable to all clinical dietitians in KZN. Future research should involve a nationally representative sample to enable more robust analysis of the drivers of labor attrition and retention. Despite the logistical complexity, future research in this domain should also incorporate country-level ethical review, such that the perspectives of government dietitians are adequately reflected in the data.

Besides expanding the scope of research, further research should evaluate pilot programs and investigate alternative policy options to improve public sector retention. Such research is vital in order to maximize the cost-effectiveness, efficiency, and patient benefits from any wide-scale implementation of health practitioner retention strategies.

Lastly, future research could also investigate out-of-country and out-of-profession migration in South Africa. Given the high and increasing burden on nutritional services, there will be added incentives to effectively retain and monitor this workforce in future years.

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Appendices

Appendix A. Ethical Clearance

**Duke Institutional Review Board.**

[IRB]- Notice of Protocol Approval

Protocol: [E0084] Proposed Title: Push-Pull Factors Influencing Job Satisfaction of Dietitians in Public and Private Hospitals in Durban, South Africa

Researcher(s): Raichel Perper (Undergraduate Researcher), Sherryl Broverman (Advisor)

Expiration Date: 3/14/2018

**SIT Local Review Board.**



**Human Subjects Review  
LRB/IRB ACTION FORM**

<p>Name of Student: <i>Raichel Perper.</i></p> <p>ISP Title: <i>Push and Pull Factors for Nutritionists.</i></p> <p>Date Submitted: 6 April 2017</p> <p>Program: Durban Community Health and Social Policy- Spring 2017</p> <p>Type of review:</p> <p>Exempt <input type="checkbox"/></p> <p>Expedited <input checked="" type="checkbox"/></p> <p>Full <input type="checkbox"/></p>	<p>Institution: World Learning Inc. IRB organization number: IORG0004408 IRB registration number: IRB00005219 Expires: 9 December 2017</p> <p>LRB members (print names): John McGladdery Clive Bruzas(PhD) Francis O'Brian(PhD)</p> <p><b>LRB REVIEW BOARD ACTION:</b></p> <p><input checked="" type="checkbox"/> Approved as submitted  <input type="checkbox"/> Approved pending changes  <input type="checkbox"/> Requires full IRB review in Vermont  <input type="checkbox"/> Disapproved</p> <p>LRB Chair Signature: </p> <p>Date: 6 April 2017</p>
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Form below for IRB Vermont use only:

Research requiring full IRB review. ACTION TAKEN:

approved as submitted  approved pending submission or revisions  disapproved

\_\_\_\_\_  
IRB Chairperson's Signature

\_\_\_\_\_  
Date 6 April 2017

## Appendix B. Recruitment Materials

### ADSA Email Recruitment.

#### Short online survey for dietitians in KwaZulu-Natal

Raichel Perper, a student at Duke University in America, is currently studying in South Africa this year. She is completing an undergraduate Bachelor of Arts thesis looking at the motivations underpinning dietitians' choice of workplace between the public and private sectors in KwaZulu-Natal. A kind request has been made to all dietitians in KZN to fill out a short online survey. The survey should take 15-20 minutes and can be completed at a time of your convenience before April 28th. The survey can be found [here](#).

**Institution:** Duke University in America

**Type of project:** Undergraduate Bachelor of Arts thesis

**Contact person:** Raichel Perper | [raichel.perper@duke.edu](mailto:raichel.perper@duke.edu)

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#### ADSA

You have received this email because you are a member of our association or because you have participated in some of our association activities.

### Sample Telephone Script.

- Hi, my name is Raichel Perper. I am an American student at Duke University, and I am studying abroad in South Africa.
- I was given your number by \_\_\_\_\_, as I am conducting research for my thesis project to learn about the experiences of clinical dietitians in KZN, and \_\_\_\_\_ suggested you might be a great person to contact.
- I am hoping to learn about the public and private sectors in South Africa and was wondering if you might be willing to fill out a short, online questionnaire about your experience as a dietitian here in KZN.
- *Answer any questions about my project, my education, and other questions they have.*
- *Before call ends:* Do you mind if I ask for your email so I can send a short follow up with the project details?

## Appendix C: Research Instruments

### Interview Guide.

#### Education/General Motivations

1. Tell me a little bit about your decision to study to become a dietitian.
2. Where did you spend your community service year?
3. What was your experience like during your community service year?
  - Was there anything in particular you really liked about your time there?
4. How did your community service year shape what you were looking for in your first job as a dietitian?
5. Have you chosen to pursue any additional specialist training?
  - What motivated you to pursue additional training in the field?

#### Experience as a Dietician

6. Do you mind telling me about the history of your working life as a dietician since finishing your degree?
  - Probe into job changes: I am particularly interested in your reasons for entering and leaving different jobs.
    - i. Why did you make the decision to switch between \_\_\_ and \_\_\_?
    - ii. How was your experience working as a dietician different at \_\_\_ and \_\_\_?
      1. Probe 1: Financial Incentives
      2. Probe 2: Opportunities for Advancement in Career
      3. Probe 3: Job stability
      4. Probe 4: Working conditions (physical)
      5. Probe 5: Working conditions (social environment/network)

## 6. Probe 6: Patient profiles/ complexity of everyday schedule

- If first job: Continue onto Question 7.
7. Tell me about your experience working at \_\_\_\_ (current job).
- What do you find most appealing about your current job?
  - Is there anything you wish was different about your current job?
8. What do you think is most attractive about working in the \_\_\_\_ sector? (*Sector the interviewee is currently working in.*)
9. Do you think you would ever go (back) to work in the \_\_\_\_ sector?
- Additional probe: What is holding you back from transitioning (back) to there?

*Future of the Dietetics Profession*

10. Do you mind telling me a little about what you've heard regarding the implementation of National Health Insurance in South Africa?
11. Do you anticipate the NHI model impacting your dietetics practice at all? If so, how?
- Additional probe for private sector: Do you have any interest in working in the public sector, if contracts should become available?

**Online Survey.**

What is your age?

What is your gender?

Male

Female

Which institution did you graduate from as a dietitian?

Medunsa University

University of Cape Town

University of Pretoria

Nelson Mandela University

University of the Free State

University of Venda

North-West University

University of KwaZulu-Natal

University of Western Cape

Sefako Makgatho Health  
Sciences UniversityUniversity of Limpopo  
Turfloop Campus

Other:

Stellenbosch University

What is your highest level of education?

Bachelor (BSc)

Masters

Postgrad Diploma

Doctorate

Honours

Approximately, how long have you practiced as a dietitian in the **public sector**, excluding your community service year?

Which best describes the area in which you completed your community service year?

