Sector switching amongst histopathologists in KwaZulu-Natal, South Africa: A qualitative study.

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Abstract

Background

Public to private sector mobility of health care professionals is prevalent in South Africa. However the literature remains limited to sector switching of clinical doctors and clinical health practitioners such as nurses. There is an extremely limited South African and international literature on the South African labour market and sector switching behaviours of non-clinical doctors and specialists such as medical laboratory specialists, specifically histopathologists. It is against this background that this study hopes to make visible the labour market for histopathologists as well as identify their reasons for sector switching.

Methods

This study is exploratory and descriptive. It uses qualitative methods such as in-depth interviews with 70% (n=16) of the population of histopathologists in KwaZulu-Natal. Lee’s push-pull theory is adapted to explain the ‘push’ sector switching behaviours of histopathologists. Interviews were recorded and independently transcribed. A three person multidisciplinary team, including a histopathologist was involved in the data analysis process. Data analysis was facilitated by Nvivo 10 software.

Results

Six key themes emerged as reasons for the mobility of histopathologists from the public to the private sector in KwaZulu-Natal. The findings indicate that remuneration, working conditions, work flexibility, career mobility, autonomy of labour processes and access to work related resources are the key drivers of this mobility.
Conclusions

Histopathologists along with other medical laboratory specialists provide a core function in the health care chain. However their invisibility in both the public health and human resources for health academic discourse means that very little work is done on the importance of these specialists in the chain of health care. This is especially important in developing countries such as South Africa, where there is a dearth of these specialists. The work done for this study, whilst exploratory, hopes to begin a dialogue on how to better understand reasons for sector switching. This may inform possible policies on training, recruitment and retention of these specialists.

Keywords: Histopathologists, KwaZulu-Natal, Private sector mobility.
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Introduction

The aim of this article is to answer the following question ‘what factors contribute to the mobility of histopathologists from the public sector to the private sector in KwaZulu-Natal, South Africa. The shortage of medical laboratory personnel, particularly histopathologists, is a growing problem both globally and nationally [1-7]. The empirical work on labour market mobility in the health care sector is dominated by studies on clinical doctors and clinical health practitioners whilst there is a dearth of empirical work on the local labour market mobilities of South African medical laboratory specialists. This article aims to fill in the empirical gap in the South African and international literature by rendering visible the labour market for histopathologists in KwaZulu-Natal. In doing so, laboratory based doctors such as histopathologists are shown to be an essential link in the clinical health care chain. As such their retention in the public sector needs to be given priority.

Adapting Lees Push-Pull theory to explain sector switching

The reasons for the sector switching of histopathologists have to be contextualised within the broader context of the global crisis in human resources for health. The analysis of results is shaped by Lee’s push-pull theory. According to Lee, push factors drive people to migrate, whereas pull factors attract them to new work locations [8-12]. Push factors include but are not limited to: a lack of decent employment opportunities; lower salaries; poor working conditions; poor infrastructure and technology; a lower social status; repressive governments; pollution; natural disasters and discrimination. The push-pull theory has been successfully
used to explain the migration of skilled workers from sending to receiving countries. Collectively, work by these researchers [8-12] demonstrates that Lee’s theory remains a relevant and vibrant way of theorising labour migration of skilled workers. Examples of pull factors include training opportunities; better living and working standards; educational opportunities, family links; security; a high level of industrialization; and better medical care, as well as more advanced research conditions [13].

Whilst Lee developed this theory to explain international migration, it provides a useful explanatory framework to understand local mobilities between private and public sectors. Most of the literature on the mobility of medical doctors has applied the push-pull theory to explain global labour migration behaviours. Its application to sector switching is limited to non-existent in the South African literature. The study attempts to adapt the theory by demonstrating its application in understanding sector switching of histopathologists in Kwazulu-Natal.

This particular study focused on factors such as salary rates and working conditions as possible reasons for the sector switching of histopathologists, instead of push factors such as natural disasters, which did not apply to this case study. Based on Lee’s work and subsequent contemporary updates of it, six pull factors and three push factors emerged from the data as reasons for the mobility of histopathologists out of the public sector and into the private sector. The six pull factors are (1) more attractive remuneration, (2) better working conditions and environments, (3) a higher level of work flexibility, (4) improved career mobility, (5) more autonomy of labour processes, and (6) greater access to work related resources. Push factors include (1) Deprofessionalisation in the public sector, (2) decreasing autonomy and (3) public sector managerial style.
The public and private health sectors in South Africa

Theoretically and empirically sector switching is limited in the discourse on public sector organisations [14]. In order to better understand the local mobilities of medical specialists (such as histopathologists), a more contextual and qualitative account of labour markets is needed.

