Factors influencing Western Cape community service doctors' choice of whether to seek employment in public, rural practice.

by
Tamryn Baytopp

Thesis presented in fulfilment of the requirements for the degree of Masters in Family Medicine in the Faculty of Medicine and Health Sciences at Stellenbosch University

Supervisor: Dr Ts'epo Motsohi
Co-supervisor: Dr Vanessa Lomas

December 2024

Contents

Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree. I also declare that ethical approval for the study was obtained from the Health Research Ethics Committee of Stellenbosch University (HREC Reference No: S22/07/121). Permission to conduct the study was also granted by the Department of Health (WC_202210_010).

Date: December 2024

Abstract

Background

Shortage of staff in rural areas has contributed to long-standing inequitable healthcare access between urban and rural populations. One of South Africa's strategies to address this is the compulsory community service program.(1) To capitalize on this, doctors need to be encouraged to remain in their facilities beyond their community service periods. Identifying factors that positively or negatively influence their decisions to stay could help to develop more focused strategies to promote the retention of doctors in rural areas.(2)

Aim

To describe the important factors influencing Western Cape community service doctors' choice of whether they will seek employment in public rural practice.

Design and setting

This was an observational cross-sectional study with correlational analysis of community service doctors working in the Western Cape in 2022.

Method

Western Cape community service doctors were invited to complete an internet-based questionnaire.

Results

A total of 86 community service doctors completed the questionnaire, of whom 8% intended to work in public rural practice in 2023 and 21% considered rural practice sometime in the future. Demographic factors associated with the intention to work in rural practice were a rural upbringing (6.5 times more likely to consider rural practice) and rural placement for internship (7.7 times more likely to consider rural practice) and community service (3.5 times more likely to consider rural practice). The most important factors influencing their decision for or against rural practice were issues of personal safety and security (mean likert score of 4.7) followed by job satisfaction (mean likert score of 4.6) and mental health (mean likert score of 4.6). Rural upbringing (mean likert score of 1.8) and exposure in internship (mean likert score of 2.4) were ranked low in importance.

Conclusion

This study found the proportion of community service doctors considering working in public rural practice has not significantly increased (20%) compared to previous findings in the literature. Suggestions based on the results include revision of strategy on the part of policy makers, preferential enrolment of medical students with a rural upbringing, and prioritisation of placing community service doctors in rural areas. More focus should be

placed upon promoting safe, satisfying work environments which are protective of staff mental and psychological wellbeing.

Introduction

There has been a long-standing global problem of inequitable access to healthcare in rural areas compared to urban areas.(3) A large contributor to this problem is the shortage of healthcare workers in rural areas.((3) In 2014, 52% of the global rural population did not have access to health care due to inadequate staffing, compared to 24% in urban areas.(4). Globally, the maternal mortality ratios are about 3 times lower in urban than rural areas, there is a higher rate of incomplete immunisation and breast cancer is diagnosed at a more advanced stage in rural then urban areas.(4)

South Africa faces the same challenge of inequitable health access between urban and rural areas. Provinces with smaller rural populations have a significantly higher number of doctors per capita than the provinces with predominantly rural populations.(1) Although 43% of South Africa's population live in rural areas, only 12% of doctors work in these areas.(1,5) The disparity in access and quality of healthcare between rural and urban areas can be evidenced by indicators such as the infant mortality rate. In 2007 the urban infant mortality rate was 43.2 per 1000 live births while in rural areas it was 71.2 per 1000 live births.(6) Case fatality for children <5y with severe acute respiratory illness was higher in rural then urban areas.(7)

In response to this challenge, the South African National Department of Health has implemented several strategies to improve access to healthcare by attempting to improve human resources. Some of these strategies include the Human Resources for Health Strategy for the Health Sector: 2012/13 – 2016/17 (which suggests making more senior posts preferentially available in rural areas and reestablishing the generalist doctor as part of the PHC team), compulsory community service, increasing the number of healthcare workers trained and providing provincial bursaries to trainees.(1,5)

In 1998 South Africa introduced a compulsory 12-month "community service" period for all newly qualified doctors in the year following the completion of their internship training. In subsequent years the program was expanded to include dentists, nurses, and other healthcare workers. The programme aimed to improve health services and help young healthcare workers with their professional development.(8) In a review of the first 15 years of this community service programme, it was found that there has been a significant increase in rural placements and now the programme ensures that around 8000 new healthcare workers enter the public service in their community service year.(8) However, poor retention of staff following their community service means that this program is yet to address the needs of the rural areas sustainably.(8)

Given the global nature of this problem, there is a significant body of research exploring factors related to health staff retention in rural areas. In both higher-income and lower-income settings, several key factors emerge repeatedly in the research literature.(9–21) These factors can be divided into broad categories including demographic, financial, professional or career, working and living conditions as well as personal and social factors.(9,22)

There have been some recent South African publications on rural health staff retention. A small qualitative study of 10 rural doctors in Limpopo found that hospital infrastructure, accommodation, continued education, specialist support, career progression, remuneration, management and community relationships are all significant factors.(22)In a quantitative descriptive study, 68.5% of doctors surveyed at 3 rural Northern KwaZulu Natal Hospitals had burn out, which was a significant deterring factor from continued practice at these hospitals.(23) High rates of depression and anxiety were also found among doctors in this area, and this was associated with a higher likelihood of planning to leave employment in the public service completely.(23) In other South African studies, staff satisfaction and financial considerations were also found to influence staff retention and quality of health service provision in both urban and rural facilities.(16,24)

The 15-year review of the compulsory community service year for South African healthcare workers found that while the program had managed to ensure more young doctors are deployed to rural or underserved institutions, the number of doctors planning to remain in rural practice did not increase and remained at approximately 15%.(8) About 50% hoped to specialise and the small number hoping to emigrate declined over the 15years.

Although studies have been conducted to explore factors affecting doctors' decisions to work in rural practice, there is currently insufficient quantitative data to explain the factors influencing the career decisions of community service doctors specifically.(22) This study aimed to complement the existing qualitative evidence in the literature, on factors influencing retention of community service doctors in rural practice, through the addition of quantitative evidence from a larger study population in the South African context.

Aim

To describe the important factors influencing Western Cape community service doctor's choice of whether they will seek employment in public rural practice.