Rural/semi-rural

Urban/semi-urban

I did not complete a  
community service year

Please state what you **liked most** about your **community service year**. *If you did not complete a community service year, please write "Not applicable" in the space below.*

Please state what you **liked least** about your **community service year**. *If you did not complete a community service year, please write "Not applicable" in the space below.*

Approximately, how long have you practiced as a dietitian in the **private sector**?

Do you have an **area of expertise** in your dietetics practice? *Tick all that are applicable.*

General	Eating Disorders	Oncology
Allergies	Intensive Care	Paediatrics
Diabetes	GIT	Renal
Cardiovascular	Mental Health	Other:

What is your current employment status?

Full-time	Part-time	Other:
-----------	-----------	--------

Do you have an employment contract for your current position?

Yes	No
-----	----

What dietetic setting are you currently employed in? *Tick all that are applicable.*

Private Hospital	DOH Provincial/Tertiary Hospital
Private Sector (Non-hospital)	DOH Central Hospital
DOH Clinic	DOH Specialised Hospital
DOH District Hospital	Other: Please Specify
DOH Regional Hospital	<input type="text"/>

Which best describes the area in which you are currently working?

Rural/semi-rural	Urban/semi-rural
------------------	------------------

Approximately, how long have you been in your current job?

What is your current gross annual salary, before taxes?

<R39 999	R120 000- R159 999	R240 000- R279 999
R40 000- R79 999	R160 000- R199 999	R280 000- R319 999
R80 000- R119 999	R200 000- R239 999	>R320 000

What is/are your reason(s) for being in your current job? *Please tick more than one if applicable.*

It is my passion	Good perks
Good salary	Convenience
Close to home	Build skill set
Only job available	Other:

Please state what you **like most** about your **current job**.

Please state what you **like least** about your **current job**.

As a professional, where do you see yourself in five years?

In the same job
In a different job as a dietitian in the same health sector
In a different job as a dietitian in the other health sector
In a different job not as a dietitian
Other:



## Appendix D: Informed Consent Materials

### Interview Informed Consent Form.

**Contact Details:** Raichel Perper **Email:** [raichel.perper@duke.edu](mailto:raichel.perper@duke.edu) **Phone:** +27 72 023 7764

My name is Raichel Perper, and I am a third-year undergraduate student at Duke University, completing a degree titled Health Care Outcomes: Systems and Citizens. I am inviting you to participate in a research project that I am conducting to understand the different motivations and incentives for South African dietitians to work in either public or private-sector hospitals.

Your participation in the study will consist of a single one-on-one interview. The interview is intended to take 30-45 minutes, at a time and location of your convenience. I will ask some questions about your educational experience and your general motivations for choosing dietetics. I will also ask some questions about your experience in the dietetics field in the public or private sector (or both) and your decision to work in the sector you are currently working in. Lastly, I will ask questions regarding your insight into the future of the dietetics field in light of upcoming changes to the South African health system. While I do not anticipate such, if there are any questions you prefer not to answer, just let me know and we can move onto the next question. Your answers for each question can be as long or as short as you like.

In an endeavour to uphold the ethical standards of research, this project has been reviewed and approved by both Duke University's and the School of International Training's (SIT) Institutional Review Boards. Please review the following procedures:

**Privacy:** The information you present in this interview will be audio-recorded, for the purpose of accurately capturing the conversation. All interview audiotapes will be deleted immediately after transcription. Please let the researcher know if you would not like for the interview to be audio-recorded for any reason.

**Confidentiality and Anonymity:** All names of participants in this study will be kept fully confidential and protected by the interviewer (myself). I will be storing the transcript on a password-protected computer and secured server. Your name will not be linked to your interview response at any time in the transcript or report. The interview responses will help contribute to a research report and thesis project, both which may be accessible online. If you would like to be

given credit or directly identified, please let me know. Otherwise, I will keep your name completely anonymous and confidential.

***Risks and Benefits:*** This research will not benefit you personally, though I will be happy to discuss the findings of the study with you at its completion and provide a copy of the final report if requested. I do not anticipate any risks to participating in this study. Your participation in this research project is completely voluntary and you are free to withdraw consent and discontinue participation at any time for any reason.

If you have questions about this research project, please do not hesitate to ask me via my contact details, which are provided above. Should you like to speak to someone besides me about the research project, you can also contact my advisors: Christine McGladdery (SIT, [chrismcg@saol.com](mailto:chrismcg@saol.com)) and Sherryl Broverman (Duke University, +1 (919) 668-0228). If you have any questions about your rights as a participant, you may also contact the Chair of the Human Subjects Committee at +1 (919) 684-3030 or at [campusirb@duke.edu](mailto:campusirb@duke.edu).

**Survey Informed Consent Form.**

**Contact Details:** Raichel Perper **Email:** [raichel.perper@duke.edu](mailto:raichel.perper@duke.edu) **Phone:** +27 72 023 7764

Hello, my name is Raichel Perper, and I am a third-year undergraduate student at Duke University in the United States. I am inviting you to participate in a research project to understand the different motivations and incentives for South African dietitians' current choice of workplace. Your participation will involve completing a 20 minute survey, comprised of demographic, education, and employment questions, as well as a series of jobsatisfaction questions. Completion of this survey is entirely voluntary and in your own personal capacity.

In an endeavour to uphold the ethical standards of research, this study has been reviewed and approved by both Duke University's and the School of International Training's Institutional Review Boards. Please review the following procedures:

**Privacy:** All information provided will be safeguarded. I will not be collecting your name in the survey, and therefore, not even I will know who provided which set of responses.

**Anonymity:** All participant names will be kept anonymous. Your responses are not linked to your name, email, or hospital affiliation at any point.

**Confidentiality:** In accordance with Duke University's guidelines, survey response data will be stored for five years. All web-based responses will be saved on a password-protected computer. Aggregate analysis will contribute to a research report and thesis paper, both of which may be available online. No individual survey responses will be shared with any other researchers or professionals and will not be used in any other research.

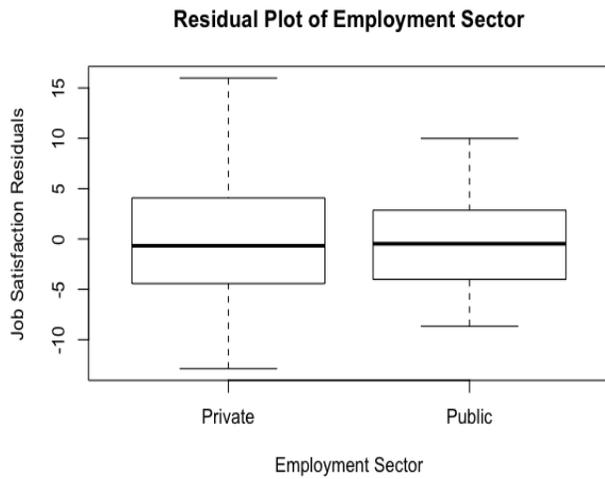
**Risks and Benefits:** This research will not benefit you personally, though I am happy to discuss the findings and provide a copy of the final report if requested. I do not anticipate any risks to participation. Your participation in this research project is completely voluntary and you are free to withdraw consent and discontinue participation at any time for any reason.