South Africa is among the list of countries that feature what is termed a ‘dual or fragmented health system’ [15-16], and as some commentators have observed health care in post-apartheid South Africa remains problematic and iniquitous. This South African health care system comprises the public sector and the private sector, with the former encompassing government health institutions to primarily serve the majority of the population, while the private sector comprises for-profit organizations and individuals that serve insured patients and those that are able to afford health care on an ‘out-of-pocket’ basis [15]. The public health workforce is diverse and consists of those whose key responsibility is the provision of core public health activities regardless of their organizational base [17]. Strikingly, the public sector accounts for only 20% of total health expenditure in South Africa despite catering for 82% of the population [15].

Numerous studies have highlighted the on-going ‘inequity’ between the public and private health care sectors [15, 18-22]. These studies demonstrate that South Africa has inherited a disjointed health care system that reflects disparities in health care spending in the distribution of health professionals, poor access and quality of care between and within provinces, races, urban and rural areas, and lastly, between public and private health sectors.

Empirical work has demonstrated that the public health care sector is under-resourced and overused [15-17, 22-26]. The South African public health care sector is seen as inefficient and ineffective in relation to providing accessible, affordable and suitable health care [15, 19,
The large and growing private sector, in contrast, has a good reputation and is recognised for its world-class facilities [15, 16, 18, 27]. Despite a significant part of a patient’s health record comprising of laboratory testing [28], laboratory testing remains a fraction of public healthcare spending.

The HIV/AIDS epidemic in South Africa [22] has increased the intensity and volume of workloads on the public health system. This was also evident from the empirical work done for this study, which suggests that public sector laboratory services are buckling under mammoth workloads. Service delivery in the public health care sector is inadequate and that training programmes and development in this sector have been neglected over recent decades in both developing and wealthy nations [17, 29].

In addition, the public health care workforce itself as well as its associated infrastructure, is said to be neglected (17, 22, 29). The private health care sector in South Africa is dominated by medical schemes that insure 14% of the population [16, 19, 22, 27]. This sector includes private health care providers such as doctors and nurses, health professionals’ representative institutions, private health facilities such as laboratories and hospitals, funding mechanisms like short-term and life insurances and lastly, traditional health practitioners, and offers attractive remuneration packages [16, 27]. Whilst there are instances where the public and private sectors do interact and cooperate, by resources and contracting out to each other, these arrangements are “loose and unstructured” [19]. The private sector covers less than 20% of the population, however, it consumes up to 60% of the country’s health expenditure [15, 16, 22, 30]. In 2006, an estimated 56% of health care expenditure was funded from the private sector, despite a mere one-fifth of the population having access to its services [16]. Despite the improvement in health spending among the disadvantaged provinces in South
Africa, the average real *per capita* health expenditure has only increased at an annual rate of 0.3% since 1998 [20]. The majority of medical practitioners and medical specialists practise in the private sector in South Africa [16, 31]. This comprises 67% of general medical practitioners, and 75% of medical specialists [16]. Despite the fact that, historically, more nurses worked in the South African public sector, the public to private ratio of health workers has deteriorated from a ratio of 12.0 per 10 000 population to 10.7 per 10 000 population [16]. During the early 1980s, approximately 40% of doctors worked in the private sector. A decade later, 62% of general practitioners and 66% of specialists worked in the private sector [22]. South African health workers are leaving the public sector and joining the private sector, where the working environment is more ‘comfortable’ and ‘affluent’ [32]. This is an indication of the ‘mal-distribution’ between the public and private sectors.