Objectives

- To measure the proportion of Western Cape based community service doctors intending to seek employment in a public rural health facility.
- To assess if any basic demographic factors such as gender, marital status, language, or place of origin are associated with the likelihood of seeking employment in public rural practice.
- To describe the level of importance of several factors including financial, work and living conditions, professional development, personal, social, and environment when making this decision.

Methods

Study design

This was an observational cross-sectional study with correlational analysis of community service doctors working in the Western Cape in 2022.

Setting

This study took place in the Western Cape Province, of South Africa. In the 2001 census, 9.6% of the population was classified as rural.(25) The province's district health management is divided into the Metro and Rural Health Services, with the Metro Health Services' covering the City of Cape Town District, and Rural Health services encompassing the remaining five districts. There are urban centres within the 5 rural districts. Therefore, for this study rural healthcare institutions are defined as those in which the employees receive a rural allowance, and not whether the institution is under the management of Rural Health Services. Institutions receiving rural allowance include those identified by the National Executive as "rural development nodes" as well as those classified as "rural" during the bargaining of government and public service unions in 2004.(26)

Study Population

Community service doctors working in the Western Cape in 2022 were invited to participate through the Department of Health Human Resource official responsible for community service doctors provincially.

Sample Size

There were 207 community service doctors working in the Western Cape in 2022. Based on a prior study on community service doctors in South Africa, 15% of these doctors plan to work in a rural setting on completion of their year. (8) Based on these estimates it was calculated that a sample size of 101 would be required to achieve a 95% confidence interval and a 5% margin of error. This would amount to a response rate of 48.8%.

Sampling

An attempt was made to invite the entire study population to participate to minimise sampling bias. Multiple reminders were sent to minimize nonresponses. To reduce response bias, an informed consent section was provided which emphasised that participation was anonymous and would not disadvantage the participant in any way. A Likert scale based on level of importance instead of "agree or disagree" was used to avoid acquiescence bias.

Data Collection

A self-administered, internet-based questionnaire was developed using REDcap software. It included multiple choice and binary questions for demographic information, Likert Scale questions assessing the importance of different factors and a final open-ended question to include factors not included in the questionnaire. These factors were derived from those highlighted in existing international literature as well as those elicited in the qualitative study done in Limpopo, along with further additions by the researcher. (2,8–13,15–23) (Appendix 1)

The questionnaire was validated by an expert panel of 3 family physicians with experience in research and rural practice, a senior family medicine registrar with a rural employment history, as well as a community service doctor in a rural hospital. A pilot study was performed on the community service doctors working at Helderberg Hospital in 2022 using the email distribution and reminder strategy as intended for the main study. The pilot participants were asked to complete the same questionnaire 2 weeks apart to assess similarity in responses. A feedback form was completed by participants to assess time, question clarity and how well they felt their responses represented their actual feelings and thought processes. Two of the questions were adjusted based on participant feedback.

Data collection commenced in December 2022 and was completed in March 2023.An email was sent to the community service doctors notifying them of the study and its potential value of improving the appeal of working in rural hospitals in the future. There was a link to the survey attached for those who wished to participate.

Data analysis

The data was captured from REDcap onto the Statistical Package for Social Sciences version 29.0 was used for analysis. Data was then checked and analysed by the primary investigator with the assistance of the research supervisor and a biostatistician. Objectives 1 was analysed using descriptive statistics and presented as frequencies. For objective 2, inferential statistics were used. To determine the statistical significance of association between a demographic factor and future career in rural areas, the Fisher Exact Test was used for 2x2 tables and Chi square test for the unbalanced tables. Forward stepwise binary logistic regression was then used with a 10% cut off to assess association between the statistically significantly ($P<0.05$) associated demographic factors. The model used to achieve this was tested using The Omnibus test and the Hosmer and Lemeshow test and was shown to be good ($p == 0.746$). For Objective 3 the respondents completed the likert scale questions. The mean of the answers was determined and ranked. Further analysis was done by sorting the individual likert questions into groups based on the broader topics in the questionnaire. The cumulative mean of the questions in each category was then calculated. A basic narrative description was made of the data acquired in the final open-ended question.

Ethics

Ethical approval for the study was obtained from the Health Research Ethics Committee of Stellenbosch University (HREC Reference No: S22/07/121). Permission to conduct the study was also granted by the Department of Health (WC_202210_010).

Results

Demographics of the Participants

Of the 207 email invitations sent 5 did not deliver to the recipients. Of the 202 invited participants 97 opened the questionnaire, amounting to a response rate of 47.5%. Consent to participate was not given by 5 respondents and 1 respondent was excluded because they were not a community service doctor in the Western Cape in 2022. A further 5 participants did not complete the demographics section of the questionnaire and were also excluded. This left a total of 86 complete participant records. Table 1 summarises the participants' characteristics. The majority of the participants were female (80.2%) and English speaking (60.5%). The median age of participants was 28years (IQR: 26 to 30).

Table 1: Demographics of participants (N = 86)

Variable		**n**	**%**
Gender	Male	17	19.8
	Female	69	80.2
Home language	Afrikaans	30	34.9
	English	52	60.5
	isiXhosa	3	3.5
	Other	1	1.2
Marital status	Single	38	44.2
	Married	43	50.0
	Life Partner	4	4.7
Dependants	Yes	14	16.3
	No	71	82.6
	Unknown	1	1.2
Dependant type	Children	10	11.6
	Parents	4	4.7
	Siblings	3	3,5
	Other Relatives	2	2.3
	Other	2	2.3
Place of origin (Country)	South Africa	85	98.5
	Foreign National	1	1.2
Place of origin (Urban/Rural)	Urban	77	89.5
	Rural	9	10.5
Rural exposure In undergraduate studies		75	87.2
Rural exposure Internship		10	11.6