If you have questions about this research project, please do not hesitate to ask me (+27 72 023 7764, [raichel.perper@duke.edu](mailto:raichel.perper@duke.edu)) or my advisors: Christine McGladdery (SIT, [chrismcg@saol.com](mailto:chrismcg@saol.com)) and Sherryl Broverman (Duke University, +1 (919) 668-0228). If you have any questions about your rights as a participant, you may also contact the Chair of the Human Subjects Committee at +1 (919) 684-3030 or [campusirb@duke.edu](mailto:campusirb@duke.edu). If you would like to participate in the research project, please click the statement below.

**Appendix E: Regression Model Diagnostics**

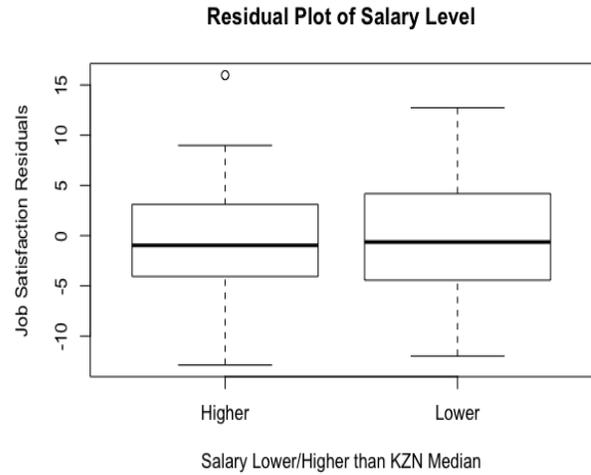
*Figure 2.*

Residual plot for aggregate job satisfaction score by employment sector



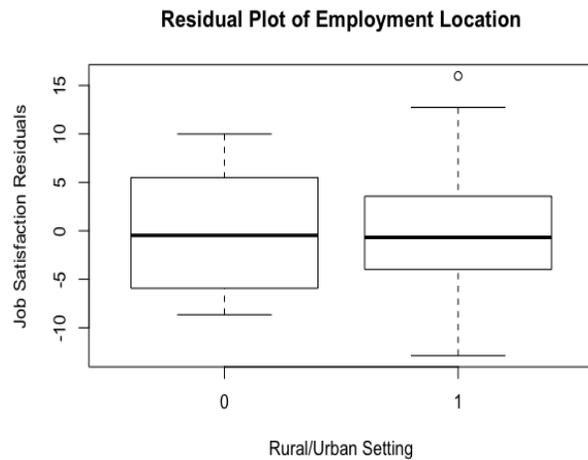
*Figure 3.*

Residual plot for aggregate job satisfaction score by salary level



*Figure 4.*

Residual plot for aggregate job satisfaction score by employment location



*Figure 5.*

Residual plot for aggregate job satisfaction score by length in current job (in months)

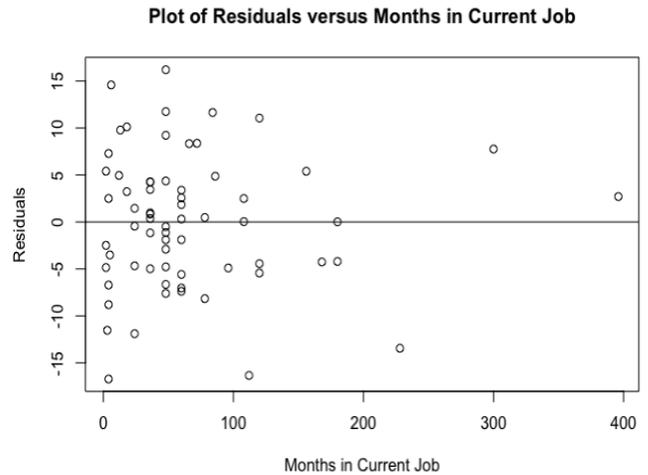


Figure 6.

Residual plot for aggregate job satisfaction score by specialty practice

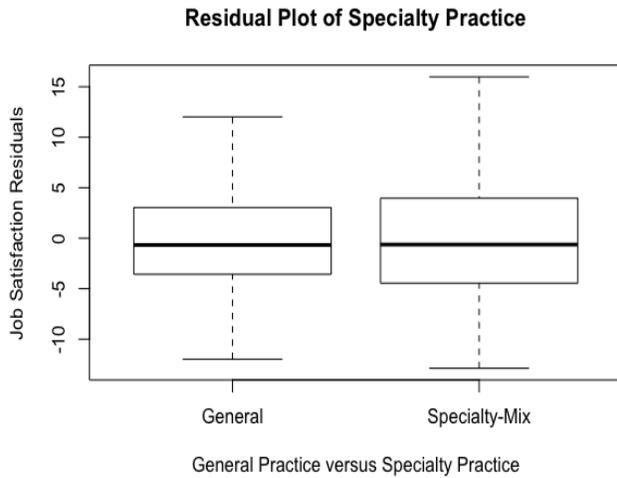


Figure 7.

Residual plot for aggregate job satisfaction score by degree level

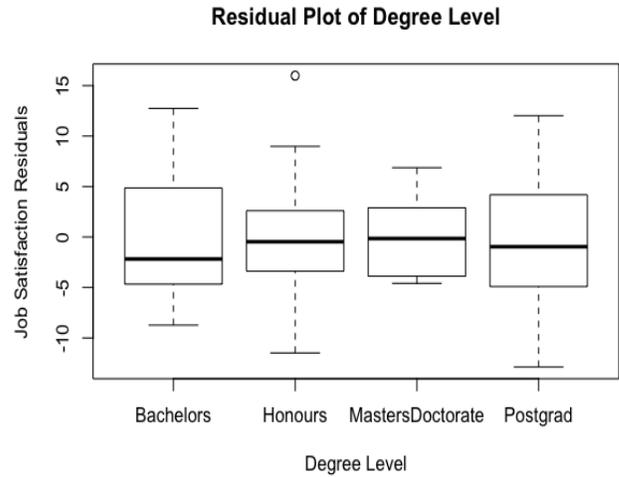
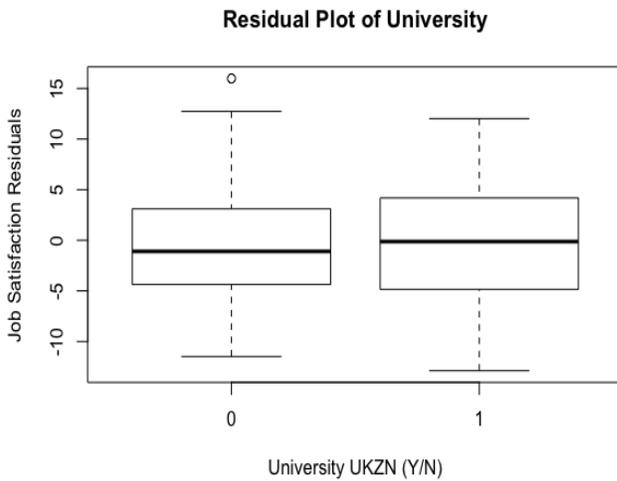


Figure 8.