**The labour market for histopathologists in South Africa**

In South Africa there are officially 245 histopathologists, 115 haematologists, 28 virologists and 115 chemical pathologists [33]. However based on the field work for this study, these official statistics have proved inaccurate. The register may be unintentionally inflating the labour market statistics. For example the register reflects medical laboratory doctors that are actually working full time outside South Africa but who have also maintained their registration on the HPSCA register. The register also does not reflect those that have retired from practice but have maintained their registration. Without being able to disaggregate the labour market statistics in this way it is difficult to agree on the exact number of laboratory doctors that are practicing full time in South Africa. What is clear is that the number is less than 245.
Even if the figure of 245 were to be accurate it would reflect a ratio of one histopathologist to every 2 million people in the country. Fieldwork in KZN revealed that there are only 23 histopathologists as opposed to the 26 indicated in the official statistics. Adding complexity to the nature of the labour market for histopathologists are the ways in which race and gender intersect with and shape the labour market. The labour market for histopathologists both nationally and provincially in KZN is racially skewed. Nationally the discipline is White male dominated, and in KZN it is Indian male dominated. This reflects historical apartheid legacies of training and employment. For example, the national labour market is comprised of 5% Black histopathologists, 9% Indian, 61% White, with 25% of pathologists remaining racially unclassified. The most likely reasons for this last cohort of racially unclassified 25% are that they represent 25% of ‘missing’ pathologists from the country and are practising overseas, and hence difficult to trace and classify racially. They nonetheless remain on the register. Further, this portion of histopathologists could represent an ageing cohort of specialists who have not been removed from the register despite not practicing. The speciality is male dominated both nationally and in KZN with only 7 of the 23 pathologists being female in KZN. This trend is also evident at a national level with 37% of histopathologists being female.

Extrapolating from national South African statistics, which locate 67% of all medical specialists in the private sector, it is assumed that there is a similar trend for medical laboratory specialists [34]. This study confirmed this trend for histopathologists, with 70% of histopathologists practicing in the national private sector. Of the 23 histopathologists practicing in KZN, 8 practice in the public sector and 15 in the private sector. However 90% of interviewees in KZN indicated a desire to leave the public sector as soon as opportunities arose. The findings of this study are in keeping with work by Crisp [19] that contends that:
“the medical laboratory services in the public health sector of South Africa are very fragmented and range in quality from the services that one would expect from any world-class accredited laboratories to very poor and unreliable services.” Whilst there have been attempts to rationalise and restructure these services, as well as improve quality, this has not materialised.

**Importance of medical laboratory medicine**

Laboratory testing and diagnosis is pivotal in the treatment and diagnosis of patients. There is therefore a pressing need for investment and improvement in laboratory services as well as a re-examination of current practise and laboratory set-ups [7, 19, 28, 35- 42].

Laboratories play a vital role in disease control and prevention programmes through providing timely and correct information for the purposes of patient management and disease surveillance [43]. Laboratories are grouped into two broad categories, that is, clinical laboratories and public health laboratories based on differences in case management and disease control and prevention [43]. Public health laboratories are involved in the provision of timely and accurate results to promote disease control and prevention [43]. Clinical laboratories, on the other hand, provide accurate diagnosis of continuous, recent or past infections for appropriate case management [43]. In clinical laboratories, the primary focus is on individual patient care [43]. It is important to note however, that data generated from both types of laboratories are vital for disease surveillance, control and prevention activities [43]. This is further compounded in Africa, by inadequate staffing, equipment and supplies. This is an obstacle to early detection of epidemics such as Ebola, Marburg, as well as multidrug-resistant and extensively drug-resistant tuberculosis [43].
Several studies [19, 38] have highlighted the importance of laboratory medicine, noting that laboratory results are a significant part of clinical decision-making processes, medical diagnoses and therapies. Although laboratory services are merely seen as ‘providing results’, they have a crucial role in diagnosis and patient care [19]. Despite the significance and vitality of laboratory medicine [19, 37] laboratory medicine is one the most neglected areas of health care provision in sub-Saharan Africa and is hampered from delivering services to the poor.

The shortage of medical professionals such as laboratory professionals are evident in the difficulty laboratories face in filling vacant positions [3, 7, 20, 35-38, 44]. In the United States, 4 200 laboratory-discipline professionals graduate every year [7]. However, there is still an alarming deficit of approximately 8 000 thousand laboratory professionals. The shortage extends beyond United States and there is an international shortage of laboratory vocations worldwide [38]. Furthermore, there exists a disproportion between vacancy rates, job growth and the decline in job vocations that may worsen the crisis [38]. This is an indication of the lack of awareness surrounding the roles and functions of laboratory medicine [38].