Rural exposure Community Service		27	31.4

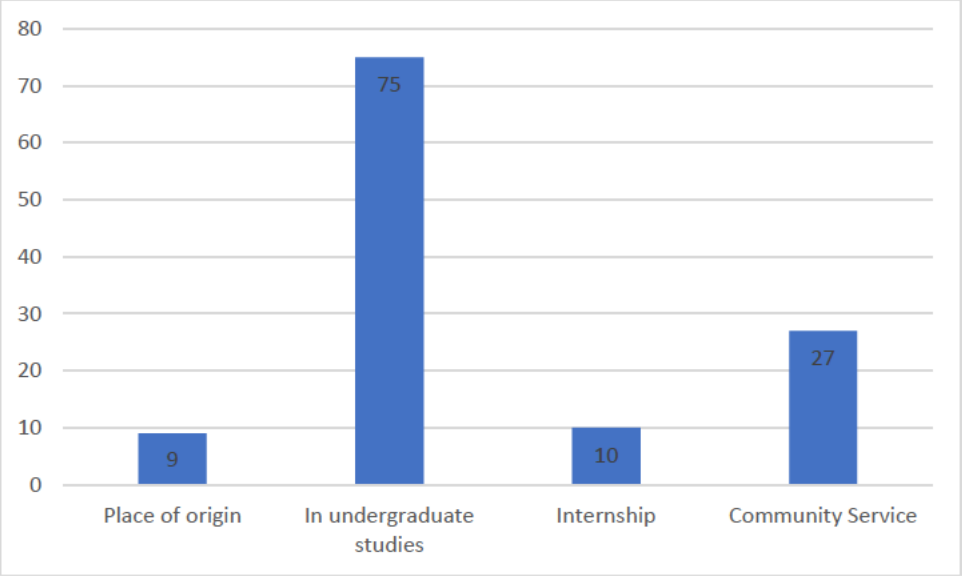

Figure 1: Rural exposure

Choice of future employment

Only 8.1% participants were planning to remain in public rural practice in 2023, while 20.9 participants indicated that they would consider it in the future. Thirty six percent of participants were certain that they would not consider rural practice and the other 43% were unsure whether they would consider working in public rural practice.

Table 2: Plans to work in public rural practice in the future (N= 86)

Variable		**n**	**%**
Plan to work in public rural practice in 2023	Yes	7	8.1
	No	79	91.9
Plan to work in public rural practice in the future	Yes	18	20.9
	No	31	**36.0**
	Unsure	37	**43.0**

Association with intention to work in public rural practice.

Being placed in a rural area for community service was the only demographic factor found to have a statistically significant association with planning to work in public rural practice in 2023. Growing up in a rural area and being placed in a rural area for internship and community service were found to have a statistically significant association with planning to work in public rural practice sometime in the future.

Table 3: Significance of Association of variables to future plans to work in rural practice (Bivariate analysis).

Variable/Category		Proportion of category with plans to work in public rural practice in 2023 n (%)	p values for significance of association of category with plans to work in public rural practice in 2023	Proportion of category with plans to work in public rural practice sometime in the future n (%)	p values for significance of association of category with plans to work in public rural practice sometime in the future
Gender	Male	2 (28.6)	0,62[a]	5 (27.8)	0,34[a]
	Female	5 (71.4)		13 (72.2)	
Home Language	Afrikaans	4 (57.1)	0,17[b]	7(38.9)	0,206[b]
	English	2 (28.6)		9 (50.0)	
	isiXhosa	1 (14.3)		2 (11.1)	
	Other	0 (0.0)		0 (0.0)	
Marital Status	Single	4 (57.1)	0,29[b]	6 (33.3)	0,55[b]
	Married	2 (28.6)		11 (61.1)	
	Life Partner	1 (14.3)		1 (5.6)	
Dependents	With dependents	2 (28.6)	0,32[a]	3 (16.7)	0,98[a]
	Without dependents	5(71.4)		15 (83.3)	
Origin (Country)	South African citizen	7 (100)	1[a]	18 (100)	1[a]
	Foreign National	0 (0)		0 (0)	
Origin (Upbringing)	Rural upbringing	3 (42.9)	0,02[a]	5 (27.8)	0,007[a]
	Urban upbringing	4 (57.1)		13 (72.2)	
Rural Exposure in undergraduate studies	No exposure	0 (0)	0,59[a]	3(16.7)	0,692[a]
	Some exposure	7 (100)		15(83.3)	
Rural Exposure in internship	No exposure	5 (71.4)	0,19[a]	12(66.7)	0,005[a]
	Some exposure	2 (28.6)		6 (33.3)	
Rural Exposure in community service	No exposure	1 (14.3)	0,003[a]	7 (38.9)	0,004[a]
	Some exposure	6 (85.7)		11 (61.1)	

[a] Fisher Exact test used; [b] Chi Square test used.

Table 4: Association between statistically significant factors based on binary logistic regression.

Factor	**Likelihood of choosing to work in public rural practice in 2023 compared to those with urban exposure. (95th C.I.)**	**Likelihood of choosing to work in public rural practice in the future compared to those with urban exposure. (95th C.I.)**
Rural Upbringing	6.6 (0.986-44.261) (p=0.05)	6.5 (1.3-32.7) (p=0.02)
Rural Exposure in internship	N/A	7.7 (1.6-36.5) (p=0.01)
Rural Exposure in community service	14.1 (1.5-129.5) (p=0.02)	3.6 (1.1-12.0) (p=0.04)

Factors influencing the decision based on Likert Scale questions.

Respondents were asked to rank 39 factors based on their importance in deciding whether to work in public rural practice. The ranking used a Likert score defined as: 1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important). Apart from the previously mentioned exclusions, a further 10 participants were excluded because they did not complete the Likert section of the questionnaire. "The 39 factors that participants ranked by importance as influencing their decision are shown in Figure 2. The ranks are determined by their mean scores.

Participants rated “crime and personal safety” as the most important factor in their decision to work in rural or not, with a mean Likert score of 4.65. This was closely followed by “job satisfaction” and “my mental health” both with mean scores of 4.56. The least influential or important factors were; rural upbringing (1.81), bursary obligations (1.86), rural exposure in internship (2.42) and rural exposure in community service (2.69). Of the respondents 9 grew up in rural areas and their mean score for the influence of “rural upbringing” was 3.125. The 10 participants who had rural exposure in internship had a mean score for the influence of “rural exposure during internship” of 3.0. There were 27 participants who had rural exposure in community service and their mean score for the influence of “rural exposure during community service” was 3.92. Therefore, those who had rural exposure did attribute more importance to these factors then those who did not.