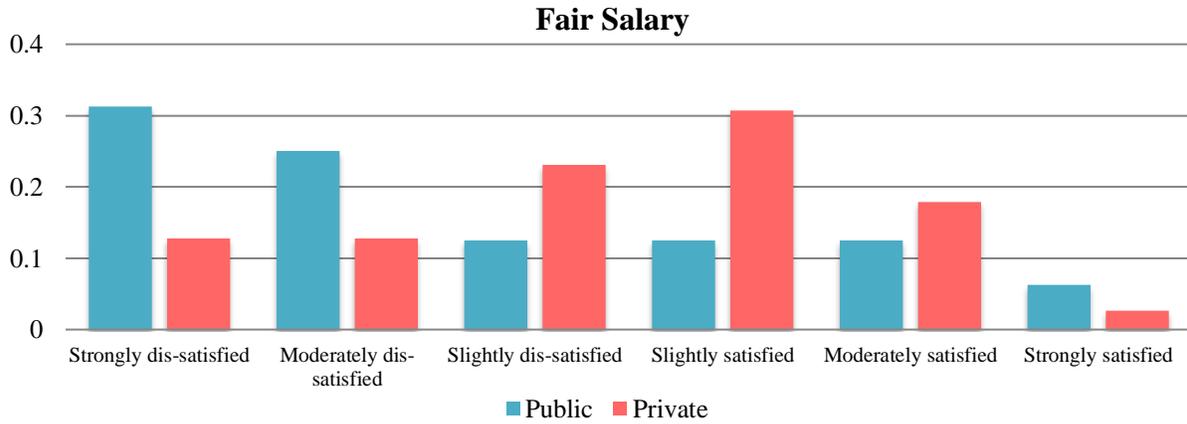
Residual plot for aggregate job satisfaction score by university



**Appendix F: Bar Charts for Each Job Satisfaction Question by Sector**

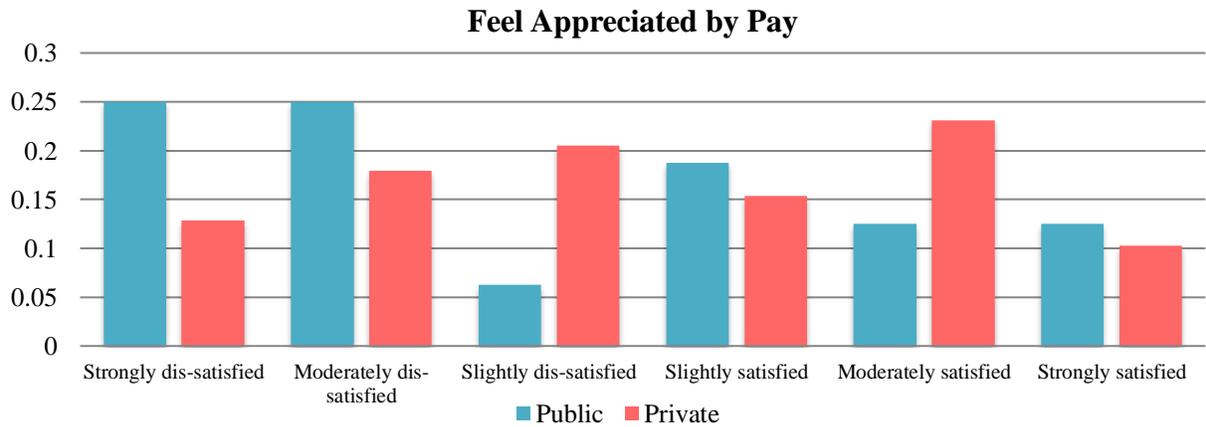
*Figure 9.*

Bar chart of the job satisfaction frequency distribution for salary fairness



*Figure 10.*

Bar chart of the job satisfaction frequency distribution for feeling appreciated by pay



*Figure 11.*

Bar chart of the job satisfaction frequency distribution for promotion with good performance

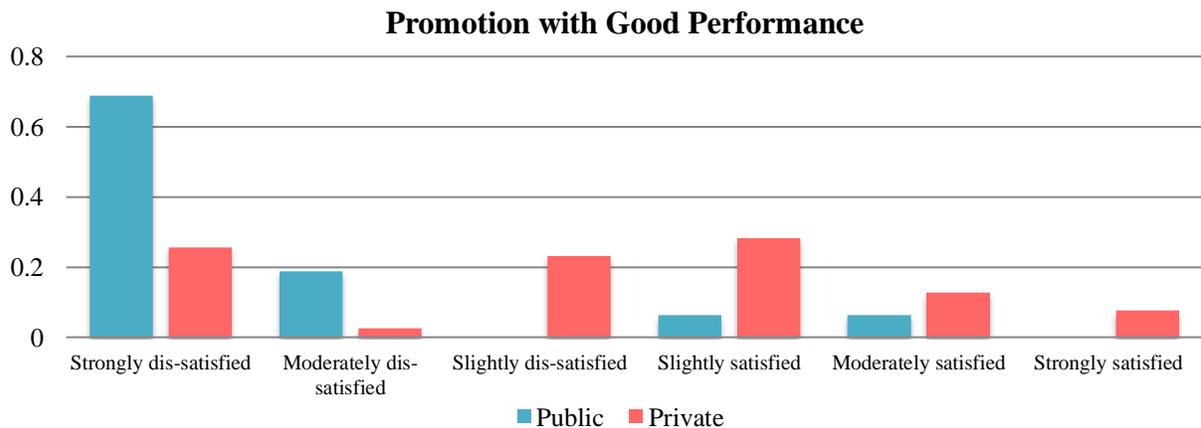


Figure 12.