The reasons for the shortage may be attributed to retirements as these specialists age, salary dissatisfaction, job dissatisfaction, and inadequate training programmes, as well as lack of awareness about the laboratory professions, especially among young people [3, 38, 35]. Students are reluctant to pursue careers as laboratory specialists due to inadequacies in recruiting students, the escalating costs of training, diminishing budgets for hospital laboratories, and poor wages as well as a lack of career growth and advancement [35]. For
sub Saharan countries, the issues above are compounded by inadequate equipment and low morale.

For decades, this profession has suffered from a lack of visibility despite their significant contribution to health care around the world. Laboratory professionals are not in constant contact with the public, which is thus unable to relate to what they do [3, 28, 36].

Laboratories are often given low priority and recognition in national health delivery systems. Another challenge is the availability of and access to quality laboratory services [43]. This has contributed to delayed or ‘inappropriate’ responses to epidemics, and disease control as well as patient management [43]. Alarmingly, the majority of the estimated 12 million annual deaths in sub-Saharan Africa are still uninvestigated [43].

Only a limited number of laboratories have the ability to diagnose highly infectious diseases like viral haemorrhagic fever, severe acute respiratory syndrome, and pathogenic avian influenza virus (including A/H5N1) despite the severe threat of emerging and re-emerging pathogens [43]. Countries ship specimens to other regions for confirmation, which causes a delay in terms of responses to outbreaks [43]. The availability of centres of excellence or public health reference laboratories that provide diagnostic services for such highly infectious diseases is part of the challenges that many countries face [43]. An illustration of the above is that an evaluation of the results of the external quality assessment scheme that was conducted in the sub-Saharan Africa showed that several laboratories experienced difficulties in terms of identifying common bacteria like *Vibrio cholerae* and *Shigella* [43]. This can be attributed to the absence of national quality control systems and special culture media as well as other essential reagents. The insufficiency of biosafety and biosecurity equipment and guidelines,
poor coordination and lack of laboratory personnel in public health policy development and implementation are further challenges [43].

Highly qualified health workers are not particularly interested in laboratory sciences due to the poor incentives and working environment [43]. A survey conducted in 2003 through the external quality assessment programme revealed that a minimal number of laboratories were supervised by senior microbiologists and pathologists [43].

**Methods**

**Study Design**
A case study design was used which is especially useful in qualitative research. Case studies are exploratory and descriptive. Given that this is the first empirical research into the labour market for histopathologists in KwaZulu-Natal and South Africa, an exploratory case study approach was deemed appropriate. In depth interviews were the main data collection tool. The interview instrument was developed after a pilot interview with two histopathologists. The process of conducting the interviews developed iteratively. In addition to in depth interviews, statistical data was sourced from the Health Professionals Council of South Africa.

**Population and Sample**
The population for this study was 23 histopathologists employed in the public and private sector in the province of KwaZulu-Natal. Purposeful sampling was used. The key criterion was that all participants had to be qualified histopathologists employed in the public or private sector in KwaZulu-Natal. Of the population of 23, a sample of 16 was realised. Seven of the histopathologists were based in the private sector and nine worked in the public sector.
All participants signed an informed consent form and were informed that they could withdraw from the study at any point. Pseudonyms were used throughout to protect the identity of participants.

**Data Collection**

Interviews were conducted in English by a team of four experienced researchers with training in the interview process. Interviews were conducted off site at a University seminar room. We conducted 16 interviews. Interviews averaged a length of one hour and followed a pre-prepared open-ended interview schedule. The schedule served as a guide only, so as to allow for probing questions. Probing questions were usually asked to seek clarification or elaboration from respondents on their responses. Interviews were recorded digitally, with participants permission. Audio interviews were thereafter transcribed by a professional transcribing service and reviewed by the research team to ensure they correctly reflected the contents of the interview.

**Data Analysis**

Data analysis was performed by a three person team, consisting of a histopathologist, an industrial sociologist and a senior human resource management academic. Following principles of grounded theory, the analysis was completed at different stages of the data collection process. Further an inductive reasoning process informed the ways in which we generated insights and themes from the interviews with respondents. Using inductive reasoning we were able to generate a sense of how and why interviewees decided to switch sectors. Thematic analysis was then employed whereby quotes from the interview data were organised or coded into themes. The transcripts were constantly compared to each other to see if patterns of themes emerge across all the interview data. The coding of data into themes was done independently by each team member. Team members would then meet collectively
and compare their codes. Where there was no consensus on codes, codes were either expanded or refined. This was iterative process that culminated in in a finalised code structure. This code structure resulted in six themes eventually being agreed on. A qualitative data analysis software programme was used to facilitate the process. ( NVivo qualitative data analysis software; QSR International Pty Ltd. Version 10, 2012) Through this process the reasons for the mobility between sectors was identified.