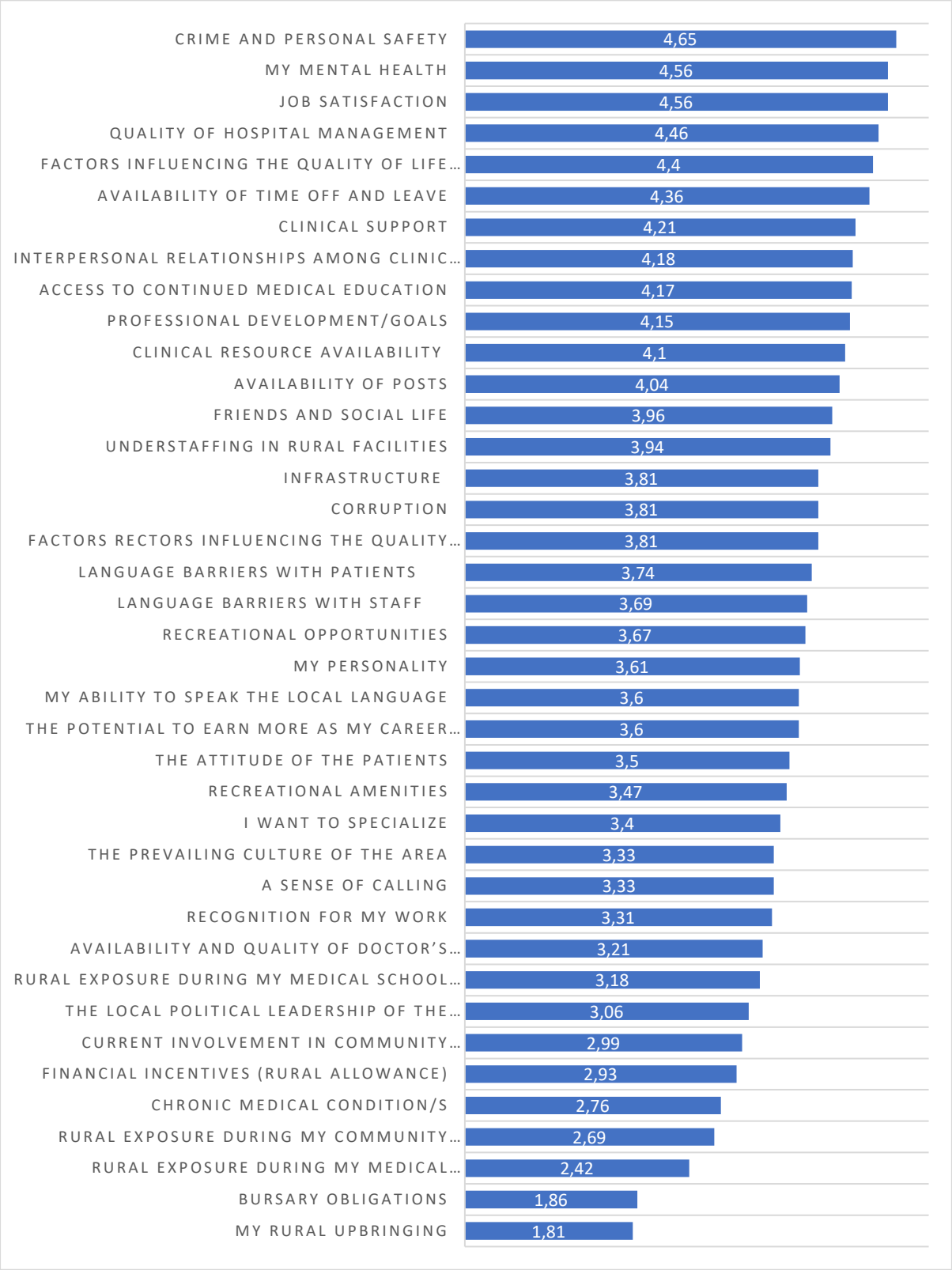

Figure 2: Importance of factors influencing decisions to work in rural areas.

The most influential category was "expected working conditions" and the least influential was "financial considerations."

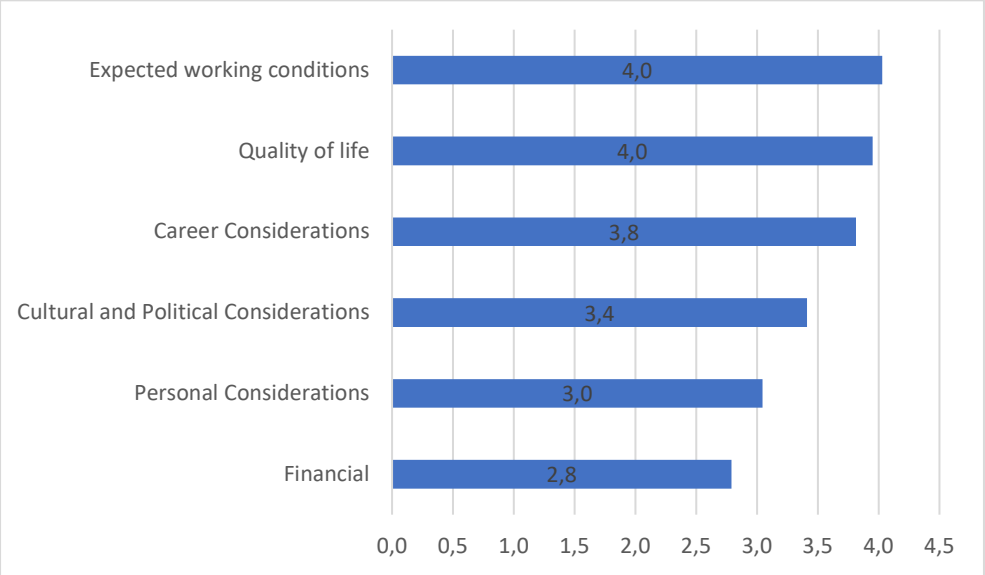

Figure 3: Importance of factors influencing decisions to work in rural areas.

Free Format Question.

Several factors which had not been covered in the Likert scale questions were identified. The 2 most frequently mentioned were proximity to family and proximity to an airport. Others included preference for private practice, work- life balance, role models in rural practice and religious, cultural or lifestyle considerations.

Discussion

A total of 86 community service doctors completed the questionnaire, of whom 7 intended to work in public rural practice in 2023 and 18 considered rural practice sometime in the future. Factors associated with intention to work in rural practice in the future were a rural upbringing and rural placement for internship and community service. The most important factors influencing their decision for or against rural practice were issues of personal safety and security, followed by job satisfaction and mental health. Rural upbringing and exposure in medical school or internship were ranked low on importance.