Bar chart of the job satisfaction frequency distribution for promotion compared to another dietetics job

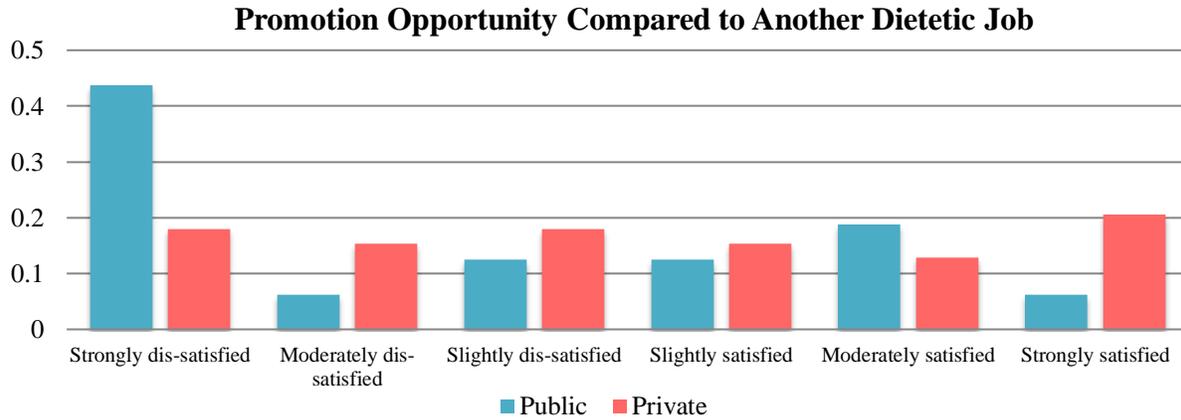


Figure 13.

Bar chart of the job satisfaction frequency distribution for exposure and time for professional development

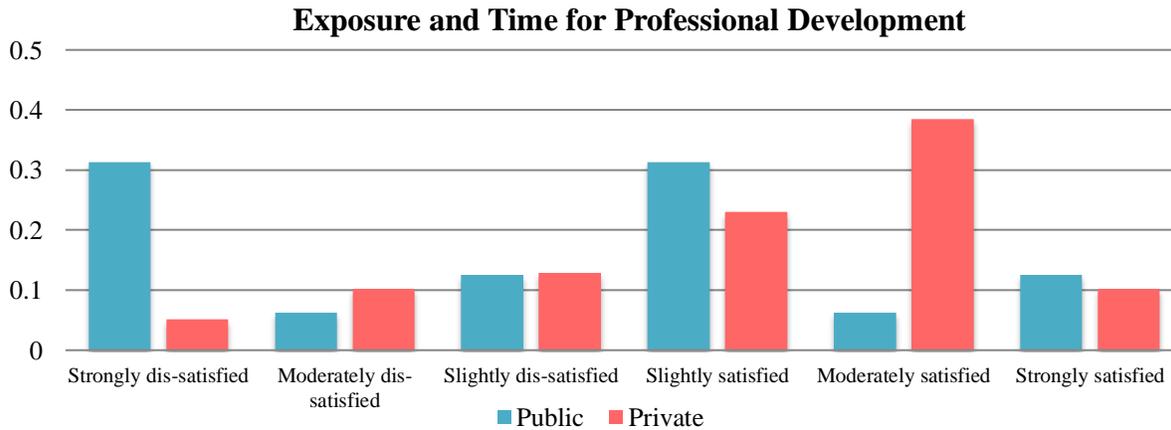


Figure 14.

Bar chart of the job satisfaction frequency distribution for skill improvement in current job

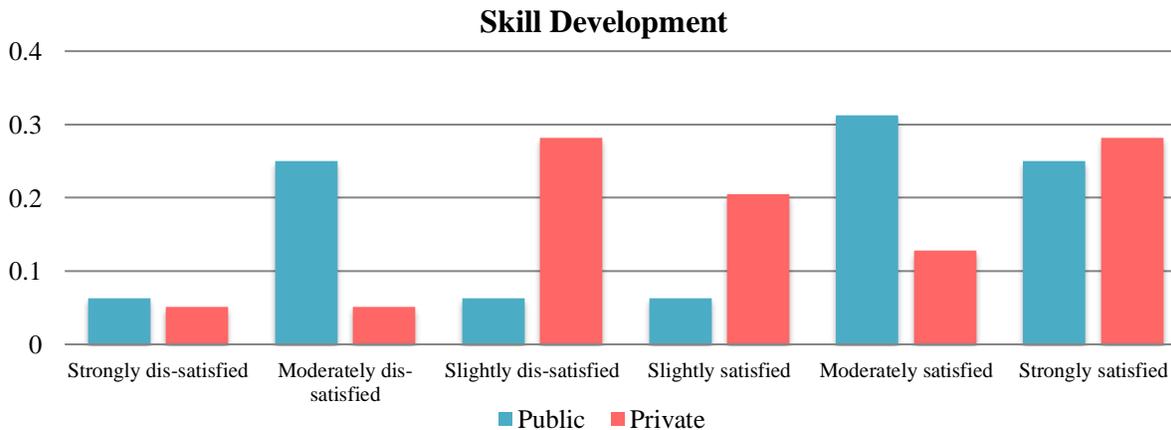


Figure 15.

Bar chart of the job satisfaction frequency distribution for relationship with dietitians

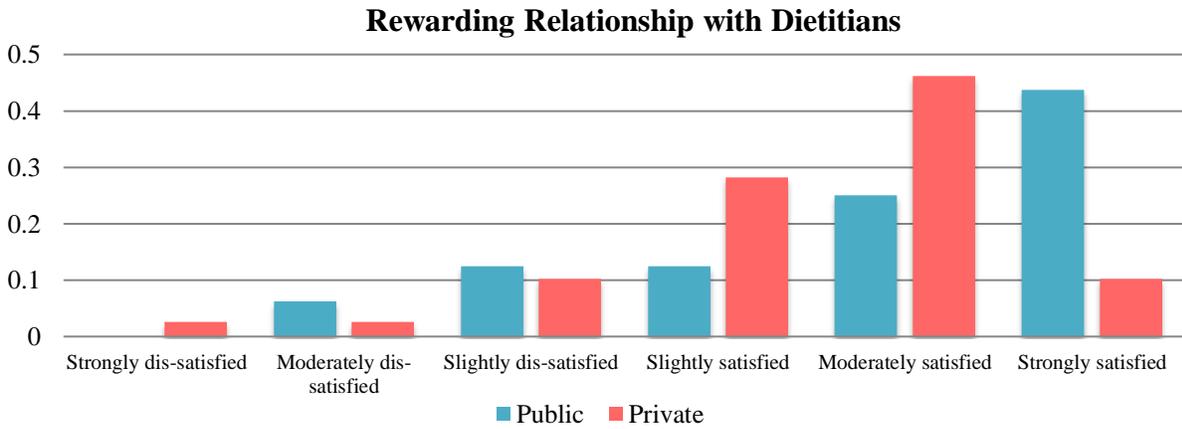


Figure 16.