Discussion

Causes of sector switching in KwaZulu-Natal

This study identified six reasons for the mobility of histopathologists out of the public sector and into the private sector. A further three push factors were identified. The six pull factors are (1) remuneration, (2) better working environments, (3) a higher level of work flexibility, (4) improved career mobility, (5) more autonomy of labour processes, and (6) greater access to work related resources.

These drivers out of the public sector and into the private sector are in keeping with the key trends identified in the literature. In this sense the push and pull factors for histopathologists are the same as for other highly skilled medical professionals in South Africa. However the trend towards sector switching amongst histopathologists in the country has not been empirically documented before.

The majority of histopathologists interviewed (64%) cited financial reasons as the core reason to migrate out of the state sector. Working conditions were identified as the second most important reason for mobility (45% of pathologists). Another reason for mobility out of the
public sector is the lack of work flexibility (36% of histopathologists). Lack of career advancement in the public sector was cited by 18% of histopathologists as their reason to shift sectors. Five percent of histopathologists interviewed identified access to resources as reason to move and four percent felt that they were not allowed high levels of autonomy on the job.

**Remuneration**

Financial considerations were a prominent theme throughout the data collection process. Interview process (Personal communications, 2011). However, as much as higher salaries have motivated histopathologists to move to the private sector, it was found that the difference between remuneration in the sectors is not stark. Annual salaries were 20% more in the private sector. There were also instances where through the use of overtime work, public sector histopathologist were earning more than their private sector counterparts. Participants contended that the potential growth of salaries was more in the private sector. Private laboratories also offer the possibilities of partnerships and shareholding which are lucrative opportunities for histopathologists. In February 2012, the National Health Laboratory Services, which is the parastatal responsible for the employment and training of histopathologists in the public sector, was haemorrhaging money. A national crisis was declared for laboratory services in South Africa. An implication of the financial crisis experienced by the NHLS is that it potentially does not have the funds to increase salaries for histopathologists in the public sector.

There have been instances where the state has intervened to match private sector salaries, when histopathologists have resigned. However the process of making the decision to match salaries is onerous (Interview: Dr Rampersad, 2011). This decision requires a lengthy process, involving an executive committee as well as the Chief Executive Officer for the
whole country (Personal communications, 2011). Due to the different nature of ownership in the private sector, it is a much easier process for a private laboratory to match a medical specialist’s salary. This is often accompanied by shorter hours of work (Personal communications, 2011). However, there are more opportunities to work overtime and get paid for it in the public sector as opposed to the private sector (Personal communications, 2011). While this may, in fact result in medical laboratory specialists in the public sector being paid more than those in the private sector in certain cases, people continue to resign and move into the private sector (Personal communications, 2011). This implies that financial reasons may not be the only cause of mobility out of the public sector. Whilst overtime may increase salaries it also carries with it increased hours of work.

The working environment
Working conditions and the working environment have a major impact on mobility between sectors in several ways. The findings of the research show that the working environment in the public and private sectors is different (Personal communications, 2011) and is a reason for mobility (Personal communications, 2011). For example the level of communication or interaction between the patient, the physician, the primary referring doctor, and the pathologist is higher in the private sector for histopathologists, than in the public sector. If flexibility is restricted, pathologists are more likely to seek a package that suits their needs. In the private sector, there is an option to work part time, unlike in the public sector (Personal communications, 2011). In the public sector, staff are required to work a full shift, with no option of doing private sector work for extra remuneration (Personal communications, 2011). Jobs in the private sector are said to come with laptops, travel allowances and cell phone allowances, which are added attractions (Personal communications, 2011).
Further the study found that the working environment in the public sector is largely ‘supervisor dependent’ (Personal communications, 2011). This means that the skill of the supervisor in managing staff influences the nature of the working environment. An encouraging supervisor would create a more conducive and positive working environment that increases productivity and cooperation (Personal communications, 2011). This can influence the decision to move sectors.