A study on compulsory community service for doctors in South Africa showed that 15% of community service doctors between 2000-2014 considered rural practice for the future.(8) Our study shows a similar trend of interest, with 8.1% considering rural practice in 2023 and 20.9% considering it sometime in the future. This seems to suggest that any efforts in the last decade to encourage doctors to consider public rural practice have made minimal impact. (1–5)

Of the respondents 43% were married and 4% had life partners, which raises the question of whether consideration of a life partner is an important factor. In fact, the importance of "Factors influencing the quality of life of my partner" yielded a mean score of 4.4 (very important to extremely important). Although only 10% of the respondents had children, the "Factors influencing the quality of life of my children", was ascribed some importance (3.81). Parenting and life partner-related factors were also found to be influential in a study on the retention of medical officers in the Western Cape District Health Services.(27) In this study, being unable to live with their life partner had a statistically significant association (p=0.04) with leaving the District Health Services.(27) In a follow up qualitative study, prioritising childcare was also a notable and important factor in determining retention in district health services.(28) It is important to note that these studies did not measure whether the factors influenced decisions for or against rural employment, but all rather suggest that that consideration of family is important to career decisions in general.

The large proportion of participants with undergraduate exposure to rural medicine (89.5%) suggests that training institutions are generally trying to expose their students to rural practice. This has been a widespread strategy globally which has shown some association with increased willingness to consider post-training placement in rural practice.. (29) However, for this study's respondents, this exposure does not seem to be a significant factor in their decision-making as it was ranked 30th out of 39 factors. On the other hand, a rural upbringing or rural internship or community service did show significant association with intention to work in rural practice. This supports a conclusion that while rural exposure is important, a rural upbringing is more significant than exposure during undergraduate training. (2,12,29)

The findings that rural upbringing promotes retention in rural practice support another strategy used in South Africa, namely, to train more doctors from rural and other underserved areas with the hope that they will return

home to work. (30) A specific example of this is offering medical training in Cuba to black students from disadvantaged communities. ((30) Only 10.5% of respondents of this study grew up in rural areas. So increased efforts to recruit rural medical students are needed.

In this study the participants subjectively ranked their rural upbringing as having low importance in their career decision. However, this demographic factor was significantly associated with a choice for future rural employment. A possible explanation for this ostensible contradiction may be that social ties such as family and community are tacitly or unconsciously significant in making this decision. This was demonstrated in studies on the migration of young adults from rural areas in Senegal and Europe. (31,32) 'In the Senegalese study on migration, the decisions of young adults to stay in rural areas was influenced by family ties as seen by the positive association between being married and having children with decision not to migrate from their rural home. (31) "This may also explain the association between a rural internship and community service and future rural employment. Based on the Likert scale questions the six least influential factors in this study include financial incentives (rural allowance), rural exposure during community service year, rural exposure during medical internship training, bursary obligations and rural upbringing. The South African National Department of Health's strategies to improve the equitable access to healthcare human resources rely on these factors.(1,5) For example, the Human Resources for Health Strategy for the Health Sector: 2012/13 – 2016/17 proposes the extension of rural exposure during training, creation of more posts, and training of more healthcare workers.(5) Other strategies include providing provincial financial support to trainees through bursaries and creating more training opportunities for people from underserviced areas. (1,5,30).

The most influential factor in this study is crime and personal safety. However, this factor will have to be explored further as it is not clear from our study if crime and safety was a factor that was drawing people out of rural practice or making rural practice preferable. Furthermore, this question is not resolved in the current literature. A 2021/22 survey found that more house break-ins occurred in rural areas, and most assaults occurred in "non-metro" or non-urban areas. (33) However, people in rural areas feel safer walking at night than their urban counterparts, although this feeling of safety in rural areas is on the decline. (30)

The next two most influential factors are job satisfaction, and mental health. A systematic review of healthcare workers in sub-Saharan Africa showed that 81% of physicians at rural district hospitals in South Africa had experienced burn out. (34) However, it is unclear whether the level of burnout in rural health care worker is higher than in urban health care workers. An American study found no difference in burnout between urban and rural family practitioners, while a Japanese study showing higher levels of burn out in rural hospital physicians. (35,36) Factors associated with high levels of burnout included career dissatisfaction, heavy workload, the work environment, and inadequate staffing.(35,36) The category in our study which had the highest average score was "Expected working conditions". These are therefore important factors in the South African context and a good area to focus interventions for staff retention.

Our study sample consisted of a predominance of Afrikaans and English-speaking community service doctors in the Western Cape. All but 4 participants were 1st language English or Afrikaans speakers with only 3 IsiXhosa respondents. A study of medical officers in the Western Cape showed a similar language distribution, with 52.6% speaking Afrikaans and 44.2% speaking English. (27) However, this distribution is not representative of the general population of the Western Cape. In 2016, 46.6% of the Western Cape's population spoke Afrikaans as their home language, 19.6% spoke English and 31,1% spoke IsiXhosa. (37) This may suggest a need for more isiXhosa speaking doctors in the Western Cape public service and this need is partly being addressed by the incorporating of isiXhosa (and Afrikaans) training in the undergraduate curricula of both the University of Cape Town and Stellenbosch University. (38)

Limitations

This study reached a response rate of 47% which was close to the 49% response rate originally calculated to give a 95% confidence interval if 15% of participants chose future rural employment. However, the sample participants were self-selected and therefore there is a reasonable chance of some selection bias. The five community service doctors who could not be reached due to erroneous email addresses may have also contributed to the selection bias. Possible nonresponse/volunteer bias also affects this study's generalisability in the Western Cape.

The small proportion of those considering careers in rural public practice in 2023 makes identifying statistically significant associations difficult. Despite the almost adequate response rate there was still a relatively small sample size of 86 community service doctors. The wide confidence intervals (i.e., low precision) associated with the statistically significant odds ratios is an indication of this limitation of the study's findings.

This study would not be generalisable to the rest of the country as it was performed in the Western Cape which has a unique health system as well as population and urban rural characteristics.