Bar chart of the job satisfaction frequency distribution for support from fellow dietitians

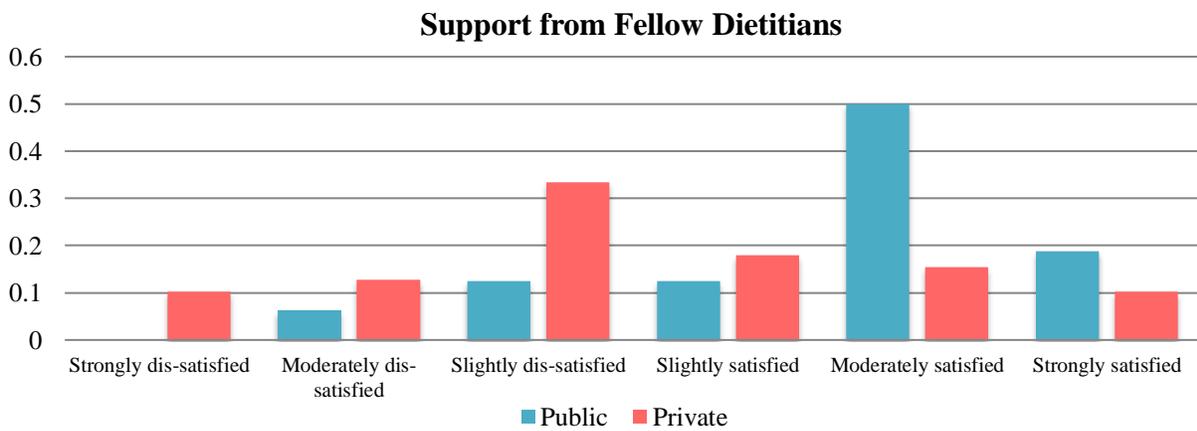


Figure 17.

Bar chart of the job satisfaction frequency distribution for recognition from non-dietetic colleagues

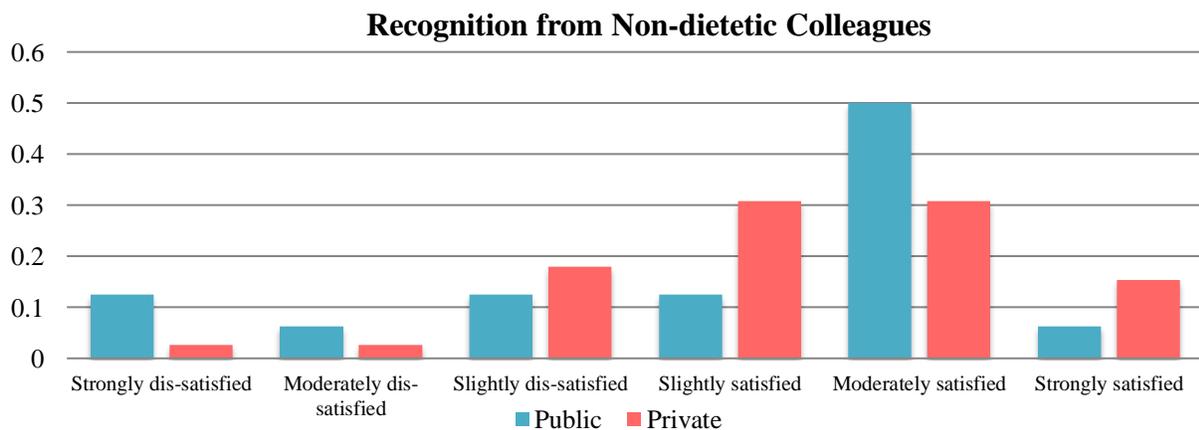


Figure 18.

Bar chart of the job satisfaction frequency distribution for non-dietetic colleagues competence on one's workload

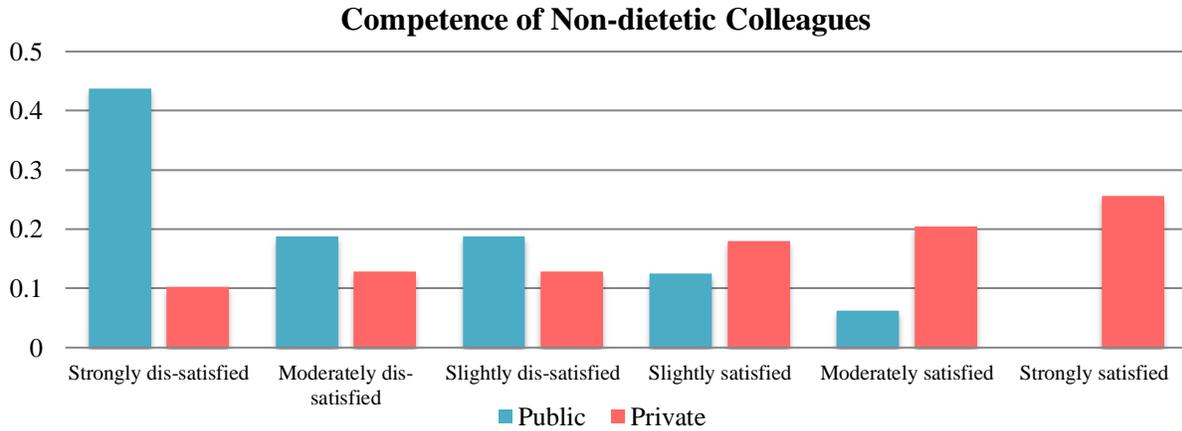


Figure 19.

Bar chart of the job satisfaction frequency distribution for communication network

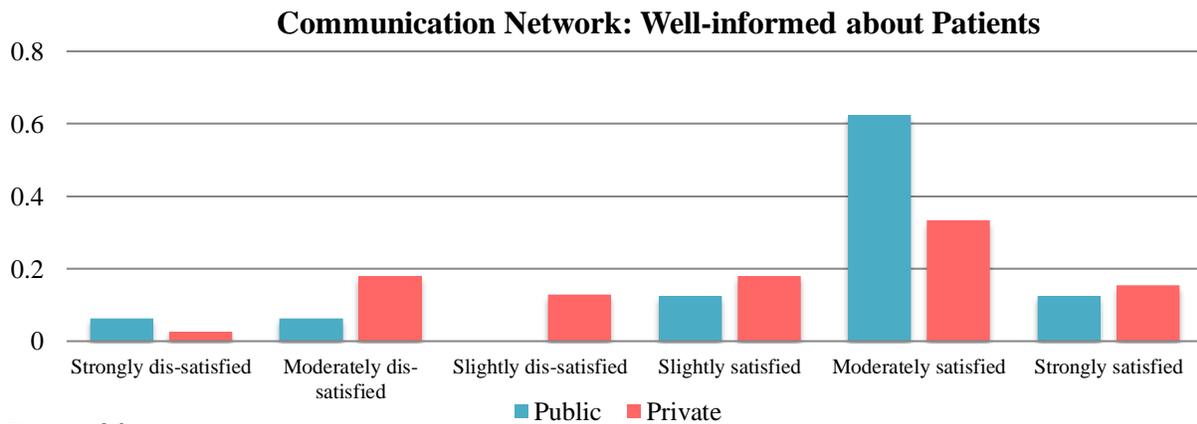


Figure 20.