**Autonomy**

Another factor causing mobility out of the public sector is that of ‘freedom’ (Personal communications, 2011). The public sector is said to have a high level of rules and regulations, and a very hierarchical structure, as well as numerous protocols and red tape, which lead to frustration among professionals (Personal communications, 2011). This sector is also perceived as having a more rigorously controlled working environment as compared to the private sector (Personal communications, 2011). Autonomy and freedom, as well as flexibility are needed for career advancement, and these are found to a greater degree in private practice. Job autonomy refers to the extent to which a job provides freedom, independence, and most importantly, discretion in work content and methods of working, as well as the pace one chooses to work at (Personal communications, 2008). Highly skilled professionals such as histopathologists expect a level of recognition and responsibility on reaching a certain level, and as argued by the above authors, they should be allowed to act at their own discretion.

**Flexibility**

The nature of, as well the level of flexibility attached to a job also influences movement from the public to and private sector. Personal communications, 2011). The degree of flexibility in
terms of working hours differs greatly between the two sectors (Personal communications, 2011). Working hours for medical laboratory specialists in the private sector are more flexible than in the public sector (Personal communications, 2011). Dr Suraj (Interview, 2011) explained that in the private sector, one might leave once one’s work is done, whereas even if that option exists in the public sector, one may not have the opportunity to exercise it due to the onerous workload. There are fewer rules about reporting for and leaving work at set times in the private sector (Personal communications, 2011). The level of flexibility in the private sector is said to make the working environment more ‘conducive’ to work in (Personal communications, 2011). In the public sector employees have to clock in and out at certain times (Personal communications, 2011). One is even able to work from home in the private sector (Personal communications, 2011). Whereas a private sector pathologist can sign off work in the comfort of their own home, this option is non-existent in the public sector (Personal communications, 2011). Whatever is required by a private pathologist can be delivered, as he/she does not have to be physically present at a certain hospital (Personal communications, 2011). However, in the public sector, pathologists are required to sign off reports/results on site (Personal communications, 2011).

Many specialists, especially those with a family, have opted to move into the private sector because the working hours are more flexible (Personal communications, 2011). One of the key reasons that two participants left the public sector and joined a private practise was long working hours (Personal communications, 2011). Dr Nair (Interview, 2011) explained that he needed more family time, which was not possible in public sector where he worked until nine or ten o’ clock at night. Dr Chetty described the working hours in the public sector as “ridiculous” (Interview: Masvaure, 2011). It was added that the private sector offered the participant a half a day post with a competitive salary, which enabled more family time. One
participant requested a half-day job, however, the cut in her salary was dramatic, which caused her to move to the private sector (Personal communications, 2011). In fact, her salary would have been halved, whereas when she went into the private sector they offered her one and a half times the full day salary she had earned in the public sector (Personal communications, 2011). While flexibility is possible in the public sector only under certain circumstances, these types of arrangements are much more easily negotiated in the private sector (Personal communications, 2011).

Although the flexibility in working hours in the private sector might make it appear as though it is more beneficial to women, as shorter working hours mean that female specialists can also fulfil their role and functions as mothers, the findings show that flexible working hours also appeal to male medical laboratory specialists (Personal communications, 2011). Flexible working hours are available to both genders in the private sector and are a compelling reason for pathologists to transfer into private practise. The literature on flexibility notes that it is associated with increased job satisfaction and greater work commitment [45-46]. Flexibility arrangements that are family-supportive would increase job satisfaction [45-46]. For example workplace flexibility demonstrably increases retention and influences employees to remain with their current employer [45-46].

**Career Mobility**

Long term career prospects are better in the private sector than in the public sector (Personal communications, 2011). In other words, one can further oneself and one’s career in the private sector (Personal communications, 2011). As one participant noted:

“They have frozen posts...the people who qualified are still stagnant, not moving up-no job offers. So, if jobs are frozen, people are going to leave. They are not going to
Restrictions on upward mobility in the public sector may cause professionals to leave. Movement between the sectors is said to depend on what exactly the medical laboratory specialist is looking for in each sector (Personal communications, 2011). The private sector is said to offer a sense of business-orientated growth and stimulation, which may be seen as a reason to seek employment in this sector (Personal communications, 2011).

The reasons identified by this study are in keeping with broader findings in the literature on other types of health workers [1-3, 6, 12, 13, 29, 31, 38, 47, 48, 49, 50, 51, 52].