Of the respondents of this study 80.2% were female. This may suggest a lower response rate of males and the higher tendency for females to respond to research surveys, thereby affecting the representivity of the sample. (39–41). Other studies on career paths of young doctors, showed a similar trend, where the predominance of female respondents ranged from 60-65%. (42–44) However, this predominance may be also due to more female community service doctors' being employed than males. Unfortunately, the proportion of females in the study population is not known. (29–31)

Lastly, the way the questionnaire was phrased did not specify if the factors were influencing people toward or away from rural or urban practice. It also did not separate or differentiate factors that influence retention at any facility from those that influence retention in rural facilities. Therefore,

although the questionnaire identified important factors, further clarification on how they influence the decisions is still needed.

Implications

The factors which are in the control of policy makers are the working conditions at public rural institutions. It would be prudent to implement strategies that to promote safe, satisfying working environments in rural hospitals to improve retention of doctors in public rural services. Institutions striving to retain staff need to take the mental and psychological wellbeing of their employees seriously and should consider interventions to promote mental health and the prevention of burnout.

The importance of rural upbringing and rural exposure among junior doctors as a crucial factor is a finding that confirms the finding of other studies. Continued preferential selection of medical students from underserved rural areas by medical schools is recommended, as well as preferential placement of interns and community service doctors in rural institutions by the National Department of Health. This strategy can be reinforced by addressing the higher ranked factors found in this study. However, factors influencing the choice to remain in public rural practice extend beyond what is in the control of the local institutions, and some of these factors (for example safety) likely influence retention at any facility, whether urban or not.

For any meaningful evidence-informed, national policy guidance, a national study would have to be conducted. This larger study sample should yield more precise results and improve their generalisability. Consideration can also be given to the additional factors raised in the final open-ended question when reviewing the questionnaire for any future national study. Lastly, a concurrent qualitative study may help to understand in more nuanced detail, how to engage with the significant factors highlighted in our study.

Conclusions

This study found that despite strategies to promote a choice of career in underserviced areas, the proportion of community service doctors considering working in public rural practice has not significantly increased (20%). The only demographic factors shown to have a significant association with an intention to work in public rural practice sometime in the future were a rural upbringing and having done internship and community service in rural areas. The most important factors influencing community service doctors' decisions on where to work in future included concern for personal safety and security, job satisfaction and their mental health. The practical implication of this is that a revision of strategy on the part of policy makers should be considered and areas of focus should be promoting safe, satisfying work environments which are protective of staff mental and psychological wellbeing while continuing to preferentially enrol medical students with a rural upbringing and prioritise placing community service doctors in rural areas.

References

1. Health Systems Trust. South African Health Review 2020 [Internet]. 2020 [cited 2022 Jun 21]. Available from: https://www.hst.org.za/publications/Pages/SAHR2020.aspx

2. Holloway P, Bain-Donohue S, Moore M. Why do doctors work in rural areas in high-income countries? A qualitative systematic review of recruitment and retention. Australian Journal of Rural Health. 2020 Dec 1;28(6):543–54.

3. Weinhold I, Gurtner S. Understanding shortages of sufficient health care in rural areas. Health Policy (New York). 2014 Nov 1;118(2):201–14.

4. International Labour Office. Social Protection Department. Addressing the global health crisis : universal health protection policies. ILO; 2014. 50 p.

5. Department of Health Republic of South Africa. Human Resources For Health South Africa: HRH Strategy for the Health Sector: 2012/13- 2016/17. 2011.

6. Bradshaw D. Determinants of health and related indicators. In: South African Health Review 2008. Durban; 2008.

7. Ayeni OA, Walaza S, Tempia S, Groome M, Kahn K, Madhi SA, et al. Mortality in children aged <5 years with severe acute respiratory illness in a high HIV-prevalence urban and rural areas of South Africa, 2009–2013. PLoS One [Internet]. 2021 Aug 1 [cited 2024 Jun 11];16(8). Available from: /pmc/articles/PMC8360538/

8. Reid SJ, Peacocke J, Kornik S, Wolvaardt G. Compulsory community service for doctors in South Africa: A 15-year review. South African Medical Journal. 2018 Sep 1;108(9):741–7.

9. Mohammadiaghdam N, Doshmangir L, Babaie J, Khabiri R, Ponnet K. Determining factors in the retention of physicians in rural and underdeveloped areas: a systematic review. BMC Fam Pract. 2020 Dec 1;21(1).

10. Esu EB, Chibuzor M, Aquaisua E, Udoh E, Sam O, Okoroafor S, et al. Interventions for improving attraction and retention of health workers in rural and underserved areas: a systematic review of systematic reviews. J Public Health (Oxf) [Internet]. 2021 Apr 13 [cited 2022 Feb 23];43(Suppl 1):i54–66. Available from: https://pubmed.ncbi.nlm.nih.gov/33856468/

11. Liu X, Dou L, Zhang H, Sun Y, Yuan B. Analysis of context factors in compulsory and incentive strategies for improving attraction and retention of health workers in rural and remote areas: A systematic review. Vol. 13, Human Resources for Health. BioMed Central Ltd.; 2015.

12. MacQueen IT, Maggard-Gibbons M, Capra G, Raaen L, Ulloa JG, Shekelle PG, et al. Recruiting Rural Healthcare Providers Today: a Systematic Review of Training Program Success and Determinants of Geographic Choices. J Gen Intern Med. 2018 Feb 1;33(2):191–9.

13. Goodfellow A, Ulloa JG, Dowling PT, Talamantes E, Chheda S, Bone C, et al. Predictors of primary care physician practice location in underserved urban or rural areas in the United States: A systematic literature review. Vol. 91, Academic Medicine. Lippincott Williams and Wilkins; 2016. p. 1313–21.

14. Honda A, Krucien N, Ryan M, Diouf ISN, Salla M, Nagai M, et al. For more than money: Willingness of health professionals to stay in remote Senegal. Hum Resour Health. 2019 Apr 25;17(1).

15. du Plessis Y, Tawana B, Barkhuizen NE. A comparative analysis of the antecedents and consequences of employee satisfaction for urban and rural healthcare workers in KwaZulu-Natal province, South Africa. SA Journal of Human Resource Management. 2019;17(1):1–9.