Bar chart of the job satisfaction frequency distribution for level of isolation



Figure 21.

Bar chart of the job satisfaction frequency distribution for workplace comfort and human resource adequacy

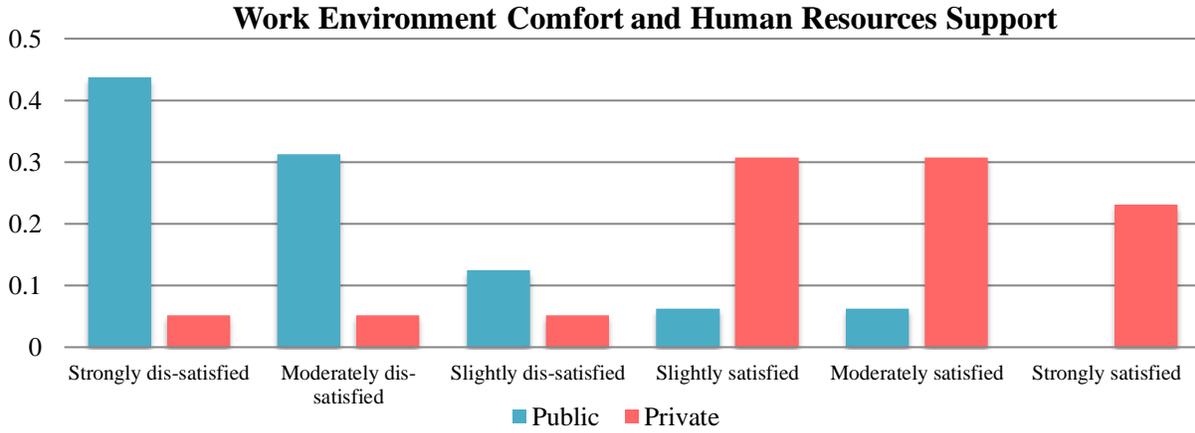


Figure 22.

Bar chart of the job satisfaction frequency distribution for professional guidelines and workload

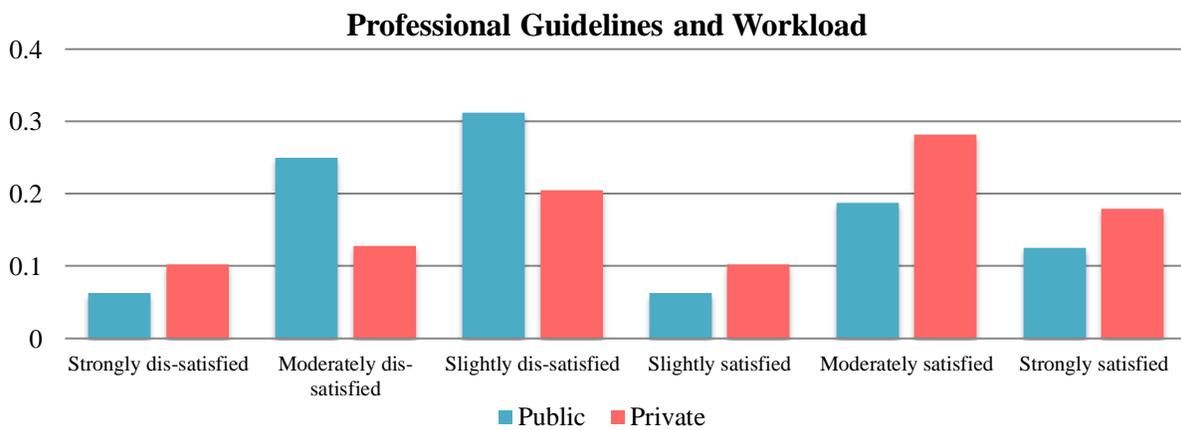


Figure 23.

Bar chart of the job satisfaction frequency distribution for meaningfulness of job

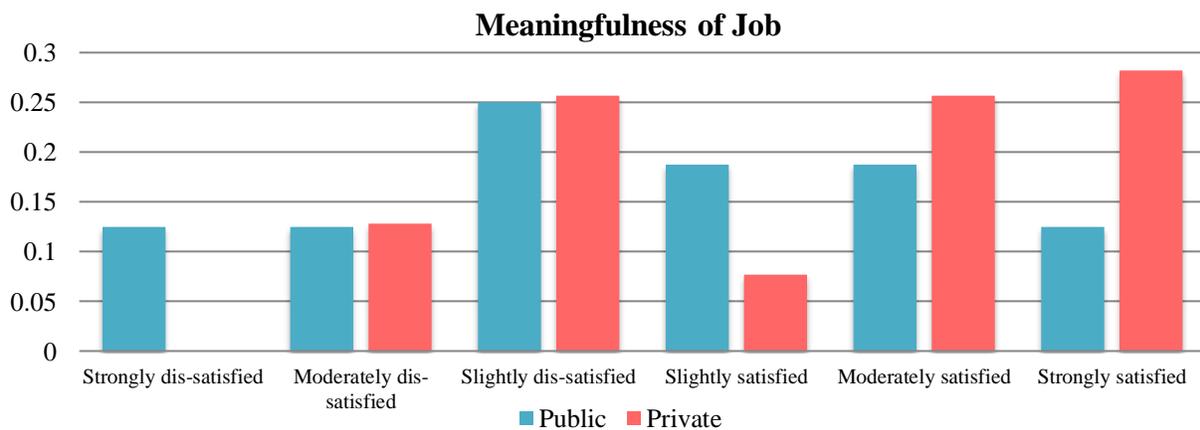


Figure 24.