Effects of sector switching on the health care system of South Africa

The mobility of medical laboratory specialists between sectors has a number of consequences, not just for themselves, but for those who are left behind. Firstly as previous research shows, when some workers migrate, the remaining workers have to cope with the workload [3]. In the case of histopathologists challenges are experienced at all levels of the laboratory (Personal communications, 2011). This means that the remaining pathologists are subjected to an escalation in stress and strain [3]. Laboratory staff are also affected, including clerical staff and technologists that work for the pathologists (Personal communications, 2011). Therefore, there is an increase in workload and stress (Personal communications, 2011). This is confirmed by studies that highlight that the shortage of medical laboratory specialists will result in the existing workforce having to do the same volume of work or testing that a fully staffed laboratory would [3]. They are required to maintain the same

"stay at that level- registrar or whatever level because they are now qualified. There is a need for more consultants but they are not opening it up. So there is an exodus at the moment. People are leaving and it is a lot" (Personal communications, 2011).
turnaround times, which lead to exhaustion, burnout and the increased likelihood of errors [3, 4, 40]. This assertion is borne out by the findings for this paper that show histopathologists in the public sector are experiencing an increase in the volume and intensity of their workloads.

Secondly in some parts of Africa, where enormous numbers of publics employees have resigned to go overseas, moved from the rural areas to the cities, or, switched to the private sector, the entire public health systems collapses [32].

Thirdly a stressed public sector laboratory service is inefficient and this inefficiency has profound consequences for patient health care. A lack of human resources and infrastructure makes this efficiency a challenge for many laboratories in sub-Saharan Africa. A profound consequence of the lack of capacity is that misdiagnosis commonly occurs. Further, unreliable and inaccurate laboratory testing results in additional unnecessary costs [53]. Alarmingly, 12 million people die each year in sub-Saharan Africa, yet the cause of death in the majority of cases remains unknown [53]. These uninvestigated deaths are commonly ascribed to diseases such as AIDS, malaria, and tuberculosis without any laboratory confirmation [53]. A Kenyan study revealed that 26% of children’s deaths were caused by bacterial bloodstream diagnosed by means of a blood culture [53].

Fourthly and related to the above point is the fact that quality assurance systems are highly expensive and only a small number of laboratories can afford them; these are usually tertiary or privately owned laboratories[37]. This is an indication of the disparity and differences between the public and private sectors. A systematic assessment of laboratory services conducted with integrated disease surveillance and response programmes showed that countries lack the minimum equipment that is required to ensure quality diagnosis [43]. The
empirical case on KwaZulu-Natal shows that KZN and South African laboratories are better equipped with technology than their African counterparts in both sectors; though lack the human resources to operate these machines. The lack of the required equipment and/or poorly maintained equipment as well as a lack of human resources results in unreliable laboratory results.

Fifthly, given the disconnect between the public and private sectors in South Africa, collaborations and cooperation between sectors is viewed with suspicion and is the exception rather than the norm. A substantive way of dealing with the crisis of sector switching may be to formalise private-public sector cooperation.

The main strength of this study is that it addresses the empirical gap in the literature on the human resources crisis facing laboratory medicine in sub-Saharan Africa. It does this through a rigorous qualitative data collection and analysis process of 70% (N=16) of the population of histopathologists in KwaZulu-Natal. This is indicative of a high participation rate. Rigour was also ensured through standardised coding, the use of a multidisciplinary team, digital recording, professional and independent transcription. Further, the profession requires advocates on the continent to render visible the importance of these specialists to the chain of health care in Africa. However, given the focus on KwaZulu-Natal only, the findings can only be cautiously extrapolated to other provinces in South Africa. No empirical extrapolations can be made to other southern African countries. It is hoped that this exploratory study into the sector switching and human resources crisis facing histopathologists in KwaZulu-Natal opens up the field for further research into this much neglected medical specialisation. Such research may have important human resources policy interventions for the training, recruitment and retention of histopathologists.
Competing Interests

The authors declare that they have no competing interests.

Authors Contributions

Conception and design: S. Ruggunan, Analysis and Interpretation of the data: S. Ruggunan, S. Singh, Drafting of the article; S. Ruggunan and S. Singh. Both Authors have read and approved the draft article.

Acknowledgements

Dr. R. Singh who provided technical expertise as a histopathologist during the coding of transcripts.

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