16. George G, Atujuna M, Gow J. Migration of South African health workers: the extent to which financial considerations influence internal flows and external movements. BMC Health Serv Res [Internet]. 2013 [cited 2022 Feb 23];13(1). Available from: https://pubmed.ncbi.nlm.nih.gov/23919539/

17. George A, Blaauw D, Thompson J, Green-Thompson L. Doctor retention and distribution in post-apartheid South Africa: Tracking medical graduates (2007-2011) from one university. Hum Resour Health. 2019 Dec 16;17(1).

18. Joarder Taufique, Rawal Lal B, Ahmed Syed Masud, Uddin Aftab, Evans Timothy G. Retaining Doctors in Rural Bangladesh: A Policy Analysis. Int J Health Policy Manag. 2018;7(9):847–58.

19. Koebisch SH, Rix J, Holmes MM. Recruitment and retention of healthcare professionals in rural Canada: A systematic review. Can J Rural Med. 2020 Apr 1;25(2):67–78.

20. Sirili N, Frumence G, Kiwara A, Mwangu M, Anaeli A, Nyamhanga T, et al. Retention of medical doctors at the district level: A qualitative study of experiences from Tanzania. BMC Health Serv Res. 2018 Apr 10;18(1).

21. World Health Organisation [Internet]. 2020 [cited 2024 Feb 10]. Retention of the health workforce in rural and remote areas: a systematic review. Available from: https://www.who.int/news/item/08-12-2020-retention-of-the-health-workforce-in-rural-and-remote-areas-a-systematic-review

22. Kotzee TJ, Couper ID. What interventions do South African qualified doctors think will retain them in rural hospitals of the Limpopo province of South Africa? Rural Remote Health [Internet]. 2006 [cited 2022 Feb 23];6(3):581. Available from: https://pubmed.ncbi.nlm.nih.gov/16965219/

23. Hain S, Tomita A, Milligan P, Chiliza B. Retain rural doctors: Burnout, depression and anxiety in medical doctors working in rural KwaZulu-Natal Province, South Africa. South African medical journal. 2021;111(12):1197–204.

24. Tawana B, Barkhuizen NE, Plessis Y du. A comparative analysis of the antecedents and consequences of employee satisfaction for urban and rural healthcare workers in Kwazulu-Natal Province, South Africa. SA Journal of Human Resource Management. 2019;17.

25. Statistics South Africa. Census 2001 : investigation into appropriate definitions of urban and rural areas for South Africa : discussion document. Statistics South Africa; 2003. 187 p.

26. Western Cape Government Health. western Cape Health annual report 2020/2021 [Internet]. 2021 [cited 2022 May 23]. Available from: https://www.westerncape.gov.za/assets/annual_report_2020_2021_0.pdf

27. Mash R, Williams B, Stapar D, Hendricks G, Steyn H, Schoevers J, et al. Retention of medical officers in district health services, South Africa: a descriptive survey. BJGP Open. 2022;6(4).

28. Mash RJ, Viljoen W, Swartz S, Abbas M, Wagner L, Steyn H, et al. Retention of medical officers in the district health services of the Western Cape, South Africa: An exploratory descriptive qualitative study. South African Family Practice [Internet]. 2022 May 10 [cited 2023 Oct 14];64(1):13. Available from: https://safpj.co.za/index.php/safpj/article/view/5467/7337

29. Holst J. Increasing rural recruitment and retention through rural exposure during undergraduate training: An integrative review. Vol. 17, International Journal of Environmental Research and Public Health. MDPI AG; 2020. p. 1–19.

30. Sui X, Reddy P, Nyembezi A, Naidoo P, Chalkidou K, Squires N, et al. Cuban medical training for South African students: A mixed methods study. BMC Med Educ. 2019 Jun 17;19(1).

31. Schewel K. Working Papers Understanding the Aspiration to Stay A Case Study of Young Adults in Senegal The IMI Working Papers Series [Internet]. 2015. Available from: www.imi.ox.ac.uk

32. Stockdale A, Theunissen N, Haartsen T. Staying in a state of flux: A life course perspective on the diverse staying processes of rural young adults. Popul Space Place. 2018 Nov 1;24(8).

33. Experience of crime in SA increased over the 2021/22 period | Statistics South Africa [Internet]. [cited 2023 Jul 28]. Available from: https://www.statssa.gov.za/?p=15700

34. Dubale BW, Friedman LE, Chemali Z, Denninger JW, Mehta DH, Alem A, et al. Systematic review of burnout among healthcare providers in sub-Saharan Africa. Vol. 19, BMC Public Health. BioMed Central Ltd.; 2019.

35. Saijo Y, Chiba S, Yoshioka E, Kawanishi Y, Nakagi Y, Ito T, et al. Job stress and burnout among urban and rural hospital physicians in Japan. Australian Journal of Rural Health [Internet]. 2013 Aug 1 [cited 2024 Feb 10];21(4):225–31. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/ajr.12040

36. Ward ZD, Morgan ZJ, Peterson LE. Family Physician Burnout Does Not Differ With Rurality. The Journal of Rural Health [Internet]. 2021 Sep 1 [cited 2024 Feb 10];37(4):755–61. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/jrh.12515

37. Provincial profile: Western Cape Community Survey 2016 [Internet]. 2018. Available from: www.statssa.gov.zainfo@statssa.gov.za

38. Claassen J, Jama Z, Manga N, Lewis M, Hellenberg D. Building freeways: piloting communication skills in additional languages to health service personnel in Cape Town, South Africa. BMC Health Serv Res. 2017 Jun 7;17(1).

39. Bälter KA, Bälter O, Fondell E, Lagerros YT. Web-based and mailed questionnaires: A comparison of response rates and compliance. Epidemiology. 2005 Jul;16(4):577–9.

40. Tiwari R, Wildschut-February A, Nkonki L, English R, Karangwa I, Chikte U. Reflecting on the current scenario and forecasting the future demand for medical doctors in South Africa up to 2030: towards equal representation of women. Hum Resour Health. 2021 Dec 1;19(1).

41. Breier M, Wildschut-February A, Wildschut A. Changing gender profile of medical schools in South Africa. South African Medical Journal [Internet]. 2016; Available from: https://www.researchgate.net/publication/23252549

42. Contributions M, Abu-Laban RB, Scott IM, Gowans MC. Canadian Medical Education Journal Relationship between Canadian medical school student career interest in emergency medicine and post-graduate training disposition [Internet]. Vol. 8, Canadian Medical Education Journal. 2017. Available from: http://www.cmej.ca

43. Amudhan AS, Palaniyandi A, Rajan M, Parthiban P, Rajendraprasath S, Saminathan T, et al. The driving factors important for evaluation student's opinion which influenced decision making of career choice: Pediatrics as a career choice as an example. Acta Informatica Medica. 2021;29(2):94–8.