Bar chart of the job satisfaction frequency distribution for sense of pride in job

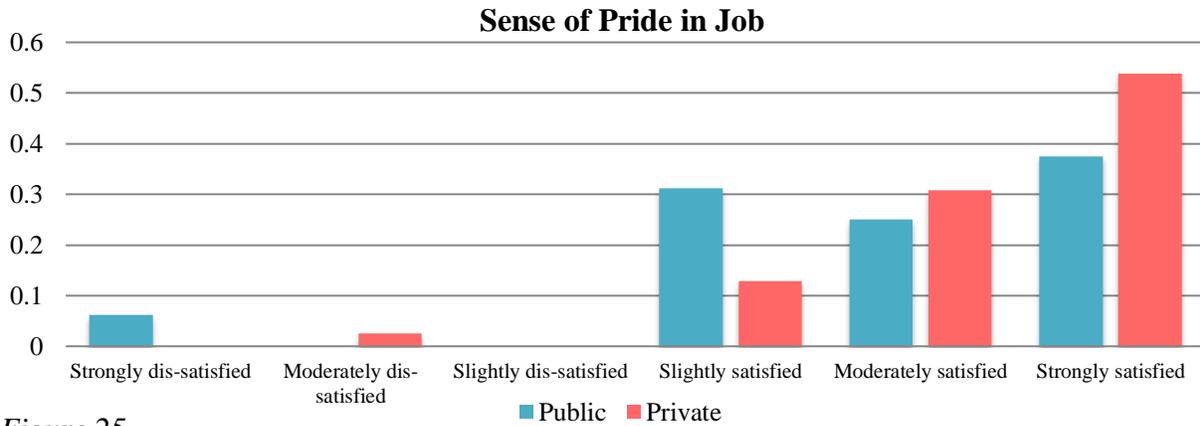


Figure 25.

Bar chart of the job satisfaction frequency distribution for recognition from patients

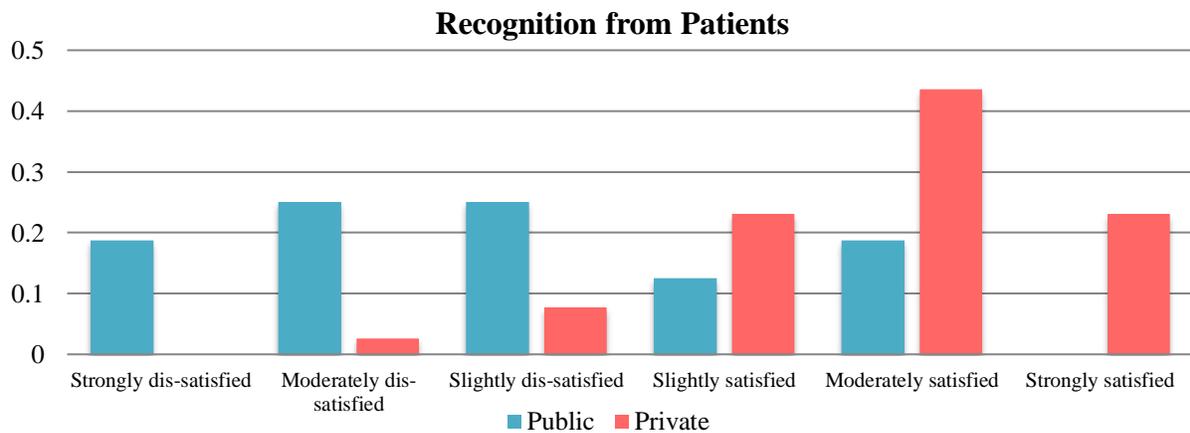


Figure 26.

Bar chart of the job satisfaction frequency distribution for appreciation from patients

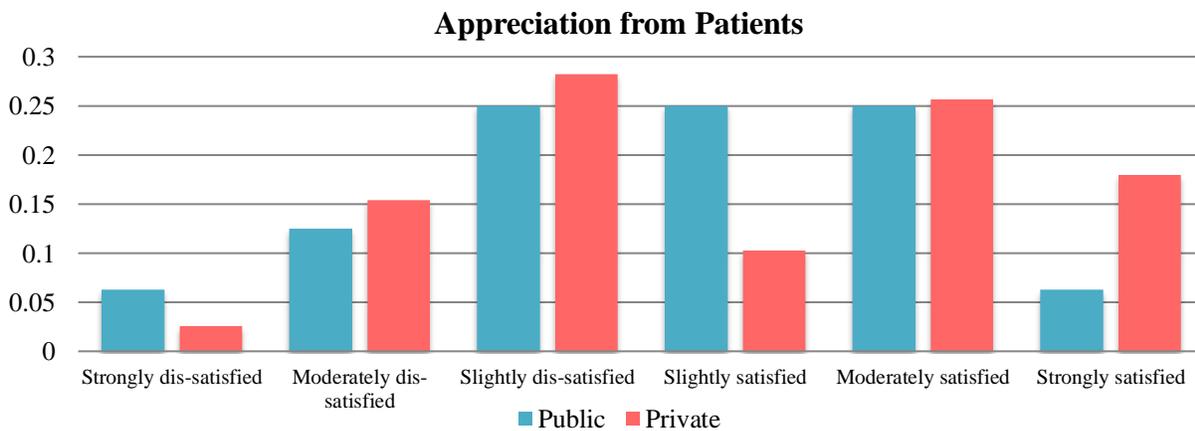


Figure 27.

Bar chart of the job satisfaction frequency distribution for working hours predictability

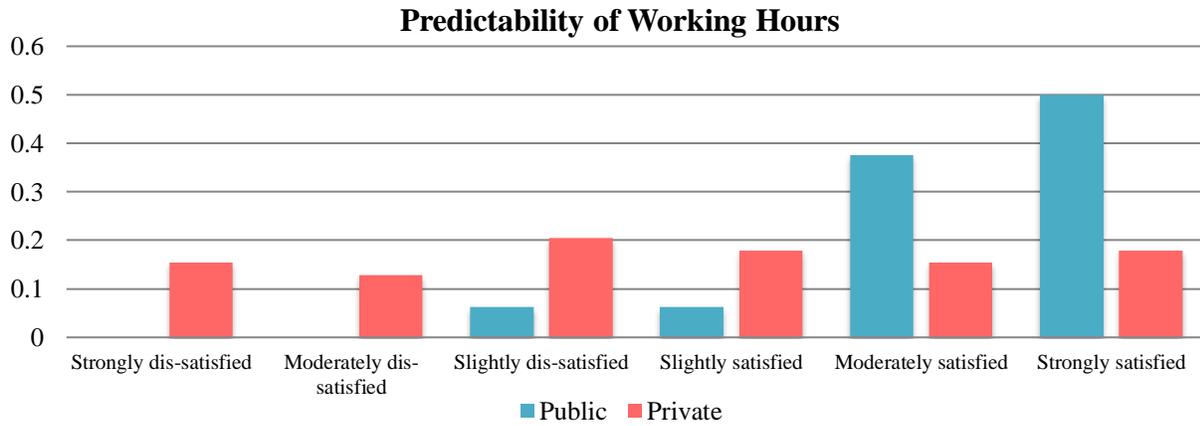


Figure 28.

Bar chart of the job satisfaction frequency distribution for patient load