44. Tsai CH, Hsieh CH, Huang JP, Lin PL, Kuo TC, Huang MC. A survey of career-decision factors for obstetrics and gynecology residents in Taiwan. 2021 [cited 2023 Jul 27]; Available from: https://doi.org/10.1016/j.tjog.2021.05.009

Appendix A: Draft Questionnaire

For the purposes of this study:

Rural: Healthcare workers in public practice in this area receive rural allowance

Urban: Healthcare workers in public service in this area do not receive rural allowance

Consent

I have read the informed consent details and hereby consent to participation in this study: Yes/No

Demographics:

Gender: Male/Female/Other/Prefer not to say

Age: type it in

Home language: select from the list of official languages or other.

Marital status: Single/Married/life partner.

Dependants: Yes/No

Please specify your relationship to the above dependants: My child(ren)/My parent(s)/ My sibling(s)/ Other relative(s)/ other

Place of Origin:

1. Country: South African/Foreign National
2. Urban/Rural

I did my internship in a rural area: Yes/No

I am doing my community service in a rural area: Yes/No

Choice of future employment:

I plan to work in a public rural healthcare institution next year: Yes/No

I plan to work in a public rural healthcare institution at a later stage in my career: Yes/No/Unsure

Factors Influencing the above decision.

On a scale of 1-5 rank the level of importance of each of these factors in making your decision of whether to work in public rural practice or not. (Likert scale)

Financial

1. Financial incentives (rural allowance)
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
2. The potential to earn more as my career progresses.
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
3. Bursary obligations
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Expected work conditions.

4. Understaffing in rural facilities
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
5. Clinical Resource availability
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
6. Clinical support
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
7. Interpersonal relationships among clinic team members
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
8. Quality of hospital management
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
9. The attitude of the patients
   1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
10. My Ability to speak the local language
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
11. language barriers with staff
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
12. language barriers with patients
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
13. Availability of time off and leave
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
14. Job satisfaction
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Quality of Life

15. Factors rectors influencing the Quality of life of my children
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
16. Factors influencing the Quality of life of my partner
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
17. Friends and social life
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
18. Availability and quality of doctor's quarters
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
19. Recreational opportunities
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
20. Crime and personal safety
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Career prospects

21. Recognition for my work
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
22. Availability of posts
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
23. Access to continued medical education
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
24. Professional development/goals
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
25. I want to specialize
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Personal

26. My rural upbringing
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
27. Rural exposure during my medical school training
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
28. Rural exposure during my medical internship training
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
29. Rural exposure during my community service year
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
30. My mental health
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
31. Chronic medical condition/s
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
32. My personality
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
33. A sense of calling
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Cultural and Environmental

34. The local political leadership of the rural area, the community's relationship with them and other political organisations
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
35. Corruption
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
36. The prevailing culture of the area
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
37. Current involvement in community related activities and social networks
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
38. Infrastructure
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)
39. Recreational amenities
    1 (Not important), 2 (Slightly important), 3 (Moderately important), 4 (very important), 5 (Extremely important)

Are there any important factors which have influenced your decision which have not been covered above?

(Open format)

Appendix B: PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

Title of Research Project:	
Factors influencing Western Cape community service doctors' choice of whether to seek employment in public rural practice.	
DETAILS OF PRINCIPAL INVESTIGATOR (PI):	
Dr Tamryn Baytopp	HREC Reference No: S22/07/121
Full postal address: 8 Regent Park, 16 Smuts Avenue, Somerset West, 7130	PI Contact number:

I, Tamryn Baytopp (principal investigator), would like to invite you to take part in a research project which involves the completion of an online questionnaire. Your participation is entirely voluntary, and you are free to decline participation or stop completing the questionnaire at any time, even if you have agreed to take part initially.

The Health Research Ethics Committee at Stellenbosch University has approved this study. It has also been approved by the Western Cape Provincial Department of Health's Ethics Committee. The study will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, the South African Guidelines for Good Clinical Practice (2006), the Medical Research Council (MRC) Ethical Guidelines for Research (2002), and the Department of Health Ethics in Health Research: Principles, Processes and Studies (2015).

What is this research study all about?

This study is part of my Family Medicine MMed degree and aims to describe the important factors influencing Western Cape community service doctor's choice of whether they will seek employment in public rural practice.

Why do we invite you to participate?

You are being asked to participate because you are a community service doctor practicing in the Western Cape, and we are interested in the factors influencing your decision about where to work from the completion of this year.

What will your responsibilities be?

If you agree to participate you will be requested to complete a short online questionnaire with some demographic questions and then rate the importance of several factors influencing your decision.

Will you benefit from taking part in this research?

The potential benefits of this research are to highlight the most important influencing factors concerning the choice to work in public rural practice. This can then be used to inform management decisions to help improve the appeal of rural hospitals as a longer-term career option for young doctors thus decreasing the discrepancy in quality of health care between rural and urban areas.

Are there any risks involved in your taking part in this research?

Minimal risk has been identified.

If you do not agree to take part, what alternatives do you have?

Do not fill out the questionnaire.

Who will have access to the data collected?

Your confidentiality and identity will be respected in the analysis and reporting of the findings. No personal identifiers will be collected. Data will be stored securely for 5-years.

Will you be paid to take part in this study and are there any costs involved?

You will not be compensated for your participation. You can expect participation to take 15-20min of your time.

Additional information:

You can contact the principal investigator of this study, Tamryn Baytopp at ********** or *******@yahoo.com if you have any questions about this study or encounter any problems.

Declaration by participant

By answering 'yes' to the 1st question in the questionnaire I agree to take part in a research study entitled "Factors influencing Western Cape community service doctors' choice of whether to seek employment in public rural practice.".

I declare that:

- I have read this information and consent form and it is written in a language with which I am comfortable.
- I have had a chance to ask questions and I am satisfied that all my questions have been answered.
- I understand that taking part in this study is **voluntary,** and I have not been pressurised to take part.
- I may choose to leave the study at any time and nothing bad will come of it – I will not be penalised or prejudiced in any way